CITY OF RIVER FALLS WISCONSIN
UTILITY ADVISORY BOARD AGENDA
CITY HALL – COUNCIL CHAMBERS
July 20, 2015

Call Meeting to Order: 6:30 p.m.
Roll Call
Approval of Minutes: June 15, 2015

ACTION MAY BE TAKEN ON ANY OF THE FOLLOWING ITEMS

PUBLIC COMMENTS:

CONSENT AGENDA:

1. Acknowledgement of the following minutes:
    a. POWERful Choices! – 06-11-15
    b. West Central Wisconsin Biosolids Facility Commission – 05-19-15

RESOLUTIONS:

2. 2014 Compliance Maintenance Annual Report
3. Hydro Expenditure Authorization for Sediment Study

REPORTS:

4. Finance Report
5. Utility Dashboards
    a. Electric
    b. Water
    c. Waste Water Treatment Plant
    d. Powerful Choices
6. Monthly Utility Report

ANNOUNCEMENTS:

ADJOURNMENT:

Post: 07-10-15

REGULAR MEETING
RIVER FALLS UTILITY ADVISORY BOARD
June 15, 2015 6:30 p.m.
Council Chambers, City Hall

The Regular Meeting of the River Falls Utility Advisory Board was called to order by President Hanson at 6:30 p.m. Present: Grant Hanson, Wayne Beebe, Diane Odeen, Tim Thum, and Adam Myszewski. Absent: Duane Pederson. Staff present: Kevin Westhuis, Utility Director; Kristi Hartmon, Administrative Assistant; Julie Bergstrom, Finance Director; Wes Arndt, WPPI; and David Keating, Civil Engineer

M/S Odeen/Beebe to approve minutes of the May 18, 2015 Regular Meeting. Motion Carried.

CONSENT AGENDA:

1. Acknowledgement of the following minutes:
    a. POWERful Choices!
    b. West Central Wisconsin Biosolids Facility Commission Meeting

M/S Odeen/ Myszewski to approve Consent Agenda. Motion Carried.

RESOLUTION

2. Resolution Number 2015-02 Authorizing Professional Services for the Power Plant Substation project. Utility Director Kevin Westhuis introduced David Keating, Civil Engineer with the City of River Falls as the project manager. David Keating has been working with David Krause from Krause Engineering who has done a lot of work for the City of River Falls Municipal Electric. Keating thanked the Utility Advisory Board for having him here and stated he is asking for the board to approve Krause Engineering for this project. Krause Engineering has been providing electrical engineering services for the City of River Falls since about 2008 and makes sense for them to do this project. David provided an outline of the project. The power plant located down on the river by the dam holds a 69 kilovolt transformer that's outdated and needs to be replaced. There are also some Xcel Energy components to the substation that are included within the substation right now as well as the hydroelectric power for the dam. This project would move everything other than the hydro power components out to a new substation yard directly adjacent to the existing one that's currently adjacent to the power plant. There's an empty lot to the north and the plan is to turn the empty lot into a new power plant substation so all the components can be located in that substation which will separate the power plant from all of the other power components. This project will be worked in conjunction with Xcel Energy; they have a big component as well and are doing about the same thing as RFMU for this project, so in the end you will see "if you can picture the north substation over by the coffee shop on Paulson and Main", it will be a similar type (a building with a fence around it). There will be two buildings, one will be an Xcel building and the other a River Falls building. Utility Director Westhuis stated that the timing of this project is to Engineer in 2015 / early 2016 and complete by the end of 2016. There will also be an interconnect with Dairyland Power that will be coordinated with this project as well. Westhuis stated that he is very confident with Krause Engineering and the work they have done with the City of River Falls and they have a

great connection with Xcel Energy. David Keating asked if there were any other questions on moving forward and again this was part of the capital improvement project plan for 2015/2016 with $700,000 allocated for the design in 2015. Diane Odeen moved to approve resolution number 2015-02 authorizing professional services for the power plant substation project, Grant Hanson seconded the motion, and the motion passed.

NEW BUSINESS:

3. **AMI Customer Portal Interface –** Wes Arndt, WPPI Representative presented on the exciting things that can be done with AMI metering and RFMU has 30 key customers that are now receiving the advanced meter infrastructure so they'll get 15 minute intervals of data on electric usage and it allows the customers themselves to see what their power is doing every day. Wes showed the UAB what the software (web portal called "my meter") can do and what customers can see. Wes first covered a few updates on large power customers on the advanced metering infrastructure project. Since the last meeting, EnergyIP training was held for metering and billing customer service staff. Staff used interval data to bill first group of customers, 13 meters installed as of June 9th, all meters communicating well and receiving all reads and resolved missing meter read communications. Next steps there are 16 meters to finish installing and should happen in the next couple weeks. Training continues on the energyIP software and in the meter installation, so once a week, WPPI organizes a web conference for RFMU staff involved. Once all the meters are installed, which is lining up fairly well with the roll out of the web portal which will be delivered to the large power customers through a breakfast meeting to demonstrate how to use the software. The web Portal is called mymeter, it's a product from a St. Paul based company called Accelerated Innovations and they have been doing software solutions for utilities and end users across the Midwest for several years. Mymeter will be available on the web as well as a mobile application for mobile devices and tablets. Wes showed several screens of the mymeter application. Data in this site will be one day old so customers would be able to view yesterday's electric usage. Wes stated that the site is very customizable. It shows hourly data as well as 15 minute data, often the most valuable data. Peak demand is billed on 15 minute intervals, so this information is very valuable for customers. Customers are also able to look at historical monthly data. This software has the capability to compare this year to last year. Utility staff can login in an impersonate mode to assist the customer. Another nice feature is notifications, the user can set thresholds to get automated text messages or emails if peak demand exceeds a certain value or usage consumption exceeds a certain value, so these thresholds can be changed and updated as much as you like. Wes stated this is a very powerful tool and very excited to roll out to the large power customer. This is a first step and only available to large power customers but see this as opportunity in the future as we have more members on AMI to roll this out to residential customers and small business customers as well. Wes asked the UAB if they had any questions. Diane Odeen asked what kind of feedback you have gotten from the large customers. Wes stated that they have not seen this yet and we are rolling it out the end of the month to them. Thum asked for each customer is there a limit to how many people can have access to this portal. Wes does not believe there is any limit to how many within an organization can have access to the portal. A date has not been chosen for the rollout breakfast for the large power customers, but should be the end of July, early August.

UPDATES:

4. Community Solar – Mike Noreen, Conservation and Efficiency Coordinator gave us an update on the Community Solar Project. Project background – Solar gardens "sprouting" up around the country, WPPI Energy awarded 2 pilot sites (River Falls and New Richmond), and purpose is to develop a template for WPPI members. Mike showed a map of the site (Sterling Ponds Corporate park area) where the 250KW community solar will be housed. This is in a conservation zoned area, a very steep slope that is otherwise pretty much unbuildable, there are storm water retentions and there is an infiltration basin near the site. Project status: finalizing contract documents; site agreement (developer and City of River Falls), WPPI Energy power purchase of output from developer and contractor – installation and maintenance. By the end of June, early July, WPPI will be submitting documents to the Public Service Commission for approval (main purpose to make sure there will be no subsidization by non-subscribers), retail and wholesale tariff filing. Have gone to the Planning Commission and City Council for a Special Use Permit and gained approval there. While waiting for the numbers (how much it will cost), a soft sell approach is used, raising awareness where customers can go for information. Information and an interest/sign-up form is located at www.rfmu.org/communitysolar. There is a FAQ on the website and will be holding an information workshop as well as have information at our Customer Appreciation Event on July 30th. RFMU will have a float at the River Falls Days Parade with solar panels on it and staff walking and handing out candy. Other details that are still be worked out: final costs, credit to customer and structure, helical pier foundations (corkscrew type), pollinator friendly plantings for under the community solar, backboard (one wall) where the inverters are on one side with a 4x8 area with education and customer recognition signage. Thum asked that in the packet it talks about H&H; have we partnered with them or is that in the works. Mike stated that there is still some paperwork that needs to be completed, but H&H Solar will be the company we will be working with for the project. Utility Director Westhuis stated that there will be an official developer's agreement between RFMU, H&H Solar and WPPI.

5. Finance Report was included in the packets for review. Bergstrom stated that the report shows a summary of electric, water and sewer funds for May. Julie stated a correction on the report that we didn't pay 1.1 million for a utility truck; it should have been $118,000. In total the price of the new truck was $187,000 so that is included in the electrical financial statements that will be moved onto the balance sheet shortly (in the next month or two) once all the costs are compiled, staff will move that off to an asset. In addition to what is in the report, (the water fund) there has been several leaks or repairs, including asphalt work this year. Kevin Westhuis stated that there were three water main breaks this year which is pretty typical for spring time. There were also expenses related to the Cross Connection Surveys including the purchase of hose bib backflow preventers. Some of the outstanding debt for the sewer fund for this month was paid and the Biosolids paid off some of their debt so those numbers are going down.

6. Utility Dashboards for Electric, Water, Wastewater and Powerful Choices were included in the UAB Packets.

7. Monthly Report. Utility Director Westhuis stated that the Monthly Report is included in the UAB packets and to let him know if you have any questions. Kevin gave an update on the Sycamore Water Tower Painting that we are now going to postpone in 2015. Two bids were received but both were very high ($818,000 and $669,000). We will be going out for bid in July 2015 for an early 2016 painting and hopefully get more competitive bids. Westhuis also announced that Greg Koehler was promoted through the full interview process to the new Water Lead in the Water Department.

ANNOUNCEMENTS:

ADJOURNMENT:

M/S Beebe/Myszewski moved to adjourn at 6:56 p.m. Unanimous.

Reported by: Kristi Hartmon, Administrative Assistant

_____

Wayne Beebe, Secretary

MINUTES
June 11, 2015
City Hall
12:00 p.m. – 1:00 p.m.

Committee members and guests present: Mike Noreen (RFMU), Kristi Hartmon (RFMU), Greg Koehler (RFMU), Wes Arndt (WPPI), Dave Engstrom (SCV-Habitat), Matt Fitzgerald (UWRF), Jim Cooper (SCV Habitat), Keri Schreiner (RF City), Mike Huth (RF City), Nathan Schilling (RF City), Don Richards (SCVH, RFBC), Susan Capparelli (SCVH), Dennis Schmidt (SCVH), Chuck Eaton (RFSD), Ken Thill (RF City), Nate Croes (RF City), Thomas "Tex" Reitter (Focus on Energy), Al Bohl, (Focus on Energy), Travis Jones (Focus on Energy), and Rhonda Davison (RFMU)

Greg Koehler moved and Wes Arndt seconded minutes of the 05/14/15 Committee Meeting. Motion Carried.

Mike Noreen thanked everyone for coming, and invited the committee to participate in the June 18th Blood Drive from 7:30 AM to Noon.

Mike introduced the Focus on Energy Representatives Travis Jones, Al Bohl, and Tex Reitter.

- Travis is the Trade Ally Representative: Travis has worked as an electrician and is familiar with the pains and frustrations that the trade allies experience especially with processing the necessary paperwork. Travis is available to assist the trade allies.
- Al Bohl is an Energy Advisor for schools, government and agricultural Customers: Al appreciates all the things that the River Falls POWERful Choices committee does to promote the Focus on Energy programs. He commented on the importance of getting the money back to the customers/rate payers because through rates they're paying for these programs.
- Tex Reitter is an Energy Advisor for large powers Customers: Tex is currently working on rebates that UWRF and Crystal Finishing may be eligible for.

1. Community Solar Update

Mike talked about changing the name of the program to Community Solar and dropping the word "garden". Mike handed out a timeline marketing plan and reminded everyone that River Falls and New Richmond community solar projects are pilot programs which mean we are breaking new ground and there are many unknown issues that come up causing delays and frustrations. One of the biggest problems is the unknown cost, making it difficult to market. Greater detail will be available upon approval from the Public Service Commission (PSC) toward the end of July. In the meantime the timeline for marketing is:

- June 29, 2015
  - Soft sell to residential customers currently currently participating in the renewable energy block program.
- July 16, 2015
  - Commercial/Industrial – Large Power Customer AMI Breakfast
- July 10, 2015

    - River Falls Day's Parade
    - Bill Inserts (July 10th and July 24th)
- July 30, 2015
    - Customer Appreciation Event
    - Evening Public Meeting
- Website
- Social Media (Facebook & Twitter)
- RF Community Television CH 16
- One Minute City Wrap
- River Falls Public Library
- Bill Messaging
- City Hall Front Lobby
- Follow-up once the program in complete

Questions and comments from group:

- Q: What will be planted under the panels?
- A: The plan is to have pollinator friendly mix planted
- Q: Safety & Security?
- A: Possibly installing some kind of cameras – Earth Cams were suggested as they recently helped Habitat with a recent theft.

2. Customer Appreciation Event

- Date: July 30, 2015 from
- Time: 11 AM to 1 PM
- Theme: Renewable Energy
- Give Away: Small Chargers that can recharge cell phones with RFMU logo
- Grand Prize: a Share of PVR

There was a group discussion about how to present/highlight the 3 types of renewable energy programs (Renewable Block, Non Profit, and Community Solar). The consensus of the group was to have 3 separate exhibits.

- Renewable Blocks (Rhonda Davison) – Give away LED bulbs to existing customers and to those that sign up on the spot.
- Non Profit (Wes Arndt) – Showcase the Congregational Church and Habitat for Humanity for recent solar installations with posters and brochures.
- Community Solar (Mike Noreen) – Have solar panel display that people can see and touch with brochures and promotional information.

It was suggested to give Ice Cream Tokens after customers visited each of the renewable exhibits, Passport Stamps were also suggested, and locating the exhibits near the garbage/recycling area to encourage people to visit these booths.

3. Other items of interest

- Town and Country Day's Sunday June 14th
- RF City – Mike Huth announced The Park Master Plan was recently approved
- SCV Habitat – Dave Engstrom announced that the last 2 homes are under construction.
- SCV Habitat – Dave Engstrom also has 1 home in the Eco Village that is almost net zero for the year.
- Focus on Energy – Tex spoke about an up and coming trend wall mounted rechargeable batteries manufactured by Tesla. The battery would be charged during off peak hours and use the power stored during peak hours reducing customer cost. These batteries can also be charged with renewable energy sources such as solar.

- RFSD – Chuck Eaton – Gave an update on the Meyer Middle School Weight Room project and encouraged members of the committee to check out the facility. They are applying for funds through Focus on Energy. This facility is used 6 periods per day during the school year and is also used by many of the athletic school groups for training and building a foundation of fitness.

Meeting minutes were taken by Rhonda Davison

WEST CENTRAL WISCONSIN BIOSOLIDS FACILITY
COMMISSION MEETING
May 19th 2015

Meeting was called to order by Gary Newton at 8:30 am.

Board Members Present: Gary Newton, Greg Engeset, John Bond, Kevin Westhuis, Steve Skinner.

Other Present: Chris Moan, Tom Johnson, Keri Schreiner, Eugene Laschinger.

Consent agenda: Bills for April totaling $229,978.56 passed. M/S Gary/John

April minutes was approved. M/S John/Gary

Financial Report

Report was given by Randy discussing the monthly expenses. Randy highlighted that a loan from River Falls had been paid off. Motion passed. M/S John/Kevin

Facilities Report

May facility report updated on Glen's return to work full time with no restrictions. The CEM solids analyzer has been certified as accurate. Mark attended Schwing Bioset KSP pump training. All employee personnel at the Biosolids have been through this training. Front drive shaft on the loader broke and has been repaired under warranty. Hauling of the end product is done for the season. There was about 600 ton left in the building. West garage door will not open with opener or chain pull. Repair has been scheduled. Three building service doors have been replaced to do rusting out. Doors replaced are control room, centrifuge entry, and hall door to process area. Air scrubber issue has been repaired and is now operating. Monthly pounds are up for the members and down for the non-members.

Old business

Chris Moan with Bu Teq updated on the diesel in the vapor test results. The testing company is sure it is diesel in the end product. There was some discussion on how that would be and what maybe be some sources for it getting into the sludge. Chris has started discussions with people on how to get end product to market. He is working to get a meeting scheduled with the DNR about what would be required of the end product to bring it to market. Approval of end product will require it be done through a batch drying process not flow through. In order to do this in large quantities, it will require a series of dryers calculated off volume of sludge to dry to meet drying demand. He highlighted some studies of the end product result usages. Chris is having Patz Equipment come to the Boisolids to discuss sludge delivery options to the Bu Teq Dryer. The question was asked about what is being done about a vapor air scrubber to capture condensation from dryer operation. There no answer about a scrubber.

Euegene Laschinger updated on Scada system project. He discussed the proposal for getting the project moving forward. He discussed the advertisement for Scada work and how that process will work. An outline of what will be required of bidders for the project. Discussed a timeline for project completion. Eugene recommended performing lime silo sensor scope of work separately for the Scada project and reasons for do so. He discussed options for addressing Afla control panel issues.

New Business

Randy talked about getting lime silo #2 up and running. He presented the board with a scope of repairs needed for this to happen. Randy stated funds were available for repairs a motion to perform repairs was made. Motion passed. M/S Greg/John

Long term plan started with update again that a loan from River Falls has been paid off. Short discussion about facility long term planning. The idea was stated that a time should be set to just discuss long term facility plans aside from monthly board meeting. A meeting pending to discuss long term planning and set to be hosted in New Richmond the first part of August.

Miscellaneous

Long term planning meeting to be hosted in New Richmond first part of August.

Adjournment

Meeting was adjourned at 10:50 am. M/S Kevin/John

Steve Skinner
Secretary

MEMORANDUM

To: Utility Advisory Board

From: Kevin Westhuis, Utility Director

Date: July 10, 2015

Re: **2014 Compliance Maintenance Annual Report**

INTRODUCTION

This memorandum provides the Utility Advisory Board with the details of the 2014 Compliance Maintenance Annual Report.

BACKGROUND

The Compliance Maintenance Annual Report (CMAR) has been an annual self-evaluation reporting requirement for publicly and privately owned domestic wastewater treatment works since 1987. Annual submittal of an electronic CMAR form no later than July 31 is required under Wisconsin Administrative Code NR 208 – Compliance Maintenance.

The purpose of this report is to evaluate the wastewater treatment system for problems or deficiencies and identify proposed actions to prevent violations of discharge permits and water quality degradation. This report is also a communication tool for identifying needs for future planning. It describes the management and physical condition of the wastewater treatment works during the previous calendar year, assesses system performance and requirements, provides an objective analysis to determine whether a more detailed evaluation of the wastewater facility is needed, and identifies proposed action necessary to maintain regulatory compliance.

DISCUSSION

Enclosed for your review is the CMAR for 2014. The Department of Natural Resources (DNR) has weighted factors so overall scores are not skewed by individual factors, such as plant age. The point calculation on the report indicates that our facility is in the voluntary range and has been so consistently. The grade of “A” requires a total score of 91-100 points. The chart on page 26 (second to the last page of the report) includes Table 1 of state code NR 208.05, showing the point and grading system for the CMAR. This score is a positive reflection on the effects of our

wastewater treatment plant crew and our water/sewer operations. Their commitment to maintaining a quality system is greatly appreciated.

CONCLUSION

It is requested by staff that the Advisory Board approve the attached resolution requesting the City Council approve the 2014 CMAR and authorization to submit the CMAR to the DNR. The City Council will review this report at their July 28, 2015 meeting.

RESOLUTION NO. 2015-04

REGARDING REVIEW OF
WASTEWATER TREATMENT PLANT
2014 COMPLIANCE MAINTENANCE ANNUAL REPORT

WHEREAS, the City of River Falls Wastewater Treatment and Sewer Collection staff completed the Compliance Maintenance Annual Report; and

WHEREAS, the point calculation values indicate the facility to be in the voluntary range; and

WHEREAS, the City of River Falls Utility Advisory Board has reviewed said report.

BE IT FURTHER RESOLVED that the City of River Falls Utility Advisory Board requests Common Council approve the Compliance Maintenance Annual Report for Report Year 2014 and authorize submission of the Compliance Maintenance Annual Report to the Department of Natural Resources.

Dated this 20th day of July, 2015.

_____
Grant Hanson, President

Attest:

_____
Lu Ann Hecht, City Clerk

Compliance Maintenance Annual Report

River Falls Municipal Utility Wwtf

Last Updated: 6/12/2015 Reporting For: 2014

Influent Flow and Loading

1. Monthly Average Flows and (C)BOD Loadings

1.1 Verify the following monthly flows and (C)BOD loadings to your facility.

Outfall No. 701	Influent Monthly Average Flow, MGD	x	Influent Monthly Average (C)BOD Concentration mg/L	x	8.34	=	Influent Monthly Average (C)BOD Loading, lbs/day
January	1.1446	x	237	x	8.34	=	2,260
February	1.2152	x	264	x	8.34	=	2,671
March	1.2756	x	250	x	8.34	=	2,663
April	1.3547	x	260	x	8.34	=	2,935
May	1.3554	x	219	x	8.34	=	2,476
June	1.5143	x	176	x	8.34	=	2,221
July	1.3905	x	194	x	8.34	=	2,249
August	1.2585	x	216	x	8.34	=	2,265
September	1.3561	x	258	x	8.34	=	2,915
October	1.3040	x	252	x	8.34	=	2,741
November	1.2481	x	264	x	8.34	=	2,749
December	1.2143	x	237	x	8.34	=	2,260

2. Maximum Month Design Flow and Design (C)BOD Loading

2.1 Verify the design flow and loading for your facility.

Design	Design Factor	x	%	=	% of Design
Max Month Design Flow, MGD	1.824	x	90	=	1.6416
		x	100	=	1.824
Design (C)BOD, lbs/day	3152	x	90	=	2836.8
		x	100	=	3152

2.2 Verify the number of times the flow and (C)BOD exceeded 90% or 100% of design, points earned, and score:

	Months of Influent	Number of times flow was greater than 90% of	Number of times flow was greater than 100% of	Number of times (C)BOD was greater than 90% of design	Number of times (C)BOD was greater than 100% of design
January	1	0	0	0	0
February	1	0	0	0	0
March	1	0	0	0	0
April	1	0	0	1	0
May	1	0	0	0	0
June	1	0	0	0	0
July	1	0	0	0	0
August	1	0	0	0	0
September	1	0	0	1	0
October	1	0	0	0	0
November	1	0	0	0	0
December	1	0	0	0	0
Points per each		2	1	3	2
Exceedances		0	0	2	0
Points		0	0	6	0
Total Number of Points					6

6

Compliance Maintenance Annual Report

River Falls Municipal Utility Wwtf

Last Updated: 6/12/2015 Reporting For: 2014

3. Flow Meter

3.1 Was the influent flow meter calibrated in the last year?

● Yes Enter last calibration date (MM/DD/YYYY) 4/16/2015

○ No

If No, please explain:

4. Sewer Use Ordinance

4.1 Did your community have a sewer use ordinance that limited or prohibited the discharge of excessive conventional pollutants ((C)BOD, SS, or pH) or toxic substances to the sewer from industries, commercial users, hauled waste, or residences?

● Yes

○ No

If No, please explain:

4.2 Was it necessary to enforce the ordinance?

○ Yes

● No

If Yes, please explain:

5. Septage Receiving

5.1 Did you have requests to receive septage at your facility?

Septic Tanks	Holding Tanks	Grease Traps
● Yes	● Yes	○ Yes
○ No	○ No	● No

5.2 Did you receive septage at your faclity? If yes, indicate volume in gallons.

Septic Tanks

● Yes 12,150 gallons

○ No

Holding Tanks

● Yes 90,850 gallons

○ No

Grease Traps

○ Yes 0 gallons

● No

5.2.1 If yes to any of the above, please explain if plant performance is affected when receiving any of these wastes.

Plant handled septage adequately

6. Pretreatment

6.1 Did your facility experience operational problems, permit violations, biosolids quality concerns, or hazardous situations in the sewer system or treatment plant that were attributable to commercial or industrial discharges in the last year?

○ Yes

● No

If yes, describe the situation and your community's response.

6.2 Did your facility accept hauled industrial wastes, landfill leachate, etc.?

○ Yes

- No

If yes, describe the types of wastes received and any procedures or other restrictions that were in place to protect the facility from the discharge of hauled industrial wastes.

Total Points Generated	6
Score (100 - Total Points Generated)	94
Section Grade	A

Compliance Maintenance Annual Report

River Falls Municipal Utility Wwtf

Last Updated: 6/12/2015 Reporting For: 2014

Effluent Quality and Plant Performance (BOD/CBOD)

1. Effluent (C)BOD Results

1.1 Verify the following monthly average effluent values, exceedances, and points for BOD or CBOD

Outfall No. 001	Monthly Average Limit (mg/L)	90% of Permit Limit > 10 (mg/L)	Effluent Monthly Average (mg/L)	Months of Discharge with a Limit	Permit Limit Exceedance	90% Permit Limit Exceedance
January	30	27	6	1	0	0
February	30	27	7	1	0	0
March	30	27	10	1	0	0
April	30	27	9	1	0	0
May	30	27	7	1	0	0
June	30	27	5	1	0	0
July	30	27	4	1	0	0
August	30	27	3	1	0	0
September	30	27	3	1	0	0
October	30	27	4	1	0	0
November	30	27	4	1	0	0
December	30	27	6	1	0	0
* Equals limit if limit is <= 10						
Months of discharge/yr				12		
Points per each exceedance with 12 months of discharge					7	3
Exceedances					0	0
Points					0	0
Total number of points						0

NOTE: For systems that discharge intermittently to state waters, the points per monthly exceedance for this section shall be based upon a multiplication factor of 12 months divided by the number of months of discharge. Example: For a wastewater facility discharging only 6 months of the year, the multiplication factor is 12/6 = 2.0

1.2 If any violations occurred, what action was taken to regain compliance?

0

2. Flow Meter Calibration

2.1 Was the effluent flow meter calibrated in the last year?

● Yes Enter last calibration date (MM/DD/YYYY) 4/16/2015

○ No

If No, please explain:

3. Treatment Problems

3.1 What problems, if any, were experienced over the last year that threatened treatment?

none

4. Other Monitoring and Limits

4.1 At any time in the past year was there an exceedance of a permit limit for any other pollutants such as chlorides, pH, residual chlorine, fecal coliform, or metals?

○ Yes

● No

If Yes, please explain:

4.2 At any time in the past year was there a failure of an effluent acute or chronic whole effluent toxicity (WET) test?

- ○ Yes
- ● No

If Yes, please explain:

4.3 If the biomonitoring (WET) test did not pass, were steps taken to identify and/or reduce source(s) of toxicity?

- ○ Yes
- ○ No
- ● N/A

Please explain unless not applicable:

Total Points Generated	
Score (100 - Total Points Generated)	
Section Grade	

Compliance Maintenance Annual Report

River Falls Municipal Utility Wwtf

Last Updated: 6/12/2015 Reporting For: 2014

Effluent Quality and Plant Performance (Total Suspended Solids)

1. Effluent Total Suspended Solids Results

1.1 Verify the following monthly average effluent values, exceedances, and points for TSS:

Outfall No. 001	Monthly Average Limit (mg/L)	90% of Permit Limit >10 (mg/L)	Effluent Monthly Average (mg/L)	Months of Discharge with a Limit	Permit Limit Exceedance	90% Permit Limit Exceedance
January	30	27	4	1	0	0
February	30	27	5	1	0	0
March	30	27	9	1	0	0
April	30	27	8	1	0	0
May	30	27	5	1	0	0
June	30	27	4	1	0	0
July	30	27	4	1	0	0
August	30	27	3	1	0	0
September	30	27	3	1	0	0
October	30	27	4	1	0	0
November	30	27	4	1	0	0
December	30	27	5	1	0	0
* Equals limit if limit is <= 10						
Months of Discharge/yr				12		
Points per each exceedance with 12 months of discharge:					7	3
Exceedances					0	0
Points					0	0
Total Number of Points						0

0

NOTE: For systems that discharge intermittently to state waters, the points per monthly exceedance for this section shall be based upon a multiplication factor of 12 months divided by the number of months of discharge.

Example: For a wastewater facility discharging only 6 months of the year, the multiplication factor is 12/6 = 2.0

1.2 If any violations occurred, what action was taken to regain compliance?

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

Compliance Maintenance Annual Report

River Falls Municipal Utility Wwtf

Last Updated: 6/12/2015

Reporting For: 2014

Effluent Quality and Plant Performance (Ammonia - NH3)

1. Effluent Ammonia Results

1.1 Verify the following monthly and weekly average effluent values, exceedances and points for NH3

Outfall No. 001	Monthly Average NH3 Limit (mg/L)	Weekly Average NH3 Limit (mg/L)	Effluent Monthly Average NH3 (mg/L)	Monthly Permit Limit Exceedance	Effluent Weekly Average for Week 1	Effluent Weekly Average for Week 2	Effluent Weekly Average for Week 3	Effluent Weekly Average for Week 4	Weekly Permit Limit Exceedance
January	5.7		.03369230	8 0					
February	5.7		.02138461	5 0					
March	5.7		.066	0					
April	5.7		.03928571	4 0					
May		2			.06433333	3016666	67 .041	.052666667	
June		2			.07333333	3049666	667433333	3.0805	
July		2			.02825	.06275	.07066666	7233333	3
August		2			.126	.062	.094	.076666667	
September		2			.118	.086	.04966666	7064666667	
October		2			.247	.0655	.07	.074333333	
November	5.7		.07238461	5 0					
December	5.7		.12546153	8 0					

Points per each exceedance of Monthly average:	10
Exceedances, Monthly:	0
Points:	0
Points per each exceedance of weekly average (when there is no monthly averge):	2.5
Exceedances, Weekly:	0
Points:	0
Total Number of Points	0

NOTE: Limit exceedances are considered for mothly OR weekly averages but not both. When a monthly average limit exists it will be used to detect exceedances and generate points. This will be true even if a weekly limit also exists. When a weekly average limit exists and a monthly limit does not exist, the weekly limit will be used to detect exceedances and gernate points.

1.2 If any violations occurred, what action was taken to regain compliance?

0

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Last Updated: 6/12/2015 Reporting For: 2014

Effluent Quality and Plant Performance (Phosphorus)

1. Effluent Phosphorus Results

1.1 Verify the following monthly average effluent values, exceedances, and points for Phosphorus

Outfall No. 001	Monthly Average phosphorus Limit (mg/L)	Effluent Monthly Average phosphorus (mg/L)	Months of Discharge with a Limit	Permit Limit Exceedance
January	1.5	.180322581	1	0
February	1.5	.240357143	1	0
March	1.5	.385806452	1	0
April	1.5	.312	1	0
May	1.5	.206774194	1	0
June	1.5	.236333333	1	0
July	1.5	.764193548	1	0
August	1.5	.581612903	1	0
September	1.5	.186133333	1	0
October	1.5	.176451613	1	0
November	1.5	.189666667	1	0
December	1.5	.219677419	1	0
Months of Discharge/yr			12	
Points per each exceedance with 12 months of discharge:				10
Exceedances				0
Total Number of Points				0

0

NOTE: For systems that discharge intermittently to waters of the state, the points per monthly exceedance for this section shall be based upon a multiplication factor of 12 months divided by the number of months of discharge.

Example: For a wastewater facility discharging only 6 months of the year, the multiplication factor is 12/6 = 2.0

1.2 If any violations occurred, what action was taken to regain compliance?

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Last Updated: 6/12/2015 Reporting For: 2014

Biosolids Quality and Management

1. Biosolids Use/Disposal

1.1 How did you use or dispose of your biosolids? (Check all that apply)

- ☐ Land applied under your permit
- ☐ Publicly Distributed Exceptional Quality Biosolids
- ☒ Hauled to another permitted facility
- ☐ Landfilled
- ☐ Incinerated
- ☐ Other

NOTE: If you did not remove biosolids from your system, please describe your system type such as lagoons, reed beds, recirculating sand filters, etc.

1.1.1 If you checked Other, please describe:

3. Biosolids Metals

Number of biosolids outfalls in your WPDES permit:

3.1 For each outfall tested, verify the biosolids metal quality values for your facility during the last calendar year.

Outfall No. 002 - SLUDGE TO WCWBF

Parameter	80% of Limit	H.Q. Limit	Ceiling Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	80% Value	High Quality	Ceiling
Arsenic											7.91						0	0
Cadmium											2.82						0	0
Copper											785						0	0
Lead											19.7						0	0
Mercury											.677						0	0
Molybdenum											25.3					0		0
Nickel											29.5					0		0
Selenium											11					0		0
Zinc											567						0	0

3.1.1 Number of times any of the metals exceeded the high quality limits OR 80% of the limit for molybdenum, nickel, or selenium = 0

Exceedence Points

- ● 0 (0 Points)
- ○ 1-2 (10 Points)
- ○ > 2 (15 Points)

3.1.2 If you exceeded the high quality limits, did you cumulatively track the metals loading at each land application site? (check applicable box)

- ○ Yes
- ○ No (10 points)
- ● N/A - Did not exceed limits or no HQ limit applies (0 points)
- ○ N/A - Did not land apply biosolids until limit was met (0 points)

3.1.3 Number of times any of the metals exceeded the ceiling limits = 0

Exceedence Points

- ● 0 (0 Points)
- ○ 1 (10 Points)
- ○ > 1 (15 Points)

3.1.4 Were biosolids land applied which exceeded the ceiling limit?

- ○ Yes (20 Points)
- ● No (0 Points)

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3.1.5 If any metal limit (high quality or ceiling) was exceeded at any time, what action was taken? Has the source of the metals been identified?	0
6. Biosolids Storage 6.1 How many days of actual, current biosolids storage capacity did your wastewater treatment facility have either on-site or off-site? ● >= 180 days (0 Points) ○ 150 - 179 days (10 Points) ○ 120 - 149 days (20 Points) ○ 90 - 119 days (30 Points) ○ < 90 days (40 Points) ○ N/A (0 Points) 6.2 If you checked N/A above, explain why.	0
7. Issues 7.1 Describe any outstanding biosolids issues with treatment, use or overall management:	

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Last Updated: 6/12/2015

Reporting For: 2014

Staffing and Preventative Maintenance (All Treatment Plants)

1. Plant Staffing

1.1 Was your wastewater treatment plant adequately staffed last year?

- ● Yes
- ○ No

If No, please explain:

Could use more help/staff for:

1.2 Did your wastewater staff have adequate time to properly operate and maintain the plant and fulfill all wastewater management tasks including recordkeeping?

- ● Yes
- ○ No

If No, please explain:

2. Preventative Maintenance

2.1 Did your plant have a documented AND implemented plan for preventative maintenance on major equipment items?

- ● Yes (Continue with question 2)
- ○ No (40 points)

If No, please explain, then go to question 3:

2.2 Did this preventative maintenance program depict frequency of intervals, types of lubrication, and other tasks necessary for each piece of equipment?

- ● Yes
- ○ No (10 points)

2.3 Were these preventative maintenance tasks, as well as major equipment repairs, recorded and filed so future maintenance problems can be assessed properly?

- ● Yes
  - ○ Paper file system
  - ○ Computer system
  - ● Both paper and computer system
- ○ No (10 points)

0

3. O&M Manual

3.1 Does your plant have a detailed O&M Manual that can be used as a reference when needed?

- ● Yes
- ○ No

4. Overall Maintenance /Repairs

4.1 Rate the overall maintenance of your wastewater plant.

- ● Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

Describe your rating:

Plant uses pro- active preventative maintenance program that is both documented by computer and hard copy eliminating many emergency maintenance situations

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Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Last Updated: 6/12/2015

Reporting For: 2014

Operator Certification and Education

1. Operator-In-Charge

1.1 Did you have a designated operator-in-charge during the report year?

- ● Yes (0 points)
- ○ No (20 points)

Name: Thomas Johnson

Certification No: 16210

0

2. Certification Requirements

2.1 In accordance with Chapter NR 114.08 and 114.09, Wisconsin Administrative Code, what grade and subclass(es) were required for the operator-in-charge to operate the wastewater treatment plant and what grade and subclass(es) were held by the operator-in-charge?

Required:

3 - ACEGIJ; A - PRIMARY SETTLING; C - ACTIVATED SLUDGE; E - DISINFECTION; G - MECHANICAL SLUDGE; I - PHOSPHORUS REMOVAL; J - LABORATORY

Held:

Grade 4 (A,G,I,J)
Grade 3 (C,E)

2.2 Was the operator-in-charge certified at the appropriate level to operate this plant?

- ● Yes (0 points)
- ○ No (20 points)

0

3. Succession Planning

3.1 In the event of the loss of your designated operator-in-charge, did you have a contingency plan to ensure the continued proper operation and maintenance of the plant that includes one or more of the following options (check all that apply)?

- ☒ One or more additional certified operators on staff
- ☐ An arrangement with another certified operator
- ☐ An arrangement with another community with a certified operator
- ☐ An operator on staff who has an operator-in-training certificate for your plant and is expected to be certified within one year
- ☐ A consultant to serve as your certified operator
- ☐ None of the above (20 points)

If "None of the above" is selected, please explain:

0

4. Continuing Education Credits

4.1 If you had a designated operator-in-charge, was the operator-in-charge earning Continuing Education Credits at the following rates?

Grades T, 1, and 2:

- ○ Averaging 6 or more CECs per year.
- ○ Averaging less than 6 CECs per year.

Grades 3 and 4:

- ● Averaging 8 or more CECs per year.
- ○ Averaging less than 8 CECs per year.

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Financial Management

1. Provider of Financial Information

Name: Tracy Biederman

Telephone: 715-426-3439 (XXX) XXX-XXXX

E-Mail Address (optional): tbiederman@rfcity.org

2. Treatment Works Operating Revenues

2.1 Are User Charges or other revenues sufficient to cover O&M expenses for your wastewater treatment plant AND/OR collection system ?

- ● Yes (0 points)
- ○ No (40 points)

If No, please explain:

2.2 When was the User Charge System or other revenue source(s) last reviewed and/or revised?

Year: 2012

- ● 0-2 years ago (0 points)
- ○ 3 or more years ago (20 points)
- ○ N/A (private facility)

2.3 Did you have a special account (e.g., CWFP required segregated Replacement Fund, etc.) or financial resources available for repairing or replacing equipment for your wastewater treatment plant and/or collection system?

- ● Yes (0 points)
- ○ No (40 points)

0

REPLACEMENT FUNDS [PUBLIC MUNICIPAL FACILITIES SHALL COMPLETE QUESTION 3]

3. Equipment Replacement Funds

3.1 When was the Equipment Replacement Fund last reviewed and/or revised?

Year: 2013

- ● 1-2 years ago (0 points)
- ○ 3 or more years ago (20 points)
- ○ N/A

If N/A, please explain:

3.2 Equipment Replacement Fund Activity

3.2.1 Ending Balance Reported on Last Year's CMAR		$	230,794.00
3.2.2 Adjustments - if necessary (e.g. earned interest, audit correction, withdrawal of excess funds, increase making up previous shortfall, etc.)		$	0.00
3.2.3 Adjusted January 1st Beginning Balance		$	230,794.00
3.2.4 Additions to Fund (e.g. portion of User Fee, earned interest, etc.)	+	$	60,221.00
3.2.5 Subtractions from Fund (e.g., equipment replacement, major repairs - use description box 3.2.6.1 below*)	-	$	0.00
3.2.6 Ending Balance as of December 31st for CMAR Reporting Year		$	291,015.00

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All Sources: This ending balance should include all Equipment Replacement Funds whether held in a bank account(s), certificate(s) of deposit, etc.

3.2.6.1 Indicate adjustments, equipment purchases, and/or major repairs from 3.2.5 above.

3.3 What amount should be in your Replacement Fund? $ 418,600.00

Please note: If you had a CWFP loan, this amount was originally based on the Financial Assistance Agreement (FAA) and should be regularly updated as needed. Further calculation instructions and an example can be found by clicking the HELP link under Info in the left-side menu.

0

3.3.1 Is the December 31 Ending Balance in your Replacement Fund above, (#3.2.6) equal to, or greater than the amount that should be in it (#3.3)?

○ Yes

● No

If No, please explain.

The replacement fund was reviewed and management chose the percentage method requiring 40% of the book value to be funded. The Utility has started to increase this fund as operating cash allows.

4. Future Planning

4.1 During the next ten years, will you be involved in formal planning for upgrading, rehabilitating, or new construction of your treatment facility or collection system?

● Yes - If Yes, please provide major project information, if not already listed below.

○ No

Project #	Project Description	Estimated Cost	Approximate Construction Year
1	Sanitary Sewer Pipe Lining - This is an ongoing budget item to maintain an annual sewer slip lining program. This will improve the performance and extend the useful life of our existing collection system.	160000	2015
2	Collection System Replacements - We are budgeting annually for ongoing sewer pipe replacements that are not able to be rehabilitated by slip lining. This will be an annual maintenance program for our system maintenance and adjusted for inflation.	54700	2015
3	Wastewater Treatment Improvements; we have included funds in the 2015 budget for site improvement and utilities.	500000	2015

5. Financial Management General Comments

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Sanitary Sewer Collection Systems

1. CMOM Program

1.1 Do you have a Capacity, Management, Operation & Maintenance (CMOM) requirement in your WPDES permit?

- ● Yes
- ○ No

1.2 Did you have a documented (written records/files, computer files, video tapes, etc.) sanitary sewer collection system operation & maintenance (O&M) or CMOM program last calendar year?

- ● Yes (Continue with question 1)
- ○ No (30 points) (Go to question 2)

1.3 Check the elements listed below that are included in your O&M or CMOM program.

☒ Goals

Describe the specific goals you have for your collection system:

There is a five year CIP plan for lining, manhole refurbishing, and any other necessary maintenance issues.

☒ Organization

Do you have the following written organizational elements (check only those that apply)?

- ☒ Ownership and governing body description
- ☒ Organizational chart
- ☒ Personnel and position descriptions
- ☒ Internal communication procedures
- ☒ Public information and education program

☒ Legal Authority

Do you have the legal authority for the following (check only those that apply)?

- ☒ Sewer use ordinance Last Revised Date (MM/DD/YYYY) 10/12/2005
- ☒ Pretreatment/industrial control Programs
- ☒ Fat, oil and grease control
- ☒ Illicit discharges (commercial, industrial)
- ☒ Private property clear water (sump pumps, roof or foundation drains, etc.)
- ☒ Private lateral inspections/repairs
- ☒ Service and management agreements

☒ Maintenance Activities (provide details in question 2)

☒ Design and Performance Provisions

How do you ensure that your sewer system is designed and constructed properly?

- ☒ State plumbing code
- ☒ DNR NR 110 standards
- ☒ Local municipal code requirements
- ☒ Construction, inspection, and testing
- ☐ Others:

☒ Overflow Emergency Response Plan:

Does your emergency response capability include (check only those that apply)?

- ☒ Alarm system and routine testing
- ☒ Emergency equipment
- ☒ Emergency procedures
- ☒ Communications/notifications (DNR, internal, public, media, etc.)

☒ Capacity Assurance:

How well do you know your sewer system? Do you have the following?

- ☒ Current and up-to-date sewer map

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☒ Sewer system plans and specifications
☒ Manhole location map
☒ Lift station pump and wet well capacity information
☒ Lift station O&M manuals

Within your sewer system have you identified the following?

☒ Areas with flat sewers
☒ Areas with surcharging
☒ Areas with bottlenecks or constrictions
☒ Areas with chronic basement backups or SSOs
☒ Areas with excess debris, solids, or grease accumulation
☒ Areas with heavy root growth
☒ Areas with excessive infiltration/inflow (I/I)
☒ Sewers with severe defects that affect flow capacity
☒ Adequacy of capacity for new connections
☒ Lift station capacity and/or pumping problems

0

☒ Annual Self-Auditing of your O&M/CMOM Program to ensure above components are being implemented, evaluated, and re-prioritized as needed

☒ Special Studies Last Year (check only those that apply):

☒ Infiltration/Inflow (I/I) Analysis
☒ Sewer System Evaluation Survey (SSES)
☒ Sewer Evaluation and Capacity Managment Plan (SECAP)
☒ Lift Station Evaluation Report
☐ Others:

2. Operation and Maintenance

2.1 Did your sanitary sewer collection system maintenance program include the following maintenance activities? Complete all that apply and indicate the amount maintained.

Cleaning	16	% of system/year
Root removal	16	% of system/year
Flow monitoring	0	% of system/year
Smoke testing	0	% of system/year
Sewer line televising	16	% of system/year
Manhole inspections	80	% of system/year
Lift station O&M	365	# per L.S./year
Manhole rehabilitation	0	% of manholes rehabbed
Mainline rehabilitation	0	% of sewer lines rehabbed
Private sewer inspections	1	% of system/year
Private sewer I/I removal	0	% of private services

Please include additional comments about your sanitary sewer collection system below:

3. Performance Indicators

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3.1 Provide the following collection system and flow information for the past year.

20.76	Total actual amount of precipitation last year in inches
32.83	Annual average precipitation (for your location)
61.23	Miles of sanitary sewer
5	Number of lift stations
0	Number of lift station failures
0	Number of sewer pipe failures
0	Number of basement backup occurrences
0	Number of complaints
1.302	Average daily flow in MGD (if available)
1.556	Peak monthly flow in MGD (if available)
	Peak hourly flow in MGD (if available)

3.2 Performance ratios for the past year:

	Lift station failures (failures/year)
	Sewer pipe failures (pipe failures/sewer mile/yr)
	Sanitary sewer overflows (number/sewer mile/yr)
	Basement backups (number/sewer mile)
	Complaints (number/sewer mile)
	Peaking factor ratio (Peak Monthly:Annual Daily Avg)
	Peaking factor ratio (Peak Hourly:Annual Daily Avg)

4. Overflows

LIST OF SANITARY SEWER (SSO) AND TREATMENT FACILITY (TFO) OFERFLOWS REPORTED **				
	Date	Location	Cause	Estimated Volume (MG)
None reported				

** If there were any SSOs or TFOs that are not listed above, please contact the DNR and stop work on this section until corrected.

5. Infiltration / Inflow (I/I)

5.1 Was infiltration/inflow (I/I) significant in your community last year?

- ● Yes
- ○ No

If Yes, please describe:

Heavy rains cause significant flow increases and an increase of grit

5.2 Has infiltration/inflow and resultant high flows affected performance or created problems in your collection system, lift stations, or treatment plant at any time in the past year?

- ● Yes
- ○ No

If Yes, please describe:

It caused increase pumping hours at lift stations and the WWTP

5.3 Explain any infiltration/inflow (I/I) changes this year from previous years:

lining of sewers has helped

5.4 What is being done to address infiltration/inflow in your collection system?

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Videoing and grading the condition for which sewers need lining next

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	A

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Grading Summary

WPDES No: 0029394

SECTIONS	LETTER GRADE	GRADE POINTS	WEIGHTING FACTORS	SECTION POINTS
Influent	A	4	3	12
BOD/CBOD				
TSS	A	4	5	20
Ammonia	A	4	5	20
Phosphorus	A	4	3	12
Biosolids	A	4	5	20
Staffing/PM	A	4	1	4
OpCert	A	4	1	4
Financial	A	4	1	4
Collection	A	4	3	12
TOTALS			27	108
GRADE POINT AVERAGE (GPA) = 4				

Notes:

A = Voluntary Range (Response Optional)

B = Voluntary Range (Response Optional)

C = Recommendation Range (Response Required)

D = Action Range (Response Required)

F = Action Range (Response Required)

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Resolution or Owner's Statement

Name of Governing Body or Owner:

Date of Resolution or Action Taken:

Resolution Number:

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO SPECIFIC CMAR SECTIONS (Optional for grade A or B. Required for grade C, D, or F. Regardless of grade, required for Collection Systems if SSOs were reported):

Influent Flow and Loadings: Grade = A

Effluent Quality: BOD: Grade =

Effluent Quality: TSS: Grade = A

Effluent Quality: Ammonia: Grade = A

Effluent Quality: Phosphorus: Grade = A

Biosolids Quality and Management: Grade = A

Staffing: Grade = A

Operator Certification: Grade = A

Financial Management: Grade = A

Collection Systems: Grade = A

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO THE OVERALL GRADE POINT AVERAGE AND ANY GENERAL COMMENTS (Optional for G.P.A. greater than or equal to 3.00, required for G.P.A. less than 3.00)

G.P.A. = 4

MEMORANDUM

TO: Utility Advisory Board

FROM: Raymond French, Management Analyst

DATE: July 20, 2015

TITLE: **Hydro Expenditure Authorization for Sediment Study**

RECOMMENDED ACTION

Adopt the resolution approving an agreement for a sediment analysis with Inter-Fluve to not exceed $49,689.

BACKGROUND

As part of the federal hydroelectric relicensing process, stakeholders submitted study requests for the project to inform a license application. Among the many suggested areas for study, perceived and real issues related to sediment management at the two impoundments were identified as a need for further study. There is currently $100,000 budgeted in the 2015-2019 Capital Improvement Plan for hydroelectric relicensing studies in 2015-2016.

In fall 2014, the City retained a hydroelectric licensing consultant to provide an analysis of licensing options available to the City and the costs associated with each. They included continuing with relicensing at one or both facilities, surrendering the license and leaving one or both facilities in place, and removing both dams. The potential cost for sediment management in the case of dam removal was the primary unknown that led to the greatest variation in costs.

On January 13, 2015, the River Falls City Council adopted Resolution 5906 that requires prior approval of the Utility Advisory Board for expenditures for the hydroelectric facilities of $5,000 or greater. The same resolution also endorsed a Kinnickinnic River Corridor Planning process that called for preliminary studies to inform the community decision of whether to continue generating power at one or both hydroelectric facilities.

As the City continued on the path of seeking a licensing extension and gearing up for the Kinnickinnic River Corridor Plan process, staff continued to meet with stakeholders to gather input on the highest-priority studies. Settling questions related to sediment management was identified as one of the highest priorities.

The primary goal of the sediment analysis is to identify the costs and methods for sediment management if the city were to pursue dam removal in the future at one or both hydroelectric facilities. A request for proposals (RFP) for sediment analysis was draft to reflect this goal and was published on June 25, 2015.

With suggestions from staff and stakeholders, proposals were solicited from five firms. They included Barr Engineering (Minneapolis, MN); Braun Intertec (St. Paul, MN); Inter-Fluve (Madison, WI); TRC (Madison, WI); and Wenck Associates (Maple Plan, MN). Proposals were received from all five firms by the deadline of July 7, 2015. A brief summary of the proposals is attached to this report.

A small group of staff and stakeholders met to discuss the proposals and come to consensus on a recommendation to the Utility Advisory Board. Included in that group was Brian Hatch (Hydroelectric Operator); Reid Wronski (City Engineer); Ray French (Management Analyst); Dr. Jill Coleman Wasik (UWRF Faculty); Dave Fodroczi (Kinnickinnic River Land Trust); Dan Wilcox (Trout Unlimited; and Michael Page (Friends of the Kinni).

RECOMMENDATION

The group of City staff and stakeholders agreed that the proposal from Inter-Fluve, Inc (Madison, WI) is the most competitive and recommends the Utility Advisory Board approve an agreement for sediment analysis services. The proposal is also attached to this report.

The primary evaluation criteria for the group was (1) the demonstrated ability of the bidder to perform the work necessary to achieve the goals of the project; (2) the experience of the firm and individuals to perform the work of the project in Wisconsin; and (3) the proposed price and terms of the agreement.

The proposal review group evaluated each of the proposals with the above criteria and discussed the various approaches each proposal took in studying the volume and composition of the sediment as part of this analysis and in preparing the final technical report to the City. There was also an emphasis on experience in projects of similar size and scale.

The proposal from Inter-Fluve was identified to provide the best value for the services rendered and that they are best able to perform the work necessary to achieve the goals of the project. They have proposed a phased approach for studying the volume of sediment and working with the Wisconsin Department of Natural Resources to identify the best number of samples for laboratory analysis. Unique to Inter-Fluve was a proposal to also study sediment mobility, which can help better determine strategies for sediment management for dam removal.

Inter-Fluve's proposal also discussed their experience in Wisconsin, working with the DNR, and demonstrating a range of experience for projects that are either rural or urban and industrialized, which is similar to the character of River Falls. Given their experience on

working with communities to design river corridors, they can effectively guide the City on how the data collected and possible future sediment management strategies may impact the Kinnickinnic River Corridor Plan. They also uniquely offered to advise on providing cost estimates for sediment management in both dam removal and dam in-place scenarios.

Finally, there was discussion on the unknown number of samples needed and the costs associated with that process. The proposal identifies a likelihood of 13 samples to be taken at a maximum cost of $1,500 each. The final number of samples will be determined in conjunction with the WisDNR, and the costs for each sample analysis will vary based on the requirements for the breadth of the test. $1,500 for 13 samples is a conservative estimate and is unlikely to be the final cost for sediment sampling. Therefore, staff recommends the agreement provide for the project to not exceed the conservative estimate.

FINANCIAL CONSIDERATIONS

The agreement with Inter-Fluve will be written to not exceed the cost estimate of $49,689. Staff is optimistic that the final total for the analysis will be less if fewer samples are needed and less breadth in the laboratory analysis.

The funds for this study are budgeted in the Capital Improvement Plan for 2015. If any additional funds are needed or requested for this study, the request will be brought before the Utility Advisory Board and City Council.

CONCLUSION

Staff and stakeholders reviewed proposals for sediment analysis from five well qualified firms. The consensus was to provide a recommendation to the Utility Advisory Board for pursuing an agreement with Inter-Fluve to provide this study. Staff recommends approval of the attached resolution.

RESOLUTION NO. 2015-05

RESOLUTION APPROVING AN AGREEMENT WITH INTER-FLUVE FOR SEDIMENT ANALYSIS

WHEREAS, on January 13, 2015, the River Falls City Council adopted Resolution 5906 that requires prior approval of the Utility Advisory Board for expenditures for the hydroelectric facilities of $5,000 or greater; and

WHEREAS, the River Falls City Council also endorsed a Kinnickinnic River Corridor Planning process that called for preliminary studies to inform the process to be completed in 2015; and

WHEREAS, there is $100,000 budgeted in the 2015-2019 Capital Improvement Plan for hydroelectric relicensing studies in 2015-2016; and

WHEREAS, staff, in consultation with stakeholders, identified an analysis of the sediment in both reservoirs that identifies potential costs for sediment management as a high-priority study to be completed in 2015; and

WHEREAS, staff, in consultation with stakeholders, prepared a Request for Proposals for Sediment Analysis and received proposals from five qualified firms; and

WHEREAS, a group of staff and stakeholders met to review the proposals and determined the proposal by Inter-Fluve provided the best value for the services rendered and that they were best able to perform the work necessary to achieve the goals of the project; and

WHEREAS, staff and stakeholders recommend that the Utility Advisory Board approve an agreement with Inter-Fluve for sediment analysis not to exceed $49,689, which was the maximum cost for the project, including for analysis of 13 samples;

NOW, THEREFORE, BE IT RESOLVED that the City of River Falls Utility Advisory Board hereby approves an agreement with Inter-Fluve for sediment analysis services not to exceed $49,689.

Dated this 20th day of July, 2015.

_____

Grant Hanson, President

ATTEST:

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Lu Ann Hecht, City Clerk

	Barr Engineering	Braun Intertec	Inter-Fluve	TRC Solutions	Wenck Associates
Lake George					
Bathymetric Survey	Yes	Validate 2006 data with depth checks	Update Lake George sediment depth data	Previous studies will be incorporated into data evaluation	Yes
Lake Louise					
Bathymetric Survey	Yes	Yes	Yes	Yes + hydrographic & sub-bottom survey	Yes
Sediment Sampling					
Scope	Based on WiDNR draft sediment sampling and analysis doc dated May 2015.	Based on WiDNR draft sediment sampling and analysis doc dated May 2015.	Internal guidelines developed from WiDNR and EPA guidelines	Developed in consultation with DNR	Based on WiDNR draft sediment sampling and analysis doc dated May 2015.
Number of Cores - Location	6 (3 per lake)	12 (6 per lake)	Unknown	6 (3 per lake)	12 (6 per lake)
Number of Samples - Tests	18 (3 per core)	24 (two per core)	Minimum of 13	2 (1 composite per lake)	Unknown
Cost Structure					
Reported by task	Yes	Yes	Yes	Yes	Yes
Project Total	$39,030	$59,340	$29,803 + $1,500 per sample	$49,000	$35,200
Optional Bid Item	No additional charge	Not addressed	$650	Included, but add'l method for $8,200	$6,900
Representative WI Projects					
Location	Iron River, Bayfield County, WI St. Croix River, WI Kinnickinnic River (Milwaukee), WI Balsam Lake, WI	Balsam Lake, WI Bone Lake Canal, WI	Centerville Creek, WI* Algoma, WI* Big Spring Creek, WI Franklin Dam, WI Mill Creek, WI Nemahbin Dam, WI Newburg Dam, WI Trout Creek, WI	Baraboo River, WI* Rib River, WI Maintowoc River, WI Sturgeon Bay, WI Newton Creek, WI Additional	None listed in Project Examples, but listed in personal resume experience
Project Profiles Included	Yes	No	Yes for *	Yes for *	No
Primary Contacts	Tom MacDonald Kevin Menken John Juntilla Jim Straberg	Becky McCarty Mark A. Ciampone Douglas Bergstrom	Marty Melchior Beth Wentzel Ben Swanson Charlie Phillips	Katherine Vater Kristopher Krause	Joel Toso Jeffrey Strom Brian Beck
Partner Organizations	None stated	*Tetra Tech* - bathymetric survey of Lake Louise *Pace Analytical* - sediment sample analysis	*Pace Analytical* - sediment sample analysis	*J.F. Brennan Co* - hydrographic survey of Lake Louise	None stated
Evaluation criteria: (1) Demonstrated ability of the bidder to perform the work necessary to achieve the goals of the project; (2) Experience of the firm and individuals to perform the work of the project in Wisconsin; (3) Proposed price and terms of the agreement.					

July 5, 2015

Applied River and Wetland Restoration
Founded 1983

Ray French
City of River Falls
222 Lewis Street
River Falls, WI

RE: Response to Request for Proposal – Sediment Analysis

Dear Ray,

Thank you for allowing us the opportunity to submit a proposal for the sediment analysis in the Lake George and Lake Louise impoundments on the Kinnickinnic River in River Falls. We have been following this project for some time, and are very interested in helping the City proceed forward in the best way possible. Our involvement to date includes extensive review of previous documentation, attendance at select meetings, and continued discussions with the City and watershed partners.

Inter-Fluve is a nationally-recognized leader in river restoration, and this has been our sole focus for more than 30 years over 1,600 river restoration projects. Our dam removal expertise includes over 60 dam removal and fish passage projects nationwide, involving sediment analysis, removal and post removal river restoration assessment and design. We have an in-depth knowledge of dam sediment and how to manage sediment in any kind of dam removal or modification scenario. All of our dam removal designs have included sediment analysis and management of some kind, and we have been involved with developing guidelines for dam removal sediment management on a federal and state level.

Given a notice to proceed, Inter-Fluve can complete the sediment data collection during low flow, likely in July or August, and we anticipate analysis and presentation of findings in the early Fall 2015. Our budget is presented as a total by task for sediment volume estimation and planning for sediment sampling, combined with a unit cost for each proposed contaminant sample.

We think that our qualifications are an excellent fit for this project. We look forward to working with you on this phase of this important project. Thank you for considering our qualifications and please contact me if you have any questions.

Kindest regards,

Marty Melchior
Regional Director
Inter-Fluve, Inc.
301 South Livingston Street
Madison, WI 53703
608-354-8260
mmelchior@interfluve.com

PROPOSAL AND SCOPE OF WORK

River Falls Dams Sediment Analysis

Submitted to

Ray French
Management Analyst
City of River Falls, WI
54022

Submitted by
Inter-Fluve, Inc.

Primary Contact:
Marty Melchior
Inter-Fluve, Inc.
301 South Livingston, Suite 200
Madison, WI 53703
Cell: (608) 354-8260

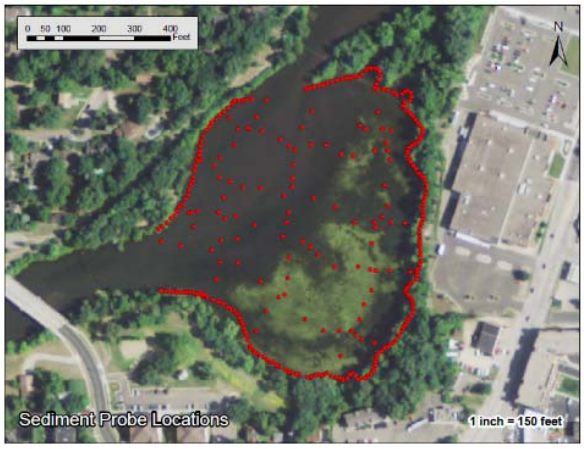
Email: mmelchior@interfluve.com

July 5, 2015

PROJECT UNDERSTANDING AND APPROACH

It is our understanding that the City of River Falls currently holds a license from the Federal Energy Regulatory Commission (FERC) to operate the hydroelectric facilities at the Junction Falls (Upper) and Powell Falls (Lower) Dams. The City recently completed an evaluation of the FERC relicensing process and is now pausing relicensing in order to fully evaluate alternatives and gather information to aid in the community decision process. In order to better understand the dam removal alternative and to fully assess risks associated with possible contamination in the existing impoundment sediment, the City of River Falls has requested proposals for assessing the quantity and character of the impounded sediment at both dams. Our approach to this project and scope of work is to help guide the City through the sediment evaluation process, provide accurate information regarding sediment volume and character, answer questions and provide support to the Kinnickinnic River Corridor community planning process.

Inter-Fluve understands the regulatory aspects of the FERC decommissioning process, and can communicate with FERC to ensure that the assessment includes collection of the necessary data for either renewal or surrender of the license. If a dam is decommissioned, FERC requires an assessment and identification of all infrastructure and impoundment features, and also a description of how demolished or removed features will be disposed. Increasingly, as more dams are removed, this has included a solid understanding of impoundment sediment. A Decommission Plan must include a thorough evaluation of environmental impacts of any sediment and a plan for managing the sediment. If relicensing continues, FERC may impose conditions such as the cleanup of any contaminated sediment. The scope and budget we've provided allows for further discussion and clarification between the City, the WDNR and Inter-Fluve.



Above: Survey point distribution from the 2006 hard bottom survey (J. Downing 2006)

Bathymetric and Sediment Survey – We understand that the City wishes to utilize previously collected bathymetric and sediment depth data to the extent possible. Because rivers transport sediment continually, and impoundment vegetation decay contributes to sediment accumulation, our scope includes a checking of 2006 bathymetric and depth of refusal data, as well as additional transects along the right and left edge of the impoundment to better characterize possible historic channel locations. have reviewed the point file data for hard bottom or depth of refusal data collected by J. Downing in 2006 (See Figure above). Northing, easting and elevation data are available for each surveyed point, and can be imported into AutoCAD Civil 3D to create a rough surface. However, there is not enough point data to create an accurate picture of the historic channel alignment, which could be located on either the left or right sides of the impoundment based on the data available. Additional data will need to be collected to both verify the actual elevations and to determine historic channel location. Updated sediment depth also needs to be collected between the main body of the impoundment and the dam structure (no data exists). This area may contain a significant amount of sediment that, given the geomorphology of the gorge, will likely be fully mobilized upon removal.

Our approach will be to update Lake George sediment depth data, collect sediment depth data for Lake Louise, and collect updated bathymetric data for both impoundments. Following typical engineering due diligence for dam removal, the best approach for the City will be to develop sediment volume calculations

with an updated bathymetric surface. It should be noted that if we are surveying for sediment depths, the cost of developing the updated bathymetric surface is minor. We can utilize boat mounted side scan sonar and can collect bathymetry in any waters >2 ft in one day of effort per dam. Shallow waters can be surveyed with GPS-RTK or total station.

Based on previous reports, the impoundment sediments involved are mainly fine sediment and organic deposition that can be manually probed. Inter-Fluve plans to use our depth of refusal probes (either flexible graphite or steel rods) to both find the historic channel bottom *and* historic floodplain surface, and determine the relative size of bed material (sand, gravel, cobble, bedrock). We recommend approximately 10 transects in the Lake Louise impoundment, extending upstream far enough to encompass the upper limit of the topset bed. We also recommend transects spanning possible historic channel alignment areas in the Lake George impoundment. Each transect will include sediment probes at 10-15 locations across each section, with higher density in areas where we suspect historic channel locations. We will collect channel bed and historic bank data. Depth to bedrock may only be encountered at select thalweg locations, and so determining historic bank and floodplain features in softer sediment requires a high level of sensitivity that comes with experience. Some locations will be manually cored to determine historic floodplain soil conditions. Surveying will be conducted at low flow and with the proper precautions to reduce risk to Inter-Fluve staff. Local controls will be set via GPS-RTK and will be based on established controls obtained from the City of River Falls engineering.

Above: Inter-Fluve staff conducts depth of refusal probing in soft sediments of a dam impoundment

Sediment Volume Estimation – Sediment volume estimation will be completed in AutoCAD Civil 3-D by comparing bathymetric surfaces with the surface developed through depth of refusal probing. These data will be combined with local LiDAR data to develop a colorized basemap of both bathymetric depths and impoundment sediment depths. The resulting report will include a plan view of the sites with each transect shown as a cross-section showing water surface, top of sediment and historic bed/floodplain surfaces.

Sediment Mobility – In order to determine sediment management strategies for removal, it is important to examine how much of the impounded sediment is likely to move under given flood scenarios. Inter-Fluve will run basic sediment transport calculations in a simplified 1-D hydraulic model to determine channel velocities and shear stresses during drawdown, and we will estimate the volume of sediment that could be transported under various flows. Sediment movement in rivers is event based, and so timing is not predictable. However, we can estimate under what flows the sediment will move, and where that sediment will eventually deposit. This requires an in-depth understanding of sediment transport, hydraulics and fluvial geomorphology.

Sediment Sampling Plan – Inter-Fluve's initial discussions between the City of River Falls, the WDNR FERC coordinator and WDNR sediment quality specialists indicate that the WDNR prefers a staged approach to the assessment, whereby sediment volume is assessed and will inform the sediment sampling strategy and the regulatory actions required for management of the sediment (e.g. solid waste disposal regulations). Inter-Fluve has worked with the Wisconsin DNR on sediment sampling and testing for stream restoration and also for several impoundments, including the Algoma, Centerville, Newburg, Grafton,

Nemahbin, and Big Spring dam removals. Inter-Fluve will communicate with the Wisconsin DNR regarding the sequencing of sediment sampling and testing. The first phase of the process is sediment volume estimation. Once sediment volume is determined, the next important phase of the sediment management process, and one that we include in this scope of work, is to develop a *Sediment Sampling Plan* (SSP). In addition to sediment core locations, the WDNR may allow pooling of samples, whereby several core samples in an area can be combined into one laboratory sample to give a general presence or absence by area. Stratification is sometimes also recommended in cases where the upper sediment strata are finer and the lower coarse sand or gravel. Fine sediment retains contaminants more readily than coarse material. Stratification involves separating core samples into these upper and lower strata. This increases laboratory fees, as the number of testing samples increases, but can greatly reduce management costs if only the upper strata need to be removed. The SSP will include survey points for sediment volume estimation (map with sections), sediment volume calcs, a relative facies map of sediment types encountered, and sediment sampling details such as sample location, pooling, stratification and laboratory analysis. This relatively short document (5-6 pages) is developed in coordination with the City and the WDNR, so that there are no surprises. The WDNR and the City will ultimately approve the final document, which is then used as the project guidance document for actual sampling and testing.

Above: Inter-Fluve has surveyed hundreds of rivers and dozens of impoundments. Here, Greg Orum surveys the Simkins Dam in Maryland.

Cost Estimates – Inter-Fluve will develop conceptual cost estimates for actively removing sediment, passively allowing the sediment to move downstream, and a recommended combined approach that best suits the project needs and regulatory constraints. Active removal costs will be determined for both in-place and dam removal scenarios. Inter-Fluve has extensive experience in estimating dam removal and sediment management costs. Climate effects on hydrology, post-recession cost increases from contractors, and local constraints will need to be taken into account, and Inter-Fluve can draw from numerous bid tabs over the past few years.

Public stakeholder meetings – For this proposal, we include time for two public meetings. The first public meeting will be to inform the public about the proposed sediment investigations. With any dam removal project, good public relations begin with transparency and detailed information. We will help maintain the City of River Falls' good faith efforts to be up front and informative. This first meeting will present proposed survey maps, typical contaminant testing methods and detail to the citizens exactly how the work will be performed. The second meeting will be held after the final report is issued to disseminate collected information and results, answer questions and provide technical support to the City. Meetings will include a PowerPoint presentation of plans or findings. We also include hours for conference calls with the City. Inter-Fluve is familiar with the efforts of the Friends of the Kinnickinnic River, Trout Unlimited and the Kinnickinnic River Land Trust, and we understand the issues surrounding sediment, dam removal impacts, fish habitat and community aesthetics. We have *extensive* experience mediating and facilitating in dam removal related public meetings, and can offer suggestions on meeting format and facilitation to get the best results.

Deliverables – Inter-Fluve will present the findings of the above outlined tasks as Technical Memoranda, including text, maps and electronic files. Posters or PowerPoint presentations can be added as needed. All Tech Memos will be compiled into a final report that includes recommendations and cost estimates as described above.

Sediment Sampling Plan, Sampling and Testing – The question of the existing impoundment sediment toxicity is one that is raised repeatedly and can be answered with adequate data collection and analysis. As mentioned above, Inter-Fluve will first develop a draft *Sediment Sampling Plan* (SSP), then meet with Wisconsin DNR and the City of River Falls to discuss sediment sampling parameters before finalizing the SSP. Inter-Fluve has developed internal Standard Operating Procedures and Guidelines for impoundment sediment core sampling, sample handling and chain of custody, and we will review these with the City. These guidelines are taken largely from the State of Wisconsin sampling guidelines and are generally in accordance with standard protocols as presented in US- EPA-823-B-01-002, 2001, *Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analysis: Technical Manual*. Laboratory analysis will follow the guidelines set forth in the WIDNR document entitled *Consensus-Based Sediment Quality Guidelines; Recommendations for Use & Application Interim Guidance*. This document was developed by the Contaminated Sediment Standing Team in 2003 and provides guidance related to analysis and interpretation of contaminant thresholds.

Above: An Inter-Fluve scientist measures a sediment core prior to processing for laboratory analysis

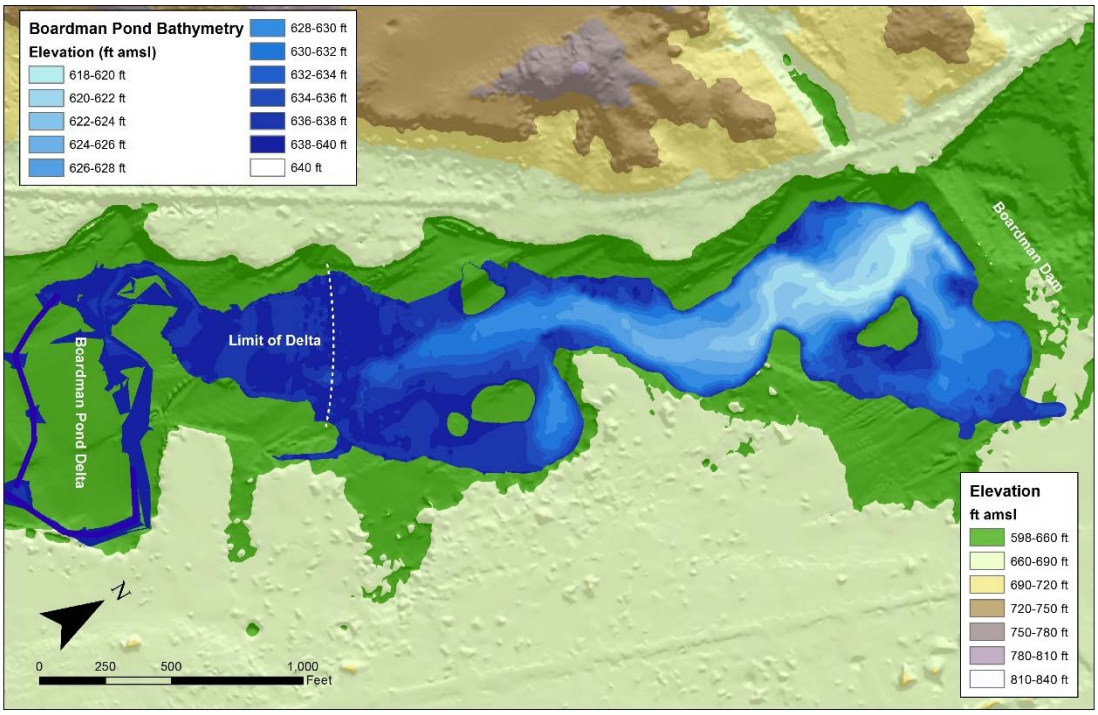
The City has listed potential parameters to be tested as sediment oxygen demand, total phosphorus, ammonia nitrogen, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), and organic compounds (PAHs, PCBs, and pesticides). Discussions with the WDNR will include a due diligence review of upstream potential contamination sources, review of WDNR guidelines, and a review of required ASTM procedures for laboratory analysis. Pooling of subsamples will be discussed, as will the need for stratification of sample cores by depth and sediment type encountered. As previously mentioned, it is sometimes beneficial to stratify and separate coarse and fine layers for testing, as sand and gravel typically do not harbor contaminants and can then be handled differently than fine sediments. This approach can greatly reduce the cost of sediment management.

The 1990 GME report and previous sediment probing suggests that impoundment sediment is predominantly fine organic silty sand, clayey silt, and fine sand that can be sampled via manual coring devices within the impoundment. Sample controls will be taken both upstream of the impoundment and downstream of the dams within the river channel. Given the soft sediment involved, it is assumed that samples can be collected without extraordinary mechanical means such as vibratory coring or other barge mounted equipment. If initial sampling indicates that sediment cannot be collected without special equipment, we will provide an estimate for sampling with the appropriate equipment (e.g. vibrocoring, piston cores, suction or other means). Vibrocoring of sandy sediments typically costs between $1,200 and $1,500 per sample, including mobilization, but not including laboratory analysis.

Samples will be processed on site and pickup will be arranged from a pre-approved testing laboratory. Inter-Fluve often uses PACE Analytical for Midwestern sediment analysis. Samples typically take 5-10 days for results. Laboratory analysis and testing thresholds will be tabulated and compared to typical soil background values, USEPA SQRT values, state groundwater and sediment exposure thresholds, and any

other relevant toxicity thresholds as required by the WDNR and detailed in the SSP. Inter-Fluve is uniquely familiar with consensus based sediment quality guidelines and thresholds established by both the EPA and the WI DNR as described above. Recommendations will be made for additional testing, if needed, and for any special handling of sediments.

We do not yet know how many samples will be required for each impoundment, and thus cannot provide an accurate estimate of sampling costs. For this proposal, we provide our best estimate based on previous dam projects of similar size, and also provide a unit cost per sample for sampling, laboratory testing and reporting.



Above: Inter-Fluve's assessment of sediment inputs on the three Boardman Dam impoundments has formed the basis for both drawdown and restoration plans. The final solution for each dam involves both active removal of sediment and passive release of fine sediment.

Optional Task

Sedimentation Rate Estimate – There are many ways of estimating sediment load in an impoundment, and these can include watershed based analysis relying on rainfall runoff modeling and assumed sediment loss from various soil and landuse types. LiDAR data comparisons can determine bank erosion and mass wasting inputs. Sediment transport modeling can be used to estimate transport through a reach, and can estimate deposition in impoundments. However, these methods are expensive and far less accurate than a simple temporal comparison within the actual water body. The bathymetric and sediment depth data collected in this study, compared to the 2006 data, will provide us with an accurate estimate of sedimentation in Lake George over the past 10 years. Our survey strategy supports this approach, and we propose to input the 2006 bathymetric and hard bottom data, build a surface in AutoCAD, and compare

those surfaces to the new bathymetry data to get an accurate estimate of sediment loading from 2006 - 2015. This can be averaged to give a sedimentation rate per year, and includes organic material deposition that would not be estimated in a soil-loss equation based estimate of sediment inputs. Based on aerial photo analysis and reporting to date, it appears that the impoundments are reaching an equilibrium sediment volume that has changed little in recent years.

Dam removal projects take 5 - 7 years from inception to completion, on average, with hydro dam removals taking even longer. If dam removal is delayed for several years, the established sedimentation rate, combined with spot elevation checks and analysis of aerial photos, can be used to gauge whether any significant changes have occurred. The effort required to estimate sedimentation rates using the proposed method is minimal, and we believe to be worth the incremental cost.

SCOPE OF SERVICES

This scope of work covers preliminary surveying and sediment investigation for the Lake George and Lake Louise impoundments within the City of River Falls, WI.

1. PROJECT MANAGEMENT/MEETINGS

1.1. *Project Kickoff Meeting* – Inter-Fluve staff will participate in a phone conference to clarify scope and schedule, discuss landowner permission, and coordinate survey efforts.

1.2. *General project management* – Inter-Fluve will manage staff and tasks to support timely completion of deliverables and will maintain regular correspondence with City staff for the duration of the project. Invoices will be completed on a monthly basis.

1.3. *Public Meetings* – Inter-Fluve will attend two public stakeholder meetings, one to present proposed investigation work, and one to present findings and answer questions related to sediment assessment.

2. DATA COLLECTION

2.1. *Topographic and bathymetric survey* – Inter-Fluve will provide a bathymetric survey of the impoundment. Surveying will be conducted using boat mounted side scan sonar and GPS-RTK, and will include the setting of local control points.

2.2. *Sediment depth measurement* – To estimate impoundment sediment volumes and the location of the historic channel alignment, as well as to create a 1-ft contour basemap of the impoundment for calculation of cut and fill volumes and design planning, Inter-Fluve will conduct sediment depth probing of the impoundments using a depth-to-refusal method. Sediment depth locations will be surveyed for inclusion in the basemap, and will be used to develop estimates of impounded sediment volume. A subsampling of previously surveyed data points (circa 2006) will be checked during the survey to verify elevations and locations. Approximately 10 depth-to-refusal transects will be located in the Lake Louise impoundment, and select cross sections of historic channel features will be surveyed in the Lake George impoundment. Results will be incorporated as cross-sections and bathymetric contours in the report plans. Point files will be imported into AutoCAD Civil 3D.

2.3. *Sediment volume analysis* – Inter-Fluve will estimate the volume of impounded sediment by calculating the volumetric difference between the existing surface based on the bathymetry data and a pre-dam surface based on the depth-to-refusal measurements. Sediment evacuation estimates via incipient motion analysis will be completed and summarized in a Technical Memo.

2.4. *Sediment Sampling Plan* – Inter-Fluve will develop a 2-3 page sediment sampling plan that includes proposed sample locations, testing parameters and protocols. The plan will be submitted to the City for discussion and approval or recommendations. This task includes a phone conference with the WIDNR.

2.5. *Sediment Sampling* – Inter-Fluve will collect impoundment sediment samples for contaminant testing. Sampling costs are provided on a unit cost basis. We assume the following sampling program will be required:

- A minimum of two samples will be collected from the area within each impoundment where we believe the new channel will be located. Up to three sub samples may be collected in an area and pooled to create one sample for laboratory analysis.
- A minimum of three samples will be collected from within the remainder of the impoundments in areas that are likely to be exposed floodplain soil and, thus, represent a potential exposure route to human receptors
- One sample will be collected at the upper end of each impoundment, in an area where more recent sediment deposition has occurred.
- One downstream sediment sample will be collected to verify background/localized conditions. Additional sediment samples, if required, can be provided as an addendum.

2.6. *Laboratory analysis* - Sediment samples will be collected in appropriate containers, preserved as necessary and delivered to an analytical laboratory where they will be subjected to the following analyses:
- WDNR organochlorine Pesticides and Herbicides
- EPA Priority Pollutant Metals (arsenic, cadmium, chromium, copper, Pb, mercury, nickel, zinc)
- Extractable Petroleum Hydrocarbons (EPH) with Polycyclic Aromatic Hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Ignitability, reactivity, pH
- Total Organic Carbon (TOC)
- Grain Size Analysis

2.7. *Technical Memorandum* – Methods and results will be summarized for each of the above tasks, including maps and figures supporting the conclusions. Sediment analytical data will be tabulated and presented along with published thresholds for special handling.

<u>Deliverables</u>

- Basemap of existing conditions, showing bathymetry, topography and sediment depth in plan and cross-section.
- Sediment sampling plan and Technical Memo Report describing survey methods, results, recommendations and cost estimates. Draft and Final Tech Memorandum will be submitted in PDF format for review and comment.

<u>Assumptions</u>

- Sediment sampling numbers are based on discussions with the WDNR and on previous experience with WIDNR sediment policy related to dam removal. The final sample number will be determined and budget amended based on Inter-Fluve's proposed unit cost per sample.
- TCLP analysis is not needed, and is not included, but can be added via addendum
- Upland or dam infrastructure surveying is not included
- Survey does not include diving or extensive probing of bridge piers.
- Boat rental for surveying and coring is included in the cost estimate.

3. SEDIMENTATION RATE ANALYSIS (OPTIONAL)

3.1. Sedimentation Analysis – Inter-Fluve will compare bathymetric surfaces from 2006 and the present study and generate a volume of sediment accumulated. An average estimate of sediment accumulation per year will be generated.

COST ESTIMATE

	Subtask Total	Task Total
Task 1 - Project Management		
Kickoff meeting	$722	
General Project Management & Comm	$2,574	
Stakeholder Meeting	$3,440	
TASK 1.0 ESTIMATE		$6,736
Task 2 - Data Collection		
Topographic and Bathymetric	$7,512	
Sediment depth/refusal survey	$7,366	
Sediment analysis/basemap	$4,239	
Sediment Sampling Plan	$1,312	
Tech Memo	$2,374	
TASK 2.0 ESTIMATE		$22,803
Base Bid Total		**$29,539**
Estimated cost per core sample (includes sampling and lab)		**$1,500** per sample
Task 3 - Sedimentation Analysis		
Sedimentation analysis	$650	
TASK 3.0 ESTIMATE		$650

PROJECT TEAM STAFFING & EXPERIENCE

About Inter-Fluve

Founded in 1983, Inter-Fluve is a river restoration engineering firm headquartered in Hood River, Oregon, with additional offices in Wisconsin, Massachusetts, and Montana. As leaders in aquatic and riparian resource analysis and restoration, our multidisciplinary team integrates biology, hydrology, and engineering to design environmentally-sound solutions for systems ranging from alpine to coastal, rural to urban. With over 30 years of experience building our designs, we have an unparalleled ability to portray complex and innovative solutions into plans and specifications, and to provide efficient construction services. Our 35 engineers and scientists tackle the restoration, enhancement, and revitalization of rivers and wetlands in both urban and rural environments. We've worked on four continents and across all regions of the United States, completing over 2,000 river projects. **We have applied our expertise to over 60 dam assessment, fish passage and removal projects, and have overseen the successful removal of an estimated 20 dams.** The table below demonstrates our experience with sediment surveying, sediment volume estimation and contaminant testing and analysis.

Project Team

Abbreviated biographies of the key staff who will work on this Project are provided below, along with a table list of recent relevant dam assessment projects.

Marty Melchior, Project Manager

Marty Melchior is one of the most experienced river restoration practitioners in the Midwest, having completed over 200 assessment and restoration projects across the country. He is also one of the Inter-Fluve's most experienced dam removal and natural channel design experts. His project interests include dam removal design, natural channel design, forensic fluvial geomorphology, construction management, and large woody debris dynamics. Marty has managed or provided design input on over two dozen dam removal and fish passage projects in the past decade, and has authored articles on geomorphology and the ecological effects of small dam removal. Marty is an invited member of the *Federal Subcommittee on Sedimentation and Dam Removal*, a group that developed assessment and permit guidelines for nationwide sediment assessment and management practices in dam removal. Marty was a long time technical advisor to the Wisconsin Dam Removal Committee, and was also an invited member of a task force aimed at developing dam removal sediment management guidelines for New Hampshire and Massachusetts. Marty has participated in a Lower MN River state committee on ravine and bluff erosion, and a Federal workgroup on geomorphology database development. Marty has lectured on stream restoration and dam removal at the University of Wisconsin and the Washington Department of Ecology, and is a regular instructor for the UMN / NCED graduate level stream restoration course. Marty's work has been featured in two PBS programs and he was awarded the 2005 Aldo Leopold Award for Excellence in Ecological Restoration. Marty was the lead designer for the Eel River/Sawmill Dam Removal project, a recipient of the Presidential Coastal America Partnership Award. Marty is also a Certified Fisheries Professional with the American Fisheries Society.

Education: B.S., Molecular Biology, NDSU, Fargo, ND, 1989; M.S., Fisheries, University of MN, St. Paul, MN, 1998.

Beth Wentzel, PE, Water Resources Engineer

Beth will serve as technical lead for the sediment management effort. Wentzel has over 16 years of experience in river and wetland restoration research, advocacy, and engineering. She has contributed to development of stream restoration, including dam removal, channel design, fish passage, and channel reconstruction projects throughout the Midwest, and recently led the Newburg, WI and Cacoosing, PA dam removal projects. Beth also has a solid understanding of river protection permitting and regulations which she developed through technical water policy analysis and advocacy for conservation organizations in multiple regions of the US. She has several years of experience in naturalized stormwater management system planning and design. Through these diverse experiences, Beth has become skilled at communicating with individuals and groups with very different backgrounds and interests.

Education: MS, Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, 1999 and BS, Civil Engineering, University of Illinois, Urbana-Champaign, 1994.

Ben Swanson, PhD - Fluvial Geomorphologist

Dr. Swanson has 7 years of academic experience and 4 years of applied experience in fluvial geomorphology and watershed sciences. Ben has been a key member of the Inter-Fluve teams for dam sediment assessment and removal projects, including Boardman Dam (MI), Sabin Dam (MI), Pucker Street Dam (Niles, MI), Mirror Pond Dam (OR) and others. His PhD research focused on disruptions in channel form, habitat, and sediment transport processes across tributary junctions along the Rio Chama, NM, and his masters work documented channel changes along the Clark Fork River, MT, in response to increased sediment inputs associated with historic mining. He's skilled in Geographic Information Systems analyses, collecting geomorphic and sediment field data, and modeling hydraulics and sediment transport. Ben's primary focus has been assessing how stream channels have adjusted their form and function in response to watershed and channel disturbances, and utilizing this information to help re-establish healthy and productive systems.

Education: PhD, Earth & Planetary Sciences, University of New Mexico, Albuquerque, NM 2012; MS, Water Resources & Fluvial Geomorphology, University of Montana, Missoula, MT 2002; and BA, Geology, University of Montana, Missoula, MT 1996.

Charlie Phillips – Survey/CADD Technician

Mr. Phillips is a CADD Technician with particular expertise in stream surveying, dam removal sediment management, natural channel design graphics, 3-D graphic renderings, photo-derived 3-D CAD drafting, and concept plan development. . Charlie leads survey teams for river surveying, dam sediment bathymetry and contaminant sampling, dam removal topography, and hydraulic surveys. He is the lead CAD designer for the Madison office, and has worked on projects in the Midwest, west coast and east coast. Since joining Inter-Fluve he has contributed his knowledge of AutoCAD and Solidworks 3D to projects involving habitat restoration, dam removal and channel migration. Charlie has led numerous surveys of impoundment sediment, sediment depths, depth of refusal and bathymetry.

Education: BEng – Mechanical Engineering, Oxford Brookes U, England, 2005 and City & Guilds – Composite Materials, OBU, Brooklands College, Surrey, England, 2004.

Recent Dam Sediment Assessment Projects by Inter-Fluve

Project / River / Dam	River/Stream	State	Year (s)	Dam removal w/ controlled release	Dam removal with rapid drawdown	Floodplain excavation	Bathymetric surveying	Sediment depth/volume assessment	Contaminant testing and analysis	Channel restoration	Canoe/kayak launch/fishing access	Feasibility Study	Final Design	Dam Height (ft)
Balmoral Dam	Shawsheen River	MA	2007-ongoing		●		●	●	●			●	●	10
Barstowe's Pond Dam Removal	Cotley River	MA	2010-Ongoing		●	●	●	●	●			●	●	8
Beaver Pond Dam	Beaver Dam Brook	MA	2011-Ongoing	●			●	●	●	●		●	●	15
Big Spring Dam Removal	Big Spring Creek	WI	2008	●		●	●	●	●			●		8
Bloede Dam Removal	Patapsco River	MD	2011-Ongoing		●	●	●	●	●	●	●	●	●	32
Boyce Pond Dam	Kemp Brook	NH	2013-ongoing		●		●	●	●	●		●		7
Brown Bridge Dam Removal	Boardman River	MI	2011-Ongoing	●		●	●	●	●	●	●	●	●	35
Bruemmerville Dam Removal	Silver Creek	WI	2010-2011		●	●	●	●	●	●		●	●	10
Cacoosing Dam Removal	Cacoosing River	PA	2011	●			●	●	●	●		●		8
Centerville Creek Dam Removal	Centerville Creek	WI	1996		●	●	●	●	●	●		●	●	12
Churchill Woods Dam Removal	EB DuPage River	IL	2008	●		●	●	●	●	●	●	●	●	10
Cole's Brook Dam Removal	Westfield River	MA	2005-2006		●	●	●	●		●		●		10
Coonamessett River Restoration	Coonamessett River	MA	2011	●		●	●	●	●	●		●	●	6
Dundaff Dam Removal	Dundaff Creek	PA	2010		●	●	●	●	●			●		8
Forge Road Dam	Peconic River	NY	2013		●	●	●	●				●		8
Franklin Dam Removal	Sheboygan River	WI	2001		●			●	●			●		10
Fyfeshire Dam Removal	Fyfeshire Ponds	MA	2010		●		●	●	●			●		6
Hathaway Pond Dam Removal	Sippican River	MA	2009-2010		●	●	●	●				●		8
Hemlock Dam Removal	Trout Creek	WA	2009		●	●	●	●		●	●	●	●	25
Hobbs Pond Dam Removal	Hobbs Pond	MA	2009-Ongoing		●		●	●	●	●		●		6
Hogan Cedars Dam Removal	Johnson Creek	OR	2001		●		●	●		●		●	●	4
Ione Cedar Creek Dam Removal	Cedar Creek	WA	2005	●		●	●	●	●	●		●		18
Marland Place Dam	Shawsheen River	MA	2007-ongoing	●		●	●	●	●	●	●	●	●	10
Mill Creek Restoration	Mill Creek	WI	2001	●		●	●	●		●	●	●	●	8
Moodna Creek Dam Removal	Moodna Creek	NY	2007-2008		●		●	●		●		●		3
Nemahbin Dam Removal	Bark River	WI	2007-2010	●		●	●	●	●			●	●	8
Newburg Dam Removal	Milwaukee River	WI	2012-Ongoing	●	●	●	●	●	●	●	●	●	●	10
Pucker Street	Niles	MI	2013-ongoing	●		●	●	●	●	●		●	●	15
Red Brook Dam Removal (3 Dams)	Red Brook	MA	2008		●		●	●		●		●	●	6
Sauk River Park Dam Removal	Sauk River	MN	2003		●		●	●				●		10
Sawmill Dam Removal	Eel River	MA	2010	●		●	●	●	●	●		●	●	15
Simkins Dam Removal	Patapsco River	MD	2011		●		●	●	●				●	10
South Middleton Dam	Ipswich River	MA	2009-2010	●			●	●	●	●		●	●	8
State Hospital	Mill River	MA	2013	●		●	●	●	●	●		●	●	10
Trout Creek GC Dam Removal	Trout Creek	WI	2011-2012	●			●	●		●		●	●	3
Upper Mills Dam Removal	Peconic River	NY	2009-2010	●		●	●	●				●		8
Wellingsley Brook Dam Removal	Wellingsley Brook	MA	2010-2012		●		●	●	●	●		●		5
West Brittannia Dam	Mill River	MA	2007-ongoing	●			●	●	●	●		●	●	6
Whittenton Dam	Mill River	MA	2007-ongoing		●	●	●	●	●	●		●	●	10

REFERENCES

Presented below are recent and relevant Performance Evaluations from our clients.

Matt Payette, Director, Kewaunee County Recreation Department
Ph: (920) 388-0444 payettem@kewauneeco.org

Bruemmerville Dam Removal, Analysis & Design, Silver Creek, WI

"Kewaunee County selected Inter-Fluve as the prime engineering consultant on the Bruemmerville Dam removal and restoration project near Algoma, Wisconsin. I was extremely satisfied with the results of the project that are directly attributed to Inter-Fluve's expertise in dam removal and site restoration.

This project was somewhat contentious, and involved difficult public meeting, complex site conditions, construction contractor change requests, and winter construction. Marty and Greg at Inter-Fluve were great at handling questions in the public meetings and developed post-removal design that incorporated fish habitat, park access and trail needs, and riparian zone restoration. Inter-Fluve was very skilled at dealing with flexible site hydrology, changing soil conditions and construction contractor issues.

Despite difficult permit constraints, they were able to come up with a solution that satisfied the USFWS criteria for preventing lamprey passage while still meeting the WDNR definition of dam removal. Kewaunee County made the right choice, and we highly recommend Inter-Fluve for dam removal design and river restoration."

Brian Graber, Senior Director, River Restoration Program, American Rivers
Ph: (775) 863.2687 bgraber@amrivers.org

American Rivers' Restoration Program brings life back to rivers by removing dams, replacing culverts, and reconnecting rivers with their floodplains. For more than 10 years, Inter-Fluve has been an important partner in this effort, providing technical guidance and high quality river restoration design services for many of our dam removal and restoration projects. Inter-Fluve demonstrates a very strong understanding of the details of complex geomorphology and hydraulics, and the big picture of river restoration concepts and practice. American Rivers often calls upon Inter-Fluve to accomplish our most challenging and ecologically sensitive projects. One of the greatest compliments of Inter-Fluve's projects is that they are usually indistinguishable from natural river channels: even for complex projects, soon after Inter-Fluve projects are completed, you could not tell that a large-scale construction project was done there. We highly recommend Inter-Fluve for dam removal and other river restoration projects.

David Gould, Director, Department of Marine and Environmental Affairs - Town of Plymouth
Ph: (508) 747-1620 ext 134
DGould@townhall.plymouth.ma.us

Eel River Headwaters Restoration & Sawmill Dam Removal, Plymouth, MA

The Town of Plymouth has worked with Inter-Fluve on several river restoration projects since 2005. The first involved reclamation of a segment of Town Brook within Brewster Gardens, the centerpiece park near Plymouth Rock. They were asked to assess the site and come up with designs for stabilizing the streambed and banks, and integrate bank stabilization into the park construction that was underway. Inter-Fluve completed the design and construction within a three week timeframe. Inter-Fluve worked closely with the

Town on restoration of the Eel River headwaters, from initial discussion about restoration potential to the final ribbon cutting on a project that has received national attention. Throughout all of the Plymouth projects, Inter-Fluve staff have shown themselves to be advocates of the Town's environmental restoration mission, and have always been willing to provide high level technical advice and expertise. The staff are professional and friendly, and we have enjoyed working with them on every occasion. The Eel River project construction extended over six months of intensive construction, and the upcoming Tidmarsh project will likely last over 12 months. Inter-Fluve is excellent in developing contractors, helping them understand river restoration methods, and getting us the product that we envision. We recommend them for any project involving dam removal or river restoration, and look forward to working with them in 2016 and beyond.

Dave Rowe, WI DNR Fisheries Manager
Ph: (608) 635-8122
David.Rowe@wisconsin.gov

Clark Creek Bluff Stabilization, Baraboo, WI

Wisconsin DNR fisheries collaborated with Inter-Fluve and Sauk County Conservation Planning and Zoning Department on the recently completed Clark Creek restoration project, which focused on watershed land-use change and long term bluff stabilization to reduce fine sediment inputs into Clark Creek, a trout stream in the Baraboo Hills area. The staff at Inter-Fluve recently taught a fluvial geomorphology and river restoration short course to key WDNR staff, and their expertise in this arena has proven to be exceptional. The project involved fairly complex geomorphology following large floods that caused channel incision and major soil loss. Inter-Fluve used an innovative strategy incorporating engineered log jams to set the outside floodplain boundary away from the bluff toes, thereby letting the bluffs heal passively. The WDNR provided construction equipment and labor, and Inter-Fluve worked very well with our crew, providing them with excellent technical construction oversight from start to finish. The end product included engineered log jams, a step pool channel, floodplain roughness and revegetation. We value Inter-Fluve's expertise in river restoration, and look forward to working with Inter-Fluve on future projects.

Desmond Berry, Dept. Manager, Grand Traverse Band of Ottawa & Chippewa Indians Natural Resources Division

Boardman River, Brown Bridge Dam Removal, City of Traverse City, MI

The Grand Traverse Band of Ottawa & Chippewa Indians has been working closely with Inter-Fluve for the past 5 years on the Boardman River Dam Removal project. In that time, Inter-Fluve has demonstrated an unmatched level of fluvial geomorphic and river engineering expertise, which has translated directly into efficient and innovative design strategies that have helped to make the Brown Bridge Dam removal project a success. Inter-Fluve has shown an in-depth understanding of post-dam removal river restoration from start to finish.

Just as GTB staff have attained and can appreciate its "inherent value", Inter-Fluve staff have expertise in the Rosgen Natural Channel Design (approach) format; but also bring to the table a high level of expertise in fluvial geomorphic process as it relates to dam removal and restoration.

Inter-Fluve has shown excellent attitude and spirited cooperation throughout the project. Both field and non-field related site visits were gratefully punctuated by countless professional knowledge and skill transfer sessions that transcend the "typical" client-consultant relationship with an honest willingness to

teach what they know, as well as being open to learning themselves. We look forward to working with them on the remaining dam removals as part of the Boardman River Restoration Project, and other projects in the future.

Inter-Fluve staff are also great guys to work with, both as individuals and as a team. They reflect the best of what a team can be and are definitely "outstanding in their field".

The photo above shows a restored section of Trout Creek, WA at the former Hemlock Dam site. Inter-Fluve designed the removal, including riffle and pool construction and floodplain restoration.

Inter-Fluve Staff Resources

Sample of Models Used

- HEC-1/HEC-HMS
- GEO-RAS
- HEC-2/UNET /HEC-RAS
- FEQ
- SWMM/XPSWMM
- FESWMS
- RMA2/RMA4
- USGS MDSWMS/IRIC

GIS Capabilities

- Inter-Fluve makes extensive use of GIS for natural resources assessment and restoration. Inter-Fluve currently has 8 scientists and engineers using ArcMap 9.3 or 10. Our staff consists of individuals experienced with data compilation, data analysis, database development, projections/coordinate systems, and mapping. Our staff utilizes the 3-D and spatial analyst extensions for necessary analyses, and use ArcPad to transfer data between GIS and the GeoXT Trimble GPS units. We regularly use GIS in the investigation and design phases of projects, and we use GIS-based maps to convey concepts to clients and other stakeholders.

Survey Equipment

- Total station and ground based LiDAR (numerous units and data collectors, rods, prisms)
- Depending on the needs and horizontal/vertical precision necessary for a particular project, Inter-Fluve maintains 2 Trimble GeoXT (sub-meter horizontal accuracy with post-processing), 5 Garmin e-Trex (~5-m horizontal accuracy), a Garmin 76 and a 76s GPS unit (3-5 m horizontal accuracy), 2 Top-Con RTK units (sub-centimeter horizontal and vertical accuracy) and base stations.
- Our GIS staff have experience integrating GIS analysis software with design focused applications such as AutoCAD, MicroStation, and hydraulic modeling software. We frequently utilize HEC-GeoRAS to analyze and display flood inundation patterns to support project design. Our GIS products can be packaged in multiple media formats including DVD, CD-ROM, or in web-based applications. We are also accustomed to performing data documentation and ensuring adherence to established metadata standards.
- Dam and impoundment surveying includes 17 ft outboard, 14 ft johnboat (rental) and canoes, kayaks. Boat mounted side scan sonar, water level loggers, pressure transducer loggers, wetland corers, manual sand corer, muck corer and gravel corer, silt piston corer, vibratory probes and rental of geoprobe and geotech drilling rigs. Also includes custom depth of refusal probe rods.

Project Descriptions

Below are a series of descriptions of completed projects by Inter-Fluve and AECOM. All are relavent examples exemplifying our expertise to lead the removal of the Monterey Dam. References are included.

Mill River Dams Removal Analysis, Design, Construction – (IFI)

TAUNTON, MA

Client: Southeast Regional Planning and Economic Development District (SRPEDD), MA DER
Reference: Beth Lambert, Aquatic Habitat Restoration Program Manager, MA DER (617) 626-1526

Southeast Regional Planning and Economic Development District (SRPEDD), Massachusetts Division of Ecological Restoration, NOAA, American Rivers and other project partners contracted with Inter-Fluve to investigate the feasibility of dam removal and fish passage options on the Mill River in Taunton, Massachusetts. Inter-Fluve and its teaming partner Woodlot studied the three lowermost dams, the State Hospital Dam, West Britannia Dam and the Whittenton Pond Dam, all of which have been present in some form since the 1600s. We examined the effect of potential restoration on a fourth dam upstream. The project involved extensive topographic surveying, wetland assessment, bathymetry, sediment volume estimation (depth of refusal), HEC-RAS modeling and concept and final designs.

State Hospital Dam was removed during the summer of 2012 and channel restoration completed in early 2013. During the first anadromous fish migration, hundreds of herring were observed upstream of the dam for the first time in hundreds of years. While trout were not deemed viable in this river due to water temperature and water quality, brook trout were also observed upstream of the former dam. The Whittenton Pond Dam was removed in late July 2013 and final channel restoration is ongoing. We have completed the preliminary designs for the removal of West Britannia Dam and are currently in the permitting process. Construction will likely begin in late 2015 or 2016.

The Mill River has seen intensive flooding and associated saftey concerns related to three dams, all present since the 1600s. Inter-Fluve designed and performed construction oversight on the removal of two and preparing for the third.

Simkins Dam Removal – (IFI)

ELLICOTT CITY, MD

Client: Elliot City, MD
Reference: Serena McClain, American Rivers, Washington, DC (202)347-7550

The removal of the 10-foot-high and 200-foot-wide Simkins Dam in Maryland is part of a larger project to remove all four dams along 175 miles of the Patapsco River and restore habitat to herring, shad, and eel. The dam – built to produce power – had not been used in decades. With help from the American Reinvestment and Recovery Act of 2009, we worked with American Rivers, NOAA, Maryland DNR fisheries, Baltimore/Howard counties, Patapsco Valley State Park staff, and the Friends of the Patapsco Valley State Park to develop designs for the removal of Simkins Dam.

Simkins, as well as Union Dam, were removed in 2010. Our work included topographic and bathymetric surveying, sediment screening, geomorphic assessment, bank stabilization, and vibration monitoring to prevent damage to a 42-inch sanitary sewer pipe. We partnered with Stillwater Sciences to model sediment transport using the DREAM-1 model. Today, Inter-Fluve and partners are designing plans for the removal of Bloede Dam. Removal of Bloede will leave Daniels Dam as the fourth, and last remaining dam on the river.

Project partners discuss the removal of 200-foot-wide Simkins Dam before it was removed in 2010 (above). Top photo shows the site after Simkins dam was removed.

San Clemente Dam Removal – (IFI)

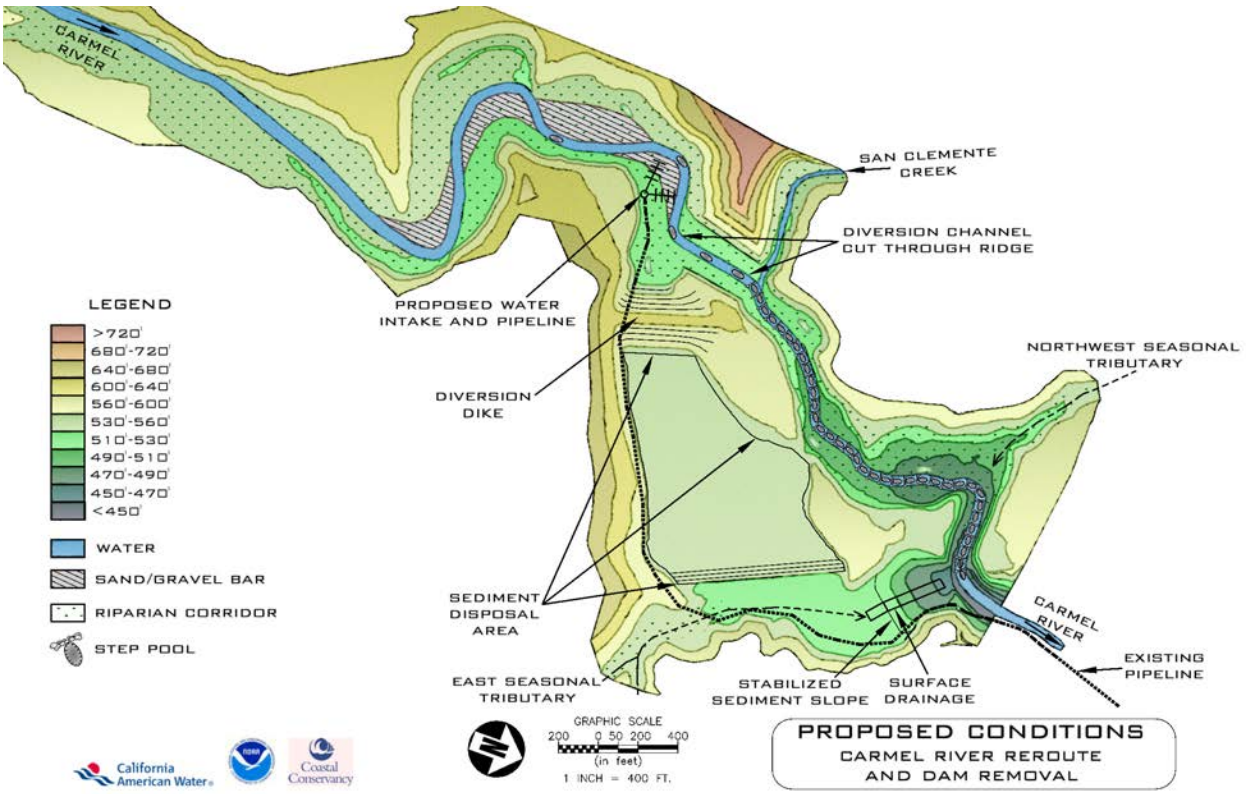
CARMEL, CA

Client: California Coastal Conservancy
Reference: Trish Chapman (510) 286-0749

This project alleviates critical dam safety concerns and restores passage for ESA-listed steelhead by removing the 106-foot tall dam constructed in 1921. Inter-Fluve currently (since 2008) leads the channel design task, and provides overall dam removal and ecological restoration advisory services. This role has required extensive collaboration with project stakeholders, resource agencies, and technical review team to arrive at a channel design which is naturally-functioning but can be demonstrated to provide an acceptable level of service for fish passage by steelhead. This has required developing approaches to provide confidence in the project design while the subsurface conditions to be encountered following sediment removal are largely unknown. Project coordination tasks have included assisting with formalization of project goals, objectives and design criteria, risk assessment, and development of contingency long-term management plans. Technical tasks included geomorphic reconnaissance, channel survey, alternatives analysis, hydraulic modeling, fish passage design, and channel design.

From 2007-08, Inter-Fluve served as the primary technical advisor to the Coastal Conservancy in their evaluation of options for removing San Clemente Dam. Primary tasks included interpretation and analysis of technical reports, development of work scopes for supplemental studies, documentation of project goals and objectives, and development of illustrative figures to communicate the dam removal project concept to a larger, non-technical audience.

In both the design and advisory roles, Inter-Fluve has been key in transforming the project design into one that results in full-scale valley bottom restoration achieving a high degree of ecological integrity. Through this effort, Inter-Fluve has successfully interfaced with a broad group of stakeholders and agency representatives representing a range of mandates related to the project.



Inter-Fluve is leading the channel design task, providing overall dam removal and ecological restoration advisory services for the San Clemente Dam removal and Carmel River reroute..

Boardman River, Brownbridge Dam Removal before (left) and after (right). The restoration enhanced and restored habitat for native cold water fish, impacted the local economy by stimulating recreation tourism, encouraged collaboration between numerous agencies and has also become an educational laboratory for school children and research scientists alike.

Boardman River, Brown Bridge Dam Removal & Channel Restoration – (IFI)

TRAVERSE CITY , MI

Client: Boardman River Implementation Team
Reference: Amy Beyer, Executive Director, Ph: (231) 946-6817

Inter-Fluve completed conceptual and final design documents for the Brown Bridge dam removal and provided full construction oversight for the sediment management and channel restoration. The Brown Bridge dam (1500' long and 40' tall), was the first and largest of three dams to be removed on the river, and one of the largest removed in the state of Michigan. Project elements included: fish habitat assessment, hydraulic and Level 3 geomorphic analysis, sediment sampling, analysis and management plan development, conceptual through final design and preparation of construction documents, construction cost estimate, and construction oversight. The Boardman River (291 sq. mi.) is one of the premier cold water systems in the state of Michigan. Because the river was in relatively pristine condition, the removal focused on restoring the 3 miles of channel through the impoundment, and the careful management of accumulated sediment, including a mile-long delta deposit at the head of the impoundment that had buried the old river channel with as much as 12 feet of sand. Final design involved the excavation of over 200,000 cubic yards of impounded sediment.

Centerville Creek Restoration Following Dam Removal – (IFI)

CLEVELAND, WI

Client: Village of Cleveland, WI
Reference: Steve Simons, Village of Cleveland Ph: (920) 693-8181

Centerville Creek was once a healthy trout stream draining off of high bluffs on the western shore of the Lake Michigan. The Cleveland Dam, near the mouth of the Centerville Creek, was installed in the late 1800's creating a 6-acre impoundment. The dam was removed in 1995 after nearly 120 years of sediment accumulation, draining the reservoir and leaving behind tens of thousands of yards of highly erodable silt deposits. The main goal of this project was to develop plans for the restoration of Centerville Creek to a stable, natural and functioning stream ecosystem. Inter-Fluve evaluated options for the restoration of Centerville Creek, conducted Level 3 assessments on nearby rivers and developed regional curve data sets for clay streams draining directly into Lake Michigan to determine the habitat potential and geomorphic stability of a restored channel. Design recommendations included habitat restoration, analysis of construction planning, dewatering, bioengineering options, utilities, sediment disposal and permitting.

Bruemmerville Dam Removal & Restoration before (left) and after (right). Inter-Fluve designed a lamprey barrier that is high enough to keep lampreys from migrating upstream and low enough to allow migrating pike and walleye to swim through. The design also allowed for the creation of a floodplain park.

Bruemmerville Dam Removal & Restoration– (IFI)

ALGOMA, WI

Client: Kewaunee County Promotions and Recreation Department
Reference: Matt Payette, Ph: (920) 388-0444

The Algoma or Bruemmerville Dam was a 10-ft high low head dam on a moderate gradient cobble and gravel riffle pool segment of Silver Creek in Northeast Wisconsin. Kewaunee County has been interested in removing the dam for some time. The U.S. Fish and Wildlife Service (USFWS) was concerned that the dam removal would allow for introduction of invasive lamprey into Silver Creek. Inter-Fluve met with representatives from multiple agencies to hammer out design criteria for the project. Our engineers designed a combination velocity and removable leaping barrier to prevent lamprey invasion yet allow migrating pike and walleye to pass the removal site. The project was constructed in summer of 2012 and included restoration of 2,000 feet of B-channel stream with toe wood, riffles, pools and floodplain grading. Inter-Fluve was also involved in the public outreach process and attended several meetings with the project partners and the public. Staff scientists provided meeting facilitation services, graphic and visual aids, and mediated discussions.

REGIONAL DIRECTOR

Marty Melchior CFP

Marty has 18 years of experience in fish habitat restoration, natural channel design,dam removal, fluvial geomorphologic assessment, engineered wood design, bioengineering,and biotic assessment. Marty has participated in state and federal workshops on geomorphology and dam removal committees within the Federal Subcommittee on Sedimentation. He also occasionally lectures for various university restoration programs. Marty was the lead designer for the Eel River project, a recipient of the 2011 Coastal America Partnership Award presented by the Secretary of the Interior. In 2013, Marty and Inter-Fluve were selected as one of the River Alliance of Wisconsin's 20th Anniversary River Heroes.

EXPERTISE

Natural Channel Design

Dam Removal

Fluvial Geomorphic Assessment

Urban River Restoration

Cranberry Bog Restoration

Project Management

Bioengineered River Bank Stabilization

Fish Population Analysis

Stream Ecology

EDUCATION

MS, Fisheries, University of Minnesota, St. Paul, MN, 1998

BS, Molecular Biology, North Dakota State University, Fargo, ND, 1989

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

Certified Fisheries Professional American Fisheries Society

Wisconsin Small Dam Committee

SELECTED PROJECT EXPERIENCE

State Hospital Dam & Channel Restoration

Taunton, MA (2012)

Marty was the lead designer for the removal of the State Hospital Dam, one of three removals designed or in process on the Mill River. Marty was involved with collection of topographic data, bathymetric data and sediment coring and grain size analysis. Other work included analysis of potential sediment mobility, hydraulic modeling of proposed restoration conditions, development of alternatives for contaminated sediment removal and development of both sediment sampling and sediment management plans. Marty met with Mass DEP and other regulators to develop a program of contaminated sediment removal and treatment that allowed for full restoration of the impoundment and floodplain. Marty provided design input and construction oversight for the project, which was completed in January of 2012 and involved dewatering, drawdown, dam breaching, floodplain excavation, channel restoration, large wood habitat and riffle and pool construction.

Centerville Creek Restoration following Dam Removal

Cleveland, WI

This project involves the restoration of Centerville Creek and its floodplain following the 1998 removal of the Cleveland Dam. Removal of the dam and subsequent incision of the channel into the former impoundment sediments has resulted in a deeply incised and highly eroding stream with little habitat or aesthetic value. Preliminary design integrated these data into floodplain and forest restoration, fish habitat design and wetland construction. Final construction was completed in 2012.

Newburg Dam Removal

Milwaukee, WI (2012)

The project included addressing utility conflicts, addressing contaminated sediments, and designing a multi-use trail to connect public parks upstream and downstream of a road crossing and also serve as a flood conveyance channel.

Eel River Headwaters Restoration & Dam Removal

Plymouth, MA (2010)

Marty served as project manager, lead designer and senior construction manager for this project in historic Plymouth. Inter-Fluve provided design and oversight for the restoration of a 40-acre cranberry bog site. This $2 Million project involved the grading of large quantities of sand from the bog surface, construction of groundwater level controls (riffles), and construction of over 8,000 feet of stream channel. Habitat restoration for brook trout, eel and herring included the installation of over 1,000 pieces of large woody debris, raptor perches, wildlife passage culvert design, riffle and pool construction, and boulder step pool channel construction. The 15-ft high Sawmill Dam was removed and Marty coordinated efforts to preserve part of the structure for historic purposes, replacing half of the dam with a 45-ft long concrete and steel footbridge. With 17,000 white cedars and over a mile of deer protection fencing, the project is the largest Atlantic White Cedar bog restoration in the northeast, and was featured in both the Boston Globe and Civil Engineering magazine. The project won the 2010 Coastal America Partnership Award for outstanding efforts to restore and protect the coastal environment. Construction was completed in June 2010.

Marty Melchior, CFP

ADDITIONAL PROJECT EXPERIENCE

Boardman River Dam Removal
Traverse City, MI (2012)

Inter-Fluve was part of a design team developing final design plans for the removal of Brown Bridge Dam and the Sabin Dam on the Boardman River in northern Michigan. Marty assisted in developing concept designs, sediment management guidelines for the Brown Bridge removal, and conducted site reconnaissance and sediment depth surveying for the project. Marty also participated in multi-agency coordination and planning meetings. Drawdown and construction of the restored channel and floodplain was completed in 2012.

Bruemmerville Dam Removal
Algoma, WI (2012)

The Algoma Dam, or Bruemmerville Dam, was a 10-ft high low head dam on a moderate gradient cobble and gravel riffle pool segment of Silver Creek in northeast Wisconsin. The USFWS was concerned that the dam removal would allow for introduction of invasive lamprey into Silver Creek. Inter-Fluve designed a combination velocity and removable leaping barrier to prevent lamprey invasion yet allow migrating pike and walleye to pass the removal site. The project was built in winter of 2012. Marty supervised the design and assisted in construction oversight, client communication and permitting guidance.

Nemahbin Roller Mill Dam Removal
Delafield, WI (2013)

Marty was the project manager for this project, begun in 2001, to remove a 12-foot high dam outside of Milwaukee. The project involved sediment volume estimation, sediment transport analysis, public meetings, contested case hearings and preliminary engineering design plans. The dam was drawn down in 2012 and removed in Fall 2013.

Simkins Dam Removal
Baltimore, MD (2010)

Marty was the project manager for the Simkins Dam removal, a project funded through Economic Recovery Act Funding. This project involves American Rivers, NOAA, Maryland DNR Fisheries, and the Friends of the Patapsco River Valley State Park. Inter-Fluve conducted topographic and bathymetric surveying, sediment coring, and contaminant testing, and developed draw-down plans and a sediment management plan. The project involved working with the SS in integrating their DREAM sediment transport model to determine the fate of sediment released during removal. Final design plans included demolition of the spillway, and passive transport of 60,000 cubic yards of sediment downstream. Construction was substantially completed in January 2010. Dam rubble was used to build artificial oyster reefs in Chesapeake Bay.

San Clemente Dam Fish Passage
Carmel, CA (2007-Ongoing)

This project alleviates critical dam safety concerns and restores passage for ESA-listed steelhead by removing the 106-foot tall dam constructed in 1921. Inter-Fluve currently (since 2008) leads the channel design task, and provides overall dam removal and ecological restoration advisory services. This role has required extensive collaboration with project stakeholders, resource agencies, and technical review team. Technical tasks included geomorphic reconnaissance, channel survey, alternatives analysis, hydraulic modeling, fish passage design and channel design. From 2007-08, served as the primary technical advisor to the Coastal Conservancy in their evaluation of options for removing San Clemente Dam. In both the design and advisory roles, Inter-Fluve has been key in transforming the project design into one that results in full-scale valley bottom restoration achieving a high degree of ecological integrity. Marty assisted in concept development and evaluation of steelhead migration windows.

Minnehaha Creek Restoration
St. Louis Park, MN

Inter-Fluve restored a 1500 foot reach of Minnehaha Creek running through the Methodist Hospital wetland property. The project involved in-depth flood analysis to ensure a no-rise design. Low profile large wood was used to provide 20-30 years of toe protection while still allowing for canoe and kayak passage. Construction was completed in February 2010. A boardwalk connects the site to the Hospital and is used frequently by hospital staff to promote healing in patients.

Shawsheen River Dam Removals/Fish Passage Restoration
Andover, MA (Ongoing)

Marty is the lead designer and project manager for the removal of the Balmoral, Marland Place, and Ballardvale dams on the Shawsheen River. This project involves public outreach, surveying, concept plans, final design and construction oversight. The design involves stabilization of historic dam abutments and adjacent apartment buildings. The design of this project included GEO-RAS modeling of flooding conditions following removal. Marty manages all aspects of this project including contaminated sediment removal and management. Final design was completed in 2012 with construction of the lower two removals completed in 2014.

Big Spring Dam Removal
Adams, WI (2011)

Marty lead the Inter-Fluve team in assessing current conditions and designing the dam removal and stream restoration for Big Spring Creek, a brown trout stream in central Wisconsin. This project features sediment transport analysis, hydraulic and hydraulic studies and natural channel design. The initial drawdown was completed in 2009, with full removal and impoundment sediment excavation in 2011. This involved channel training and grade control manipulation to guide the headcut into the final channel location.

Franklin Dam Removal
Franklin, WI

The Franklin Dam was a 100 ft. abandoned mill dam on the Sheboygan River. Marty worked with Wisconsin DNR engineers and biologists to develop a set of design plans for the removal of the dam, restoration of the drained impoundment and stabilization of the floodplain and streambanks. Marty also provided construction oversight for the project.

Dundaff Creek Dam Removal
Wilkes-Barre, PA (2010)

American Rivers hired Inter-Fluve to remove a small dam on Dundaff Creek, a brook trout stream in northeast Pennsylvania. With a limited budget, Marty and the design team were able to complete the removal design in a short time window. The design featured on-site disposal of excavated impoundment sediment. Large woody debris placement was used to train the stream to create

WATER RESOURCES ENGINEER

Beth Wentzel, PE

Beth has over 16 years of experience in river and wetland restoration research, advocacy, and engineering. She has contributed to development of defensible stream enhancement designs, including dam removal, fish passage, and channel reconstruction projects. Beth also has a solid understanding of river protection laws and regulations which she developed through technical water policy analysis and advocacy for conservation organizations in multiple regions of the US. She has several years of experience in naturalized stormwater management system planning and design. Through these diverse experiences, Beth has become skilled at communicating with individuals and groups with very different backgrounds and interests.

EXPERTISE

Hydrologic and Hydraulic Analysis

Natural Channel Design

Stormwater Management System Design and Monitoring

Wetland Restoration Design

Project Management

EDUCATION

MS, Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, 1999

BS, Civil Engineering, University of Illinois, Urbana-Champaign, 1994

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

Registered Professional Engineer: PA, IL, MN, WI

NJ - in process

CONTINUING EDUCATION

XPSWMM Stormwater Model Training, 2006

Fluvial Geomorphology for Engineers – Rosgen Level I, 2008

Geomorphology and Sediment Transport Principles Applied to Channel Design, 2010

Principles of Engineering Project Management, 2012

SELECTED PROJECT EXPERIENCE

Shawsheen River Dam Removal
Andover, MA (2010)

Beth conducted sediment sampling to inform the design for the removal of the Balmoral, Marland Place and Ballardvale dams on the Shawsheen River. Beth also developed the sediment management plan to ensure compliance with state regulations.

Pucker Street Dam
Niles, MI (2014-Ongoing)

Beth is assisting with the survey of the existing and pre-dam ground surfaces and development of stream restoration concepts and preliminary cost estimates associated with removal of the 20 ft high, 200 ft long Pucker Street Dam on the Dowagiac River. The dam removal and stream restoration design include assessing impounded sediment quantities, collecting and analyzing impoundment sediment samples to depths of over 10 ft below existing ground surface, ensuring stability of a bridge immediately upstream of the dam, designing stable banks in a small corridor, addressing adjacent landowner concerns, coordinating with regulatory agencies, and securing funding.

Papermill Dam Removal & Cacoosing Creek Restoration
Spring Ridge, PA (2010-13)

Beth was the project manager in developing the design and securing regulatory approval for the removal of the Papermill Dam on Cacoosing Creek. The project required topographic survey, sediment sampling and management planning, hydrologic and hydraulic analysis, and CDs preparation.

Whittenton Dam Removal
Taunton, MA (2010-12)

Beth managed the preliminary dam removal design project to achieve the project goals of improving habitat and ensuring fish passability through the currently impounded reach of the Mill River. She coordinated the collection of survey and sediment quality data, developed the sediment management plan, and oversaw the development of the design plans and specifications.

Ulao Creek Habitat Enhancement
Grafton, WI (2013-2014)

Beth is the lead engineer and project manager for the enhancement of aquatic and wetland habitat in a large wetland in southeastern Wisconsin that had been ditched and modified, limiting the diversity of the system. Design included remeandering more than a mile of new stream channel and incorporating topographic diversity into the floodplain to allow for additional plant species to thrive.

Nemahbin Roller Mill Dam Removal
Delafield, WI (2010)

Beth assisted with the field survey, led the development of the sediment management plan, and assisted in the development of the restoration design associated with the removal of this dam on the Bark River. Addressing concerns raised by downstream stakeholders required a very robust plan for managing the sediment that had accumulated in the impoundment.

Beth Wentzel, PE

ADDITIONAL PROJECT EXPERIENCE

Newburg Dam Removal
Milwaukee, WI (2012)

Beth managed and led the engineering design of the removal of the Newburg Dam and restoration of a reach of the Milwaukee River. The project included addressing utility conflicts, addressing contaminated sediments, and designing a multi-use trail to connect public parks upstream and downstream of a road crossing and also serve as a flood conveyance channel. Beth completed hydrologic, hydraulic and sediment analyses of the Milwaukee River in this reach, coordinated permitting activities, developed the construction documents, and provided construction management services.

Spring Creek Daylighting
Sussex, WI (2010-15)

Beth completed the hydrologic and hydraulic analysis, and developed concepts for a project that includes removing approximately 500 ft of stormsewer pipe and restoring a natural stream channel with a shorter fish friendly culvert at a road crossing. Beth is currently working with a multidisciplinary team to incorporate the design into a larger road re-construction project.

Oak Meadows Golf Course Stream Enhancement
Wood Dale and Addison, IL (2013-2015)

Beth is leading the engineering design for the enhancement of Salt Creek through the Oak Meadows Golf Course in DuPage County, IL. The project entails reconfiguring the channel cross section to accommodate flashy urban hydrology while providing hydraulic conditions and instream structure necessary to diversify habitat.

Trout Brook Stream Daylighting
St. Paul, MN (2011-2014)

Beth was the project manager and assisted in designing a 3,000-ft section of stream that now flows through an urban city park after decades of flowing through a storm sewer. To accommodate for future needs, the stream and floodplain was designed to function under the short-term hydrologic regime, and the proposed long term hydrologic projections. Our work included assessment of the quality and quantity of potential water sources; determination of stream and pipe alignments across and through the underground infrastructure of an urban environment; addressing the existence of contaminated soils on the site; and assessing the ecological potential of the project. Inter-Fluve developed construction drawings and specifications, an estimate of construction costs, and provided construction oversight.

Fawell Dam Modifications
DuPage County, IL (2014-15)

Beth assisted with hydraulic survey and sediment sampling, provided review of hydrologic and geomorphic evaluations, and coordinated the fish passage criteria assessment and project reporting associated with preliminary feasibility investigations for modifications to Fawell Dam in DuPage County, Illinois. Objectives for the modification include maintaining the dam's flood storage function, while allowing fish passage and habitat enhancement. The design and construction of modifications at this structure are anticipated to proceed in 2015-2017.

Minnehaha Creek, Reach 20, Channel Restoration & Floodplain Enhancement
Minneapolis, MN (2012-13)

The Minnehaha Creek Watershed District and its project partners hired Inter-Fluve and HR Green to develop restoration concept designs for a segment along Reach 20 of Minnehaha Creek. Inter-Fluve and HR Green examined the hydrology, hydraulics, geomorphology, and existing infrastructure of the reach. We then developed conceptual designs for restoring a sinuous stream channel, improving wetland and floodplain function, improving site recreation and trail connectivity, and integrating stormwater management best management practices. Inter-Fluve developed final designs for the project, and provided permitting assistance and construction oversight. Beth was involved in the latter, providing construction observation which included providing guidance to the contractor regarding the installation of large wood, monitoring fabric encapsulated lift construction, and documenting daily construction activities.

Hidden Falls Restoration
St Paul, MN (2013-14)

Beth managed and led the engineering analysis for the development of concept designs for the restoration of the waterfalls and stream at Hidden Falls Regional Park. The stream through the park varies dramatically in form, including very steep reaches and lower gradient reaches as it drops from the top of a limestone bluff and across the Mississippi River floodplain. The design required step pool channel design in conjunction with protection and restoration of historic walls along the falls. It also required determination of a stable, attractive stream geometry for the lower gradient floodplain reach.

Croxton Ditch Improvement
Angola, IN, (2010-11)

Beth managed this project to reconnect a channelized headwater stream to its floodplain and incorporate meanders and pools into the stream. The goals of the project included retention of water and pollutants in the new floodplain to minimize impacts to downstream waters.

Minnesota River Meander Limit Study & Bank Stabilization
Kesota, MN (2012-14)

Beth managed a meander limit study on a stretch of the Minnesota River. Based on study findings that river migration poses a threat to existing infrastructure, Inter-Fluve designed bank stabilization measures for the river. Beth was the project manager for this design project, which includes site survey, hydrologic and hydraulic analysis, permitting, and construction document preparation.

RiverFirst Mississippi River Redevelopment
Minneapolis, MN (2012)

Beth managed Inter-Fluve's role as part of a multidisciplinary team charged with developing concepts for the redevelopment of portions of the Mississippi River waterfront through Minneapolis. The proposed improvements will include development of new park spaces and natural areas along the river. Inter-Fluve led the assessment of the regulatory feasibility and requirements associated with several of the design elements and conducted hydraulic analysis of the proposed alternatives.

CADD TECHNICIAN

Charlie Phillips

Charlie is a CADD Technician with particular interests in habitat conservation and oceanography. Prior to working for Inter-Fluve he was working as a Divemaster in New Zealand where he was part of a marine conservation team, monitoring the effects farming seeweed had on local ecosystems. Since joining Inter-Fluve he has contributed his knowledge of AutoCAD and Solidworks 3D to projects involving habitat restoration, dam removal and channel migration.

EXPERTISE

Computer Aided Drafting & Design

- AutoCAD Civil 3D
- Solidworks 3D
- Revit

EDUCATION

BEng – Mechanical Engineering, Oxford Brookes University, Oxford England, 2005

City & Guilds – Composite Materials, Oxford Brookes University, Brooklands College, Surrey, England, 2004

PADI Divemaster, 2010

PADI Rescue Diver, 2009

Emergency First Responder, 2009

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

New Zealand Underwater Association

SELECTED PROJECT EXPERIENCE

Bloede Dam Removal Alternatives, Analysis & Design, Final Design

Patapsco River, Ilchester, MD (2011-present)

Bloede Dam is located on the Patapsco River within the most visited state park in Maryland. The dam is the last major fish passage barrier in the lower Patapsco watershed. In 2011, Inter-Fluve was contracted by American Rivers to complete alternatives analysis through final design plans for the Bloede Dam Removal. The goals are restoration of fish and aquatic organism passage and restoration of the Patapsco River. The project includes relocation of over 1,500 lf of 48-inch pressurized sanitary sewer interceptor. The project also requires close coordination with Maryland Department of Natural Resources, NOAA, and numerous stakeholders.

Boardman River Dam Removal

Traverse City, MI (2013)

Inter-Fluve was part of a design team developing final design plans for the $4-million removal of Brown Bridge Dam and the Sabin Dam on the Boardman River in northern Michigan. We completed conceptual and final design documents, and provided full construction oversight for the sediment management and channel restoration at the Brown Bridge dam (1500' long and 40' tall), which was the first and largest of three dams to be removed on the river, and one of the largest removed in the state of Michigan. Drawdown of Brown Bridge was completed in fall 2012 and restoration of the channel and floodplain completed in January 2013. Charlie provided CAD.

Newburg Dam Removal

Milwaukee, WI (2012)

The demolition of the Newburg dam on the Milwaukee River enables fish and other aquatic life to move freely between Grafton and West Bend for the first time since the 1840s. The removal of the dam will give downstream fish access to the main river channel as well as miles of tributary streams that will provide spawning habitat for the fish. Charlie provided CAD.

Cotley River Dam Removal

Taunton, MA (2013)

The Cotley River Dam is a small dam impounding a former headwater stream just east of Taunton, MA. Removal plans call for partial spillway removal, preservation of historic structures, and stabilization of an upstream railroad crossing potentially affected by changing hydraulic conditions upstream.

Minnehaha Creek Reach 20

MN (2013)

Reach 20 of Minnehaha Creek was ditched in the 1950's. The purpose of this project was to reconnect the creek with it's historical flood plain and sections of it's old alignment. The project includes improving stormwater filtration, restoring former channel sinuosity, updating canoe access, and developing recreational trails while creating wetland and riparian habitats. Charlie provided CAD.

Sheboygan River Habitat

Sheboygan, WI (2013)

This reach of the Sheboygan River has been classed as an AOC (Area of Concern) by the EPA; it serves as a sink for pollutants carried from three watersheds, the Sheboygan River, Mullet River and Onion River. The priorities of the overall project include remediation, source pollution control, brownfield and waterfront restoration, and habitat restoration and protection. Inter-Fluve is focusing on the habitat restoration and

FLUVIAL GEOMORPHOLOGIST

Ben Swanson, PhD

Mr. Swanson has 7 years of academic experience and 4 years of professional experience in fluvial geomorphology and watershed sciences. His PhD research focused on disruptions in channel form, habitat, and sediment transport processes across tributary junctions along the Rio Chama, NM, and his masters work documented channel changes along the Clark Fork River, MT, in response to increased sediment inputs associated with historic mining. He's skilled in Geographic Information Systems analyses, collecting geomorphic and sediment field data, and modeling hydraulics and sediment transport. Ben's primary focus is assessing how stream channels have adjusted their form and function in response to watershed and channel disturbances, and utilizing this information to help re-establish healthy and productive systems.

EXPERTISE

Fluvial Geomorphology

- Channel and Floodplain Assessment
- Geographic Information Systems
- Hydraulic Modeling
- Sediment Transport Analyses
- Aquatic Ecology

Field Experience

- Topographic Survey (GPS, Total Station, Level)
- Geomorphic Survey (Cross-sections, Profiles)
- Bed Material Size Distributions
- Bed Material Transport Sampling
- Scour/Erosion Analyses
- Soils Analyses
- Mapping

EDUCATION

PhD, Earth & Planetary Sciences,
University of New Mexico
Albuquerque, NM 2012

MS, Water Resources & Fluvial Geomorphology
University of Montana
Missoula, MT 2002

BA, Geology
University of Montana
Missoula, MT 1996

CONTINUING EDUCATION

40 - Hour Hazwopper Training. 2005. Acute Engineering.

SELECTED PROJECT EXPERIENCE

Mirror Pond Sediment Management Feasibility Study

Bend, OR (2013)

Mirror Pond is an urban resevoir located on the the Deschutes River in the city of Bend, Oregon. Dredged in 1985, it has since filled with sediment again. To address the sedimentation issues in both the short- and long-term, Inter-Fluve developed a preliminary sediment management plan. The document included background information covering the existing watershed and reservoir conditions, as well as a discussion of potential solutions and their impacts to the system. Potential actions range from leaving the reservoir alone, to partial or full dredging, to dam removal and stream restoration. Ben worked closely with the City, Greenworks Landscape Architecture, and Inter-Fluve staff to establish the physical, ecological, and social ramifications of each solution and produced the document being used to further narrow the City's preferred options.

Ulao Creek Habitat Enhancement

Grafton, WI (2013)

Ben is working with the Ozaukee County and Inter-Fluve team to develop and implement a habitat enhancement project along the upper reach of Ulao Creek, near Grafton, WI. Habitat work is addressing limiting factors for northern pike and other fish species that use this straightened wetland stream for spawning. The project aims to restore meanders to the stream, provide greater access to the wetland floodplain for both flooding and fish, and improve wetland vegetation diversity. Ben has been involved in assessing and surveying the site and analyzing hydrology data. He also provided geomorphic analyses on nearby creeks which were used as references for his design of the Ulao Creek planform and cross-sections.

Dowagiac Stream Restoration Project (2013)

Dowagiac, Michigan

Inter-Fluve is currently developing design criteria to guide the restoration of a reach of Michigan's Dowagiac River managed by the Pokagon Band of the Potawatomi Tribe. The river was straightened in the early 1900s. The Pokagon Tribe and supportive watershed groups are trying to re-establish the meandering planform to invigorate trout habitat and wetland function, and increase recreational use for fishing and canoeing. Ben has collected and presented historical maps and documents describing the pre-dredged river; helped produce a geomorphic survey; collected sediment information from relict channels; and produced GIS maps providing visual access to most of this data.

Little Manistee Habitat Enhancement

Manistee, MI (2013)

Inter-Fluve is working with Conservation Resource Alliance to improve habitat for salmonids and other aquatic species by installing woody debris along a reach of the Little Manistee River. The woody debris is intended to create more complexity to the channel and help expose gravel that lies beneath the generally sandy stream bed. Ben helped collect channel cross-section survey data and assess the existing morphology and habitat within the project reach. He also constructed a hydraulic model based on the survey data and a hydrologic assessment. He is currently helping to assess woody debris buoyancy and produce designs.

Ben Swanson, PhD

ADDITIONAL EXPERIENCE PRIOR TO INTER-FLUVE

Misty Acres Creek Weir Removal & Restoration
Manistee, MI (2013)

An inactive weir and a road crossing impact a small tributary to the Betsie River in the Northeastern Lower Peninsula of Michigan, which is protected by the Grand Traverse Regional Land Conservancy. Inter-Fluve is working with Conservation Resource Alliance and the Conservancy to remove the weir and improve geomorphic conditions along the channel. As part of that effort, Ben examined the hydrology and hydraulics of the project reach, including constructing a hydraulic model. He is assisting with sediment management and design of the channel for when the weir is eventually removed.

Spring Creek Daylighting & Realignment
Sussex, WI (2013)

Ben is working with the Village of Sussex and project partners to develop and implement a daylighting plan for a spring creek that currently flows through a 300-foot-long culvert. The channel will be realigned in an open easement and will incorporate meanders and habitat elements that are currently non-existing. The channel and floodplain will also include a section of rock wall to help protect adjacent infrastructure. Ben has been involved in producing a hydraulic model and in the design of the proposed channel and floodway.

Boyce Pond Dam Removal & McQueston Brook Dam Removals
Fitzwilliam & Manchester, NH (2013)

Inter-Fluve is working with watershed groups and dam owners to remove numerous small, outdated dams in the Northeastern United States, including New Hampshire's Boyce Pond Dam and McQueston Brook Dams. As part of the planning and design for these dam removal projects, Ben has produced Quality Assurance Project Plans and Site Specific Project Plans documents for government agency approvals. These documents outline the steps Inter-Fluve will use to collect and manage topographic and sediment data, and provides due diligence analyses concerning potential sediment and sediment contaminant issues, wildlife impacts, and other factors. His work at these sites also includes hydrologic and hydraulic analyses, including model development.

Mill River Channel Realignment
Whately, MA (2013)

Ben performed a historical analysis of the channel, which utilized historic air photos to document rates and directions of channel change. The assessment provided guidance for protecting the nearby interstate highway and other infrastructure, as well as the adjacent wells.

Shell Creek Watershed Assessment
Schuyler, NE (2013)

The Shell Creek Watershed Improvement Group and the Lower Platte North NRD has contracted with the Inter-Fluve team to develop concepts to help lessen sedimentation and erosion along 80 miles of Shell Creek. The Creek has been impacted by intense row-crop agriculture for decades, and has also experienced channel straightening, removal of stream side vegetation, levee construction, and other impacts. Ben is working on documenting historic changes to channel form and adjacent landuse using GIS and historic air photos. He is also identifying general stream enhancement projects and prioritize reaches for future work in the watershed using LiDAR elevation data to model stream conditions and a field assessment.

Red Cedar River Bank Erosion Assessment & Stabilization
Colfax, WI (2013)

Tainter Lake, a reservoir along the Red Cedar River, has experienced an increase in sedimentation and nutrient pollution over the last few decades, leading to loss of lake access for many lakeside properties and large algae blooms. Inter-Fluve has teamed with the Tainter Menomin Lake Improvement Association and numerous government agencies to assess upstream bank and bluff erosion and stream adjacent landuse, and provide conceptual plans for reducing sediment within the system. Ben documented historical channel erosion and avulsion along the reach downstream of Colfax, WI, and has also helped prioritize reaches for future work. As the project continues, he will be involved in modeling hydraulics through the prioritize reach, and will formulate plans and an implementation strategy for slowing erosion along the channel.

EXPERIENCE PRIOR TO JOINING INTER-FLUVE

Northern Rivers Dam Licensing Project (Parish Geomorphic Ltd)
Ontario, Canada

Ben was the technical lead on a series of geomorphic assessments of multiple bedrock rivers in northern Ontario. The assessments were performed for Xeneca Power, Inc., who were developing run-of-the-river dams for hydroelectric power. The assessments included field measurements of bed material size and channel form, and analyses of sediment transport and bank erosion. He utilized hydraulic and sediment transport modeling to evaluate flooding and sediment bed material connectivity under both existing and dammed conditions. He also used LiDAR data and simple geomorphic models to map areas of potential bluff erosion in a GIS.

Robinson Creek Restoration Design (Parish Geomorphic Ltd)
Markham, Ontario, Canada (2012)

Robinson Creek is an urban stream impacted by relatively dense residential development and multiple road crossings. The Toronto and Region Conservation Authority worked with Ben's team to re-meander the low-gradient stream channel, establish a wet meadow floodplain, and enhance in-stream habitat for the endangered red-side dace. Ben provided the hydraulic modeling and channel design for the project, which featured a series of wetland pools connected by sinuous channels.

Coupling of Hydrologic/Hydraulic Models and Aerial Photos (University of New Mexico)
Rio Grande and Rio Chama, Albuquerque, NM (2006-2009)

As part of a background study for potential river management projects in New Mexico, Ben provided historical channel analyses for the Rio Grande and Rio Chama for the Army Corps of Engineers' Arid Region Demonstration Project. He documented major channel and floodplain changes over time as observed from sets of closely spaced sequential aerial photographs. He then compared the style and processes associated with these changes to shifts in hydrology and hydraulics in the channel, as well as to changes in landuse and river management, such as dam operations and levees. The work is now being used to evaluate the potential effectiveness of ESA-listed Rio Grande silvery minnow habitat restoration projects and impending changes to the timing and magnitude of flow releases upstream of the project areas.

City of
RIVER FALLS

July 15, 2015

To: Utility Advisory Board

From: Julie Bergstrom, Finance Director/Asst. City Administrator

Re: June 2015 Interim Financial Statements

Attached are the interim financial statements for the electric, water and sewer funds for the six months ended June 30th. With 50% of the fiscal year elapsed, the three utility funds are very close to projected for both revenues and expenses. Highlights of the statements include:

Electric fund: The June expenses include the purchase of a replacement vehicle for the meter department, which will be capitalized and moved to the balance sheet once all the costs are collected. Year to date revenues from services have increased $95,094 from the prior year; whereas, year-to-date net income has decreased $75,881.

- Purchased power is $68k higher than last year's cumulative total, but is still at 47% of budgeted. Transmission expenses have increased due to the timing of tree trimming services and corresponding payments.
- Customer Accounts have increased with the addition of the full-time CSR staff in 2015 versus 2014, but remains at 44% of budgeted.
- Other operating expenses (depreciation) have increased with the 2014 plant additions of transformers and street lighting changeover to LED.

Overall the Electric Utility has a net gain of $493,594.

Water fund: Year-over-year total revenues have increased $35,485 generated by higher irrigation sales and increased water impact rates. Other expenses incurred this year include increased transmission expenses from leak repairs and asphalt patching, backflow meter consulting and installations, and consulting fees for the water rate study. Other operating expenses (depreciation) are higher from the prior year's plant additions (Ninth Street, Cascade, & meter purchases). Expenses overall are 51% of budgeted.

Through the end of June, the Water Utility is showing a net loss of $101,578.

Sewer fund: The Utility's gross revenues have decreased $35,777 factoring from a decline in industrial and other sales to public authorities. In addition, other financing (impact fee revenues) have decreased year-over-year due to the reduction in the sewer connection fee in 2015.

Maintenance costs have increased with schedule sewer lines cleaned, and repairs to both the Spring Creek and North lift stations. Other operating expenses (depreciation) are higher from the prior year's plant additions (Ninth Street, Cascade, & meter purchases).

Overall the Wastewater Utility has a net gain of $408,435.

Please contact me if you have any questions regarding the monthly financial reports.

City of River Falls

Balance Sheet - June 2015

Account Number	Description		Period Net Change	Account Balance
610 Electric				
Assets		Total Assets	1,247,539.88	20,285,851.74
	Cash and Investments		886,757.78	6,229,901.88
	Accounts Receivable		135,477.93	2,045,882.03
	Prepaid & Inventory		(32,384.93)	545,212.64
	Construction in Progress		104,788.03	587,408.85
	Capital Assets		216,623.89	23,617,632.43
	A/D Capital Assets		(63,722.82)	(12,740,186.09)
Liabilities		Total Liabilities	(864,971.58)	(1,133,033.38)
	Accounts Payable		(872,388.76)	(1,097,075.73)
	Non-Current Liability		(13,191.00)	(82,235.28)
	Debt Outstanding		1,672.81	(117,118.08)
	Deferred Resources		18,935.37	163,395.71
Fund Balance		Total Fund Balance	(382,568.30)	(19,152,818.36)
	Fund Balance		(382,568.30)	(19,152,818.36)
		Total Liabilities + Fund Balance	(1,247,539.88)	(20,285,851.74)

City of River Falls

Financial Statement
June, 2015

	Current Year				
	Budget	Month	Y-T-D	% Budgeted	Prior Y-T-D
610 - Electric					
Revenue					
Charges for Services	$13,694,468	$1,169,111	$6,657,702	49%	$6,562,608
Interest	$15,000	$1,858	$12,339	82%	$15,610
Miscellaneous	$382,255	$39,792	$173,114	45%	$154,865
Other Financing	$257,224	$19,647	$118,276	46%	$2,702
Deferred Resources	$0	$0	$0	0%	$199,348
Total Revenue	**$14,348,947**	**$1,230,409**	**$6,961,432**	**49%**	**$6,935,133**
Expense					
Hydraulic Power Generation	$32,097	$1,809	$22,861	71%	$15,587
Purchased Power	$10,249,918	$801,262	$4,849,802	47%	$4,780,985
Transmission	$88,345	$11	$51,053	58%	$32,512
Distribution	$1,106,971	$46,109	$422,905	38%	$512,667
Customer Accounts	$572,266	$52,628	$251,445	44%	$187,831
Administrative & General	$333,510	$(170,644)	$160,798	48%	$167,826
Other Operating Expenses	$764,700	$63,723	$391,326	51%	$357,503
Debt Service	$0	$0	$1	0%	$16,836
Transfers to Other Funds	$1,201,141	$52,941	$317,648	26%	$294,710
Total Expense	**$14,348,947**	**$847,840**	**$6,467,838**	**45%**	**$6,366,456**
Net Total 610 - Electric	**$0**	**$382,568**	**$493,594**	**47%**	**$568,676**

City of River Falls

Balance Sheet - June 2015

Account Number	Description		Period Net Change	Account Balance
620 Water				
Assets		Total Assets	62,149.42	15,553,711.92
	Cash and Investments		83,099.05	1,256,834.51
	Accounts Receivable		2,215.92	149,851.09
	Prepaid & Inventory		(2,214.39)	43,856.69
	Non- Current Assets		20.79	337,120.39
	Construction in Progress		3,542.00	101,680.43
	Capital Assets		12,262.25	18,782,099.42
	A/D Capital Assets		(36,776.20)	(5,117,730.61)
Liabilities		Total Liabilities	(64,354.88)	(2,039,897.52)
	Accounts Payable		(58,840.78)	(96,975.28)
	Non-Current Liability		14.86	(34,127.22)
	Debt Outstanding		(5,528.96)	(1,908,795.02)
Fund Balance		Total Fund Balance	2,205.46	(13,513,814.40)
	Fund Balance		2,205.46	(13,513,814.40)
		Total Liabilities + Fund Balance	(62,149.42)	(15,553,711.92)

City of River Falls

Financial Statement
June, 2015

	Current Year				
	Budget	Month	Y-T-D	% Budgeted	Prior Y-T-D
620 - Water					
Revenue					
Charges for Services	$1,306,629	$121,934	$661,599	51%	$640,038
Interest	$3,474	$260	$1,065	31%	$1,240
Miscellaneous	$376,281	$15,423	$59,311	16%	$71,603
Other Financing	$85,080	$15,488	$71,138	84%	$44,746
Total Revenue	**$1,771,464**	**$153,105**	**$793,112**	**45%**	**$757,627**
Expense					
Transmission	$431,168	$43,274	$223,138	52%	$176,873
Pumping	$138,790	$12,034	$65,713	47%	$66,780
Water Treatment	$75,422	$4,128	$36,769	49%	$34,369
Customer Accounts	$103,284	$6,900	$36,388	35%	$42,190
Administrative & General	$156,623	$13,230	$76,714	49%	$64,919
Other Operating Expenses	$365,844	$36,776	$220,657	60%	$166,330
Debt Service	$69,039	$5,514	$34,591	50%	$38,185
Transfers to Other Funds	$431,294	$33,453	$200,721	47%	$200,921
Total Expense	**$1,771,464**	**$155,310**	**$894,691**	**51%**	**$790,567**
Net Total 620 - Water	**$0**	**$(2,205)**	**$(101,578)**	**48%**	**$(32,940)**

City of River Falls

Balance Sheet - June 2015

Account Number	Description		Period Net Change	Account Balance
630 Waste Water				
Assets		Total Assets	263,433.34	22,893,905.95
	Cash and Investments		330,133.42	2,960,195.98
	Accounts Receivable		(11,417.83)	348,748.44
	Prepaid & Inventory		(34,746.25)	19,282.58
	Non- Current Assets		46.47	410,232.48
	Construction in Progress		10,450.86	206,286.63
	Capital Assets		12,262.25	27,770,743.40
	A/D Capital Assets		(43,295.58)	(8,821,583.56)
Liabilities		Total Liabilities	(194,325.09)	(5,795,297.29)
	Accounts Payable		(182,660.60)	(243,961.33)
	Non-Current Liability		1,491.68	(140,147.27)
	Debt Outstanding		(11,142.56)	(5,597,791.12)
	Deferred Resources		(2,013.61)	186,602.43
Fund Balance		Total Fund Balance	(69,108.25)	(17,098,608.66)
	Fund Balance		(69,108.25)	(17,098,608.66)
		Total Liabilities + Fund Balance	(263,433.34)	(22,893,905.95)

City of River Falls

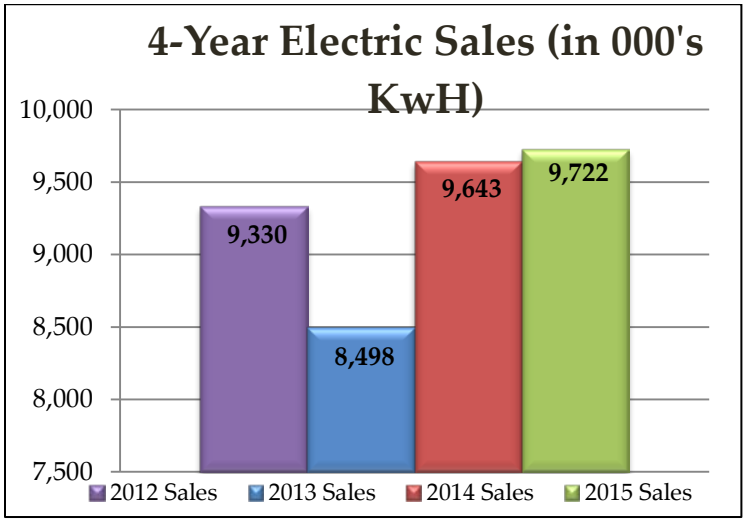
Financial Statement
June, 2015

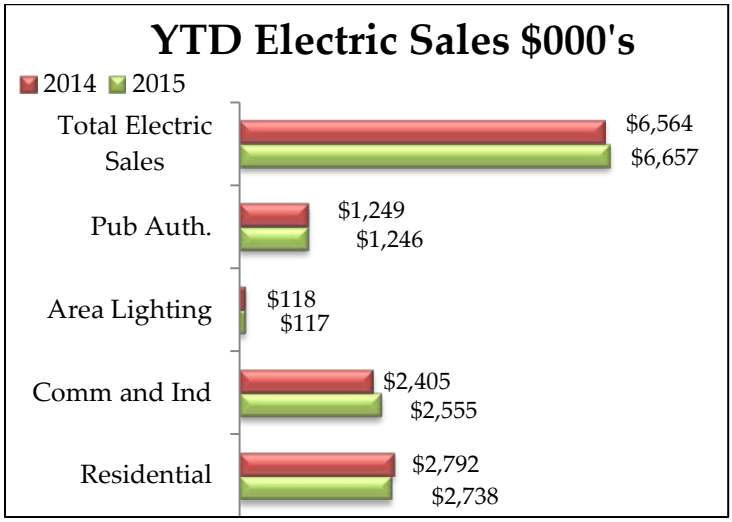
	Current Year Budget	Month	Y-T-D	% Budgeted	Prior Y-T-D
630 - Waste Water					
Revenue					
Charges for Services	$3,052,807	$251,008	$1,514,746	50%	$1,535,263
Interest	$5,847	$772	$5,127	88%	$5,700
Miscellaneous	$36,252	$2,363	$25,665	71%	$21,456
Other Financing	$59,480	$14,825	$53,900	91%	$72,430
Total Revenue	**$3,154,386**	**$268,968**	**$1,599,438**	**51%**	**$1,634,850**
Expense					
Operation	$525,396	$31,639	$209,589	40%	$203,527
Maintenance	$550,202	$35,374	$178,621	32%	$121,651
Bio Solids	$394,000	$32,665	$197,653	50%	$193,262
Customer Accounts	$271,567	$6,893	$36,002	13%	$106,604
Administrative & General	$311,139	$22,717	$140,100	45%	$112,641
Other Operating Expenses	$493,000	$43,296	$259,773	53%	$244,584
Debt Service	$123,640	$12,114	$78,291	63%	$89,262
Transfers to Other Funds	$485,442	$15,162	$90,973	19%	$78,885
Total Expense	**$3,154,386**	**$199,860**	**$1,191,003**	**38%**	**$1,150,416**
Net Total 630 - Waste Water	**$0**	**$69,108**	**$408,435**	**44%**	**$484,434**

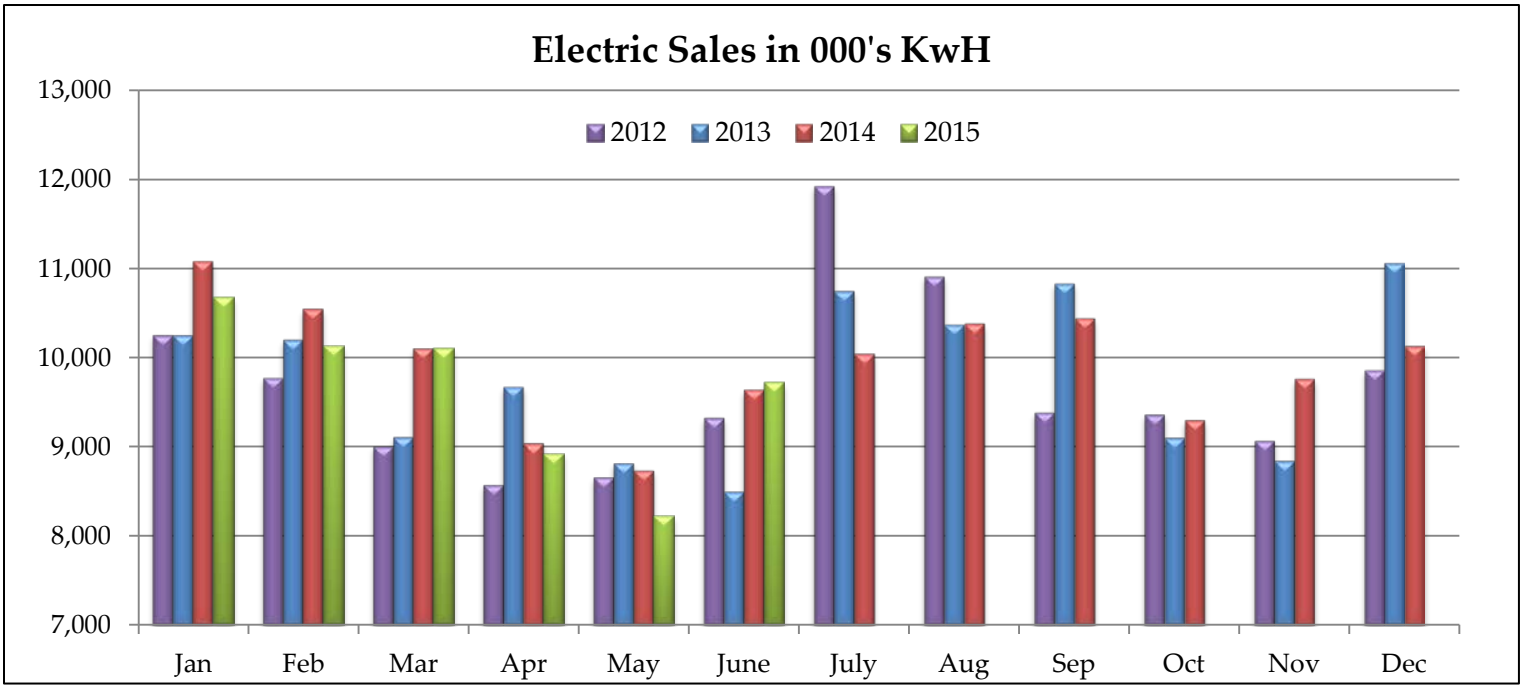
River Falls Municipal Utility
Electric Dashboard

For June 2015

Electric Sales



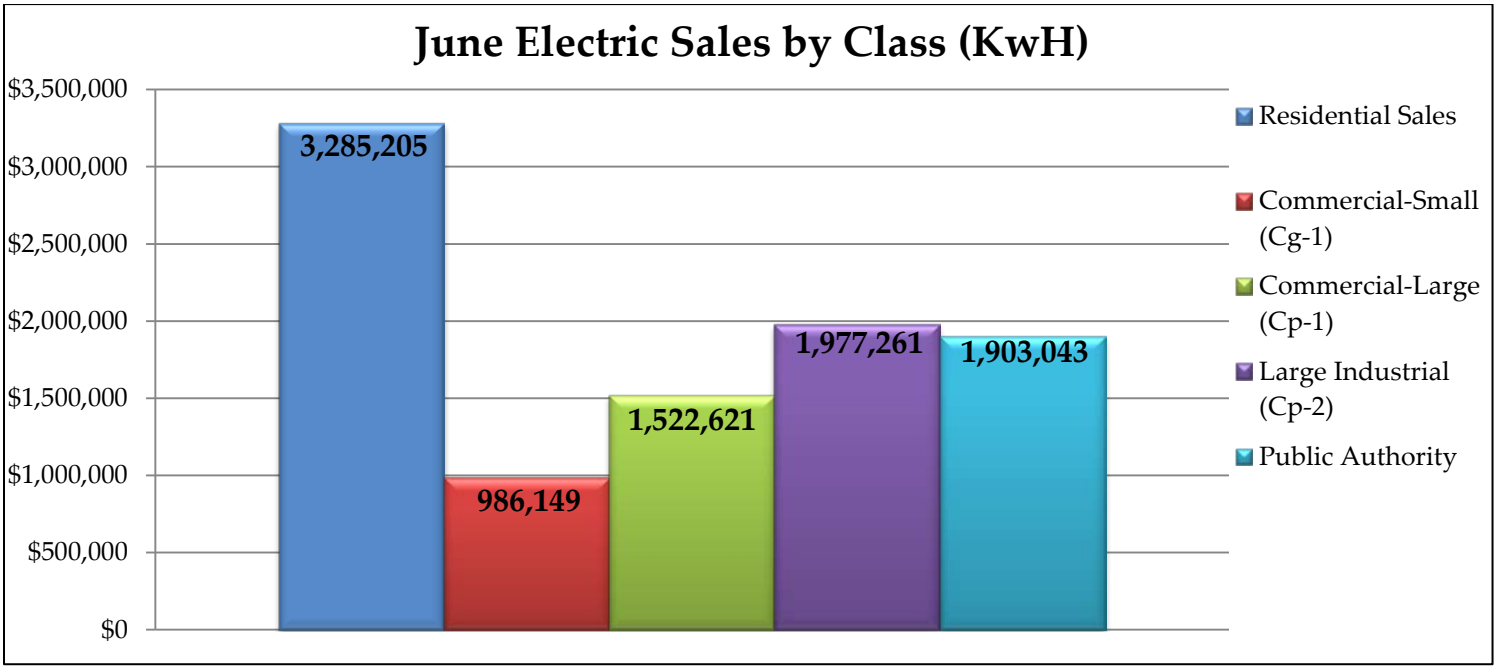




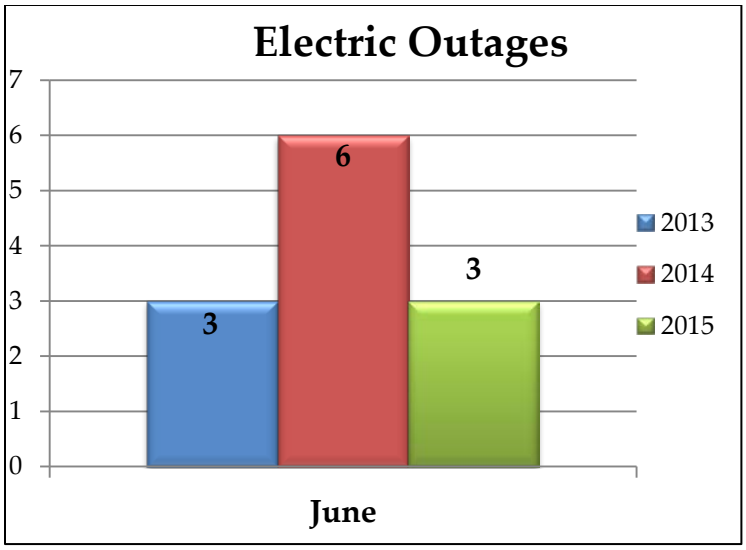
The Power of Community

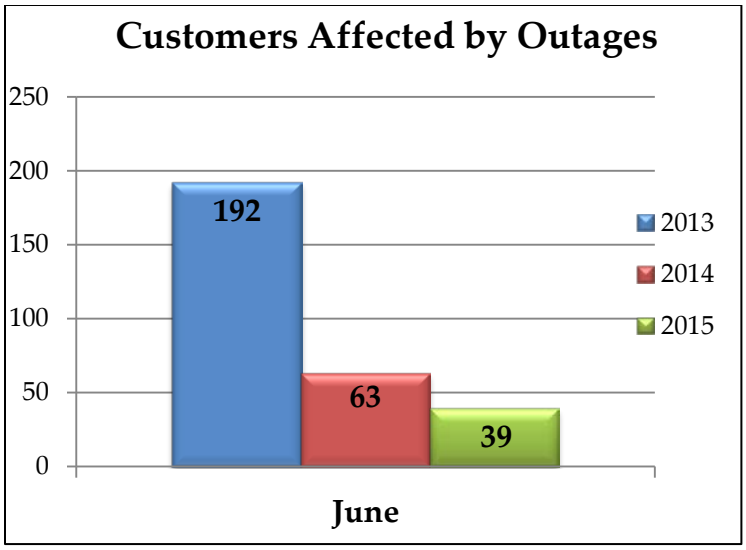
River Falls Municipal Utility
Electric Dashboard

For June 2015



Electric Outages



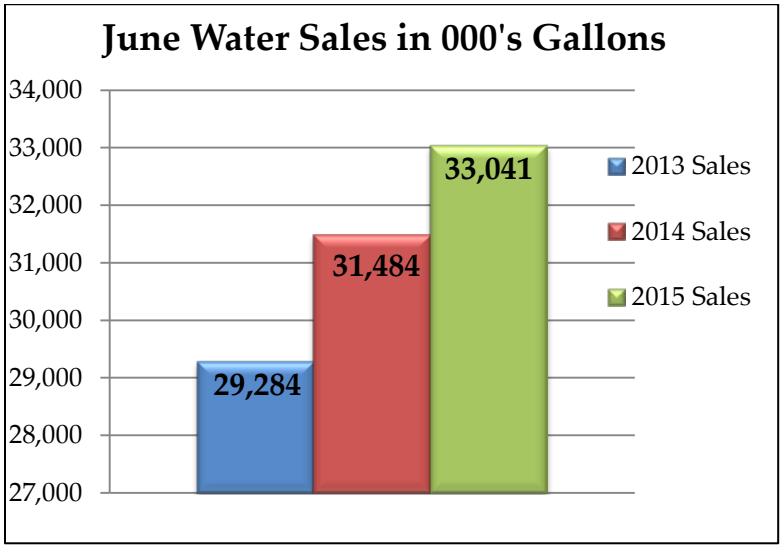


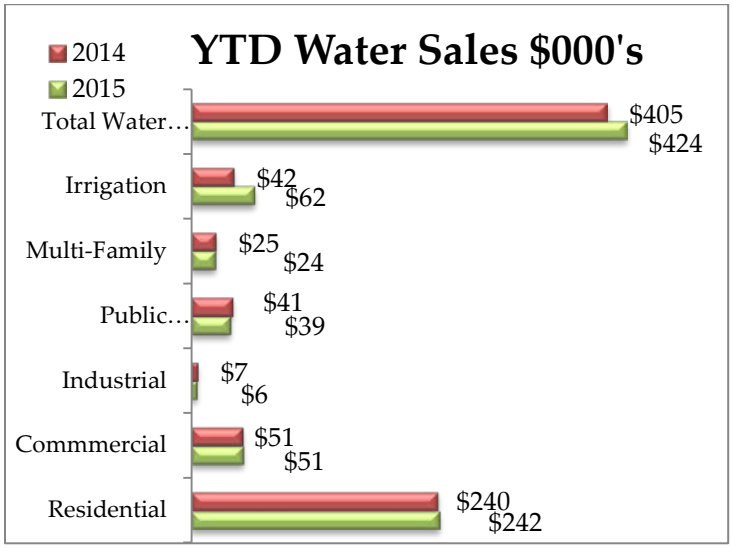
For more information please contact: Kevin Westhuis
(715) 426-3442 or kwesthuis@rfcity.org

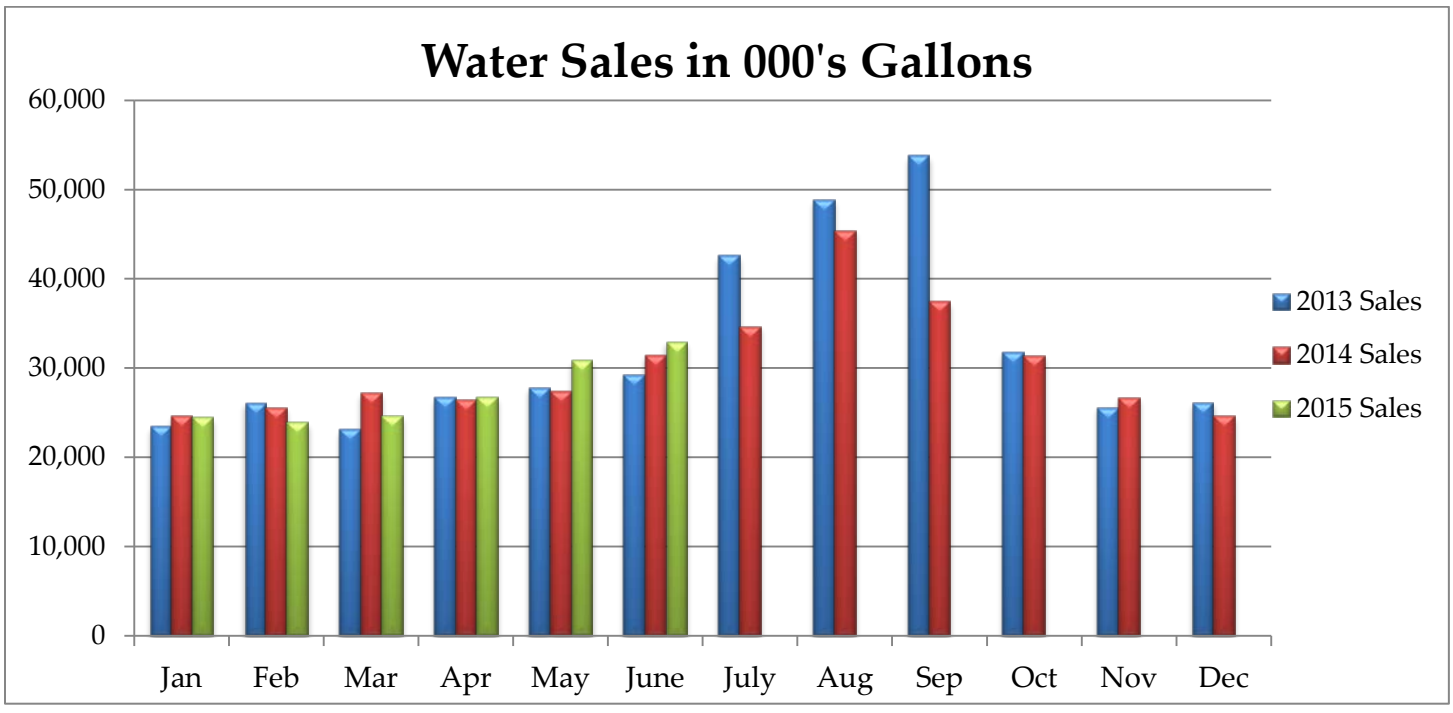
River Falls Municipal Utility
Water Dashboard

For June 2015

Water Sales



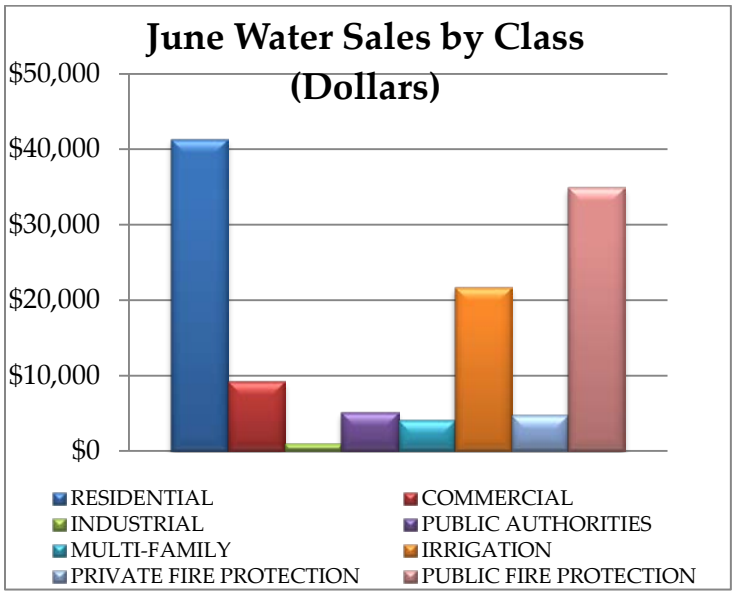


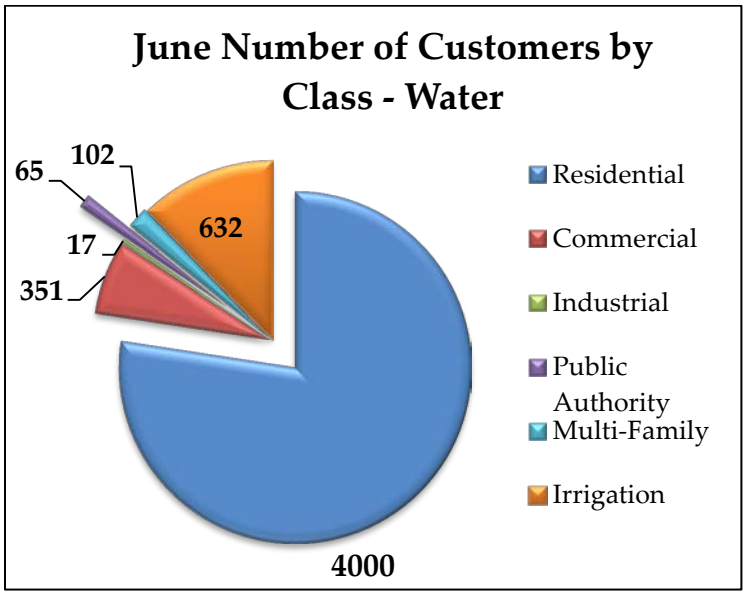


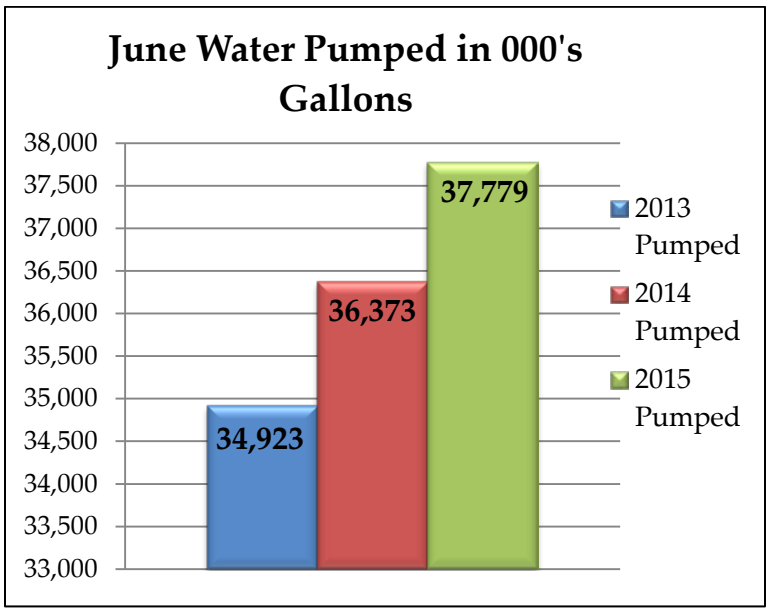
Providing a safe and reliable supply of high quality water to the River Falls community we serve.

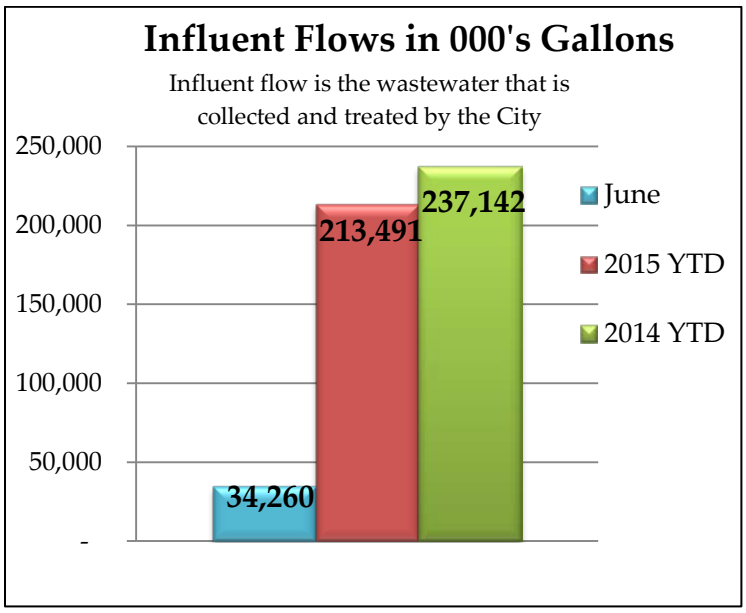
River Falls Municipal Utility
Water Dashboard

For June 2015









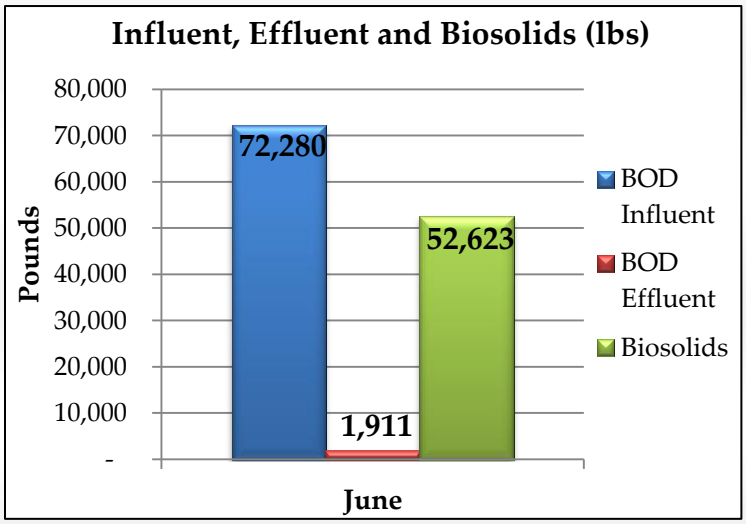
Used as a comparison between water pumped versus water treated.

For more information please contact: Kevin Westhuis
(715) 426-3442 or kwesthuis@rfcity.org

River Falls Municipal Utilities
Waste Water Treatment Plant

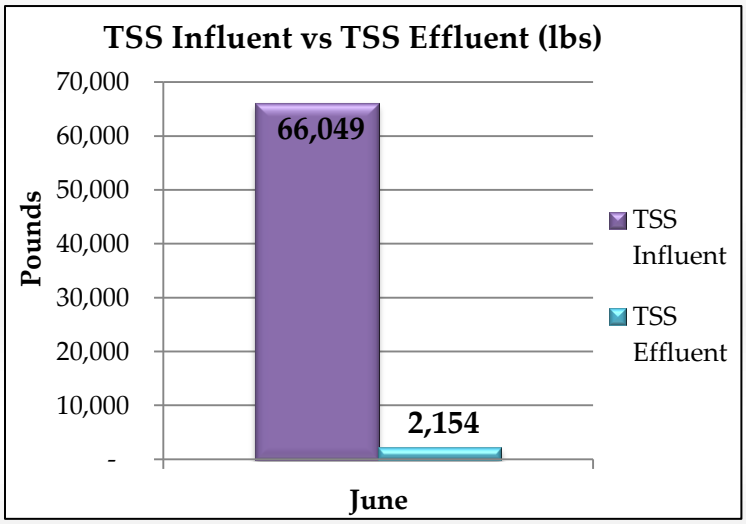
For June 2015

Influent, Effluent and Biosolids (lbs.)



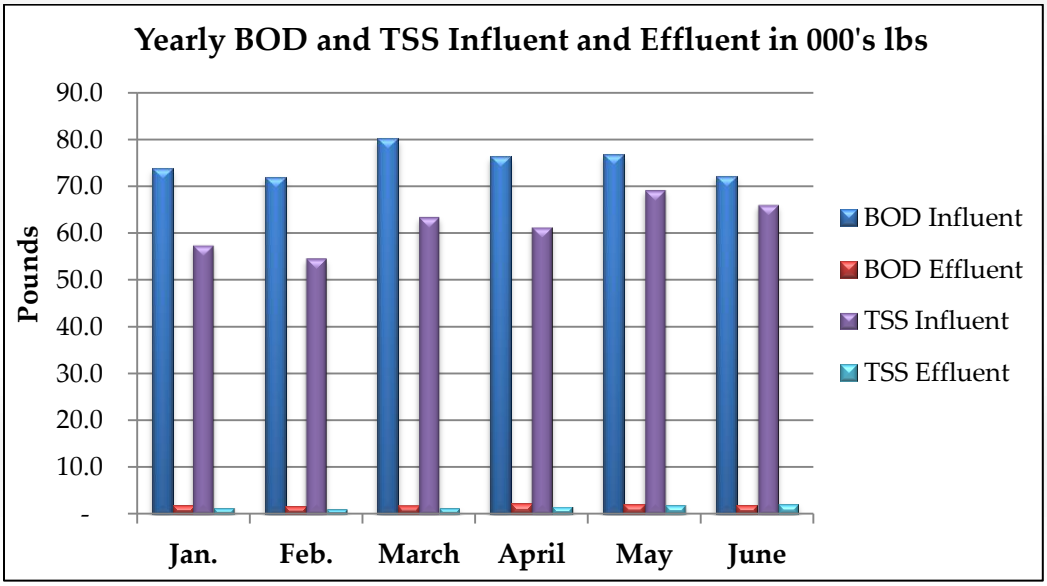
The Biochemical Oxygen Demand (BOD) Influent and BOD Effluent pounds represent pounds of oxygen needed for treatment.

TSS Influent vs TSS Effluent (lbs)



The TSS Influent and TSS Effluent represent the pounds of Total Suspended Solids entering the Waste Water Treatment Plant versus going out into the Kinnickinnic River.

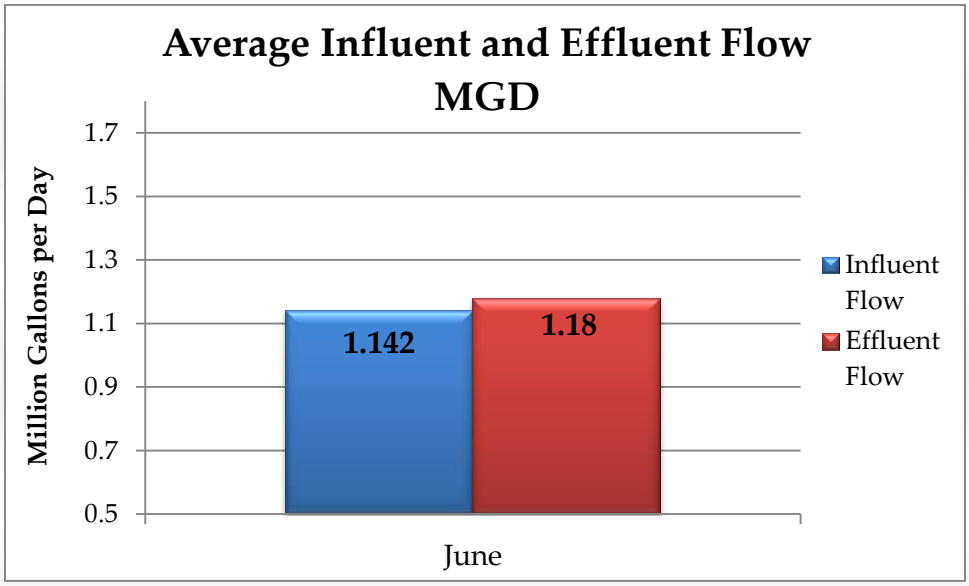
Yearly BOD and TSS Influent and Effluent (in 000's lbs.)



This graph represents the average monthly pounds of both BOD and TSS coming into the plant and being discharged at the plant`s outfall into the Kinnickinnic River for the year 2015.

River Falls Municipal Utilities
Waste Water Treatment Plant

Average Influent and Effluent Flow in MGD



This graph represents the average daily flow into the treatment plant as well as the average daily flow discharged into the Kinnickinnic River. The design flow for the Treatment plant is 1.8 million gallons per day (MGD).

Did you know….

Treatment efficiency can be known by microscopic examination of indicator organisms? Abundance or appearance of particular Protozoa`s directly relates to available food (BOD).

Large amount of available food – sarcoina (ameba) and flagellated protozoa)
Food still available and very large bacteria population- free swimming ciliated protozoa.

Low food (BOD) (starving) –stalked ciliates and rotifers- excellent effluent. Stalked ciliates are called the brooms of wastewater.
These indicator organisms depend on available food, sludge age and nutrient treatment. Bacteria are the workhorse of wastewater, these organisms consume them.

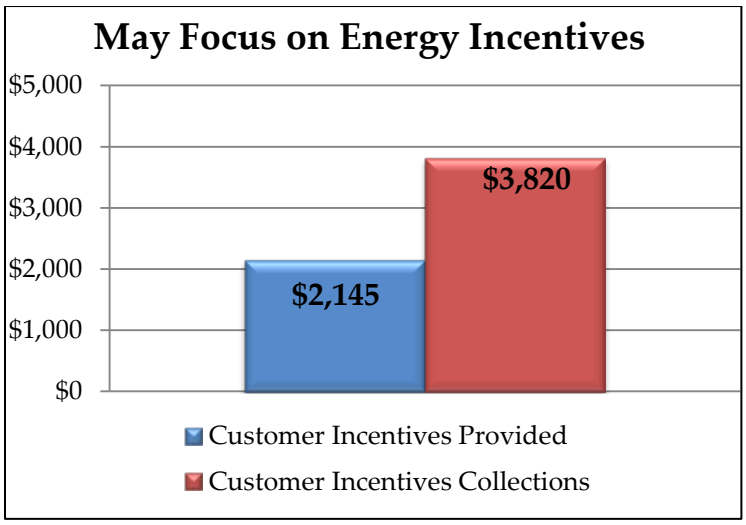
Protozoa are defined as single-celled organisms with animal-like behaviors, such as motility and predation.

For more information please contact: Tom Johnson
(715) 426-3531 or tjohnson@rfcity.org

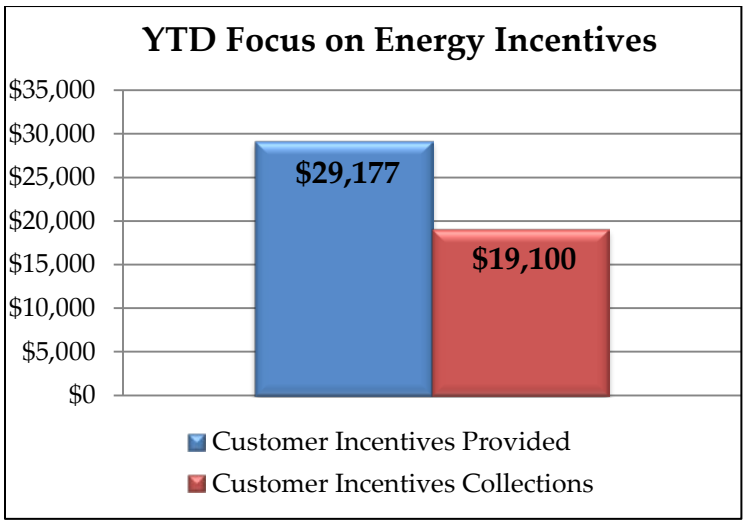
POWERful Choices! Dashboard

For May 2015

Focus on Energy Program

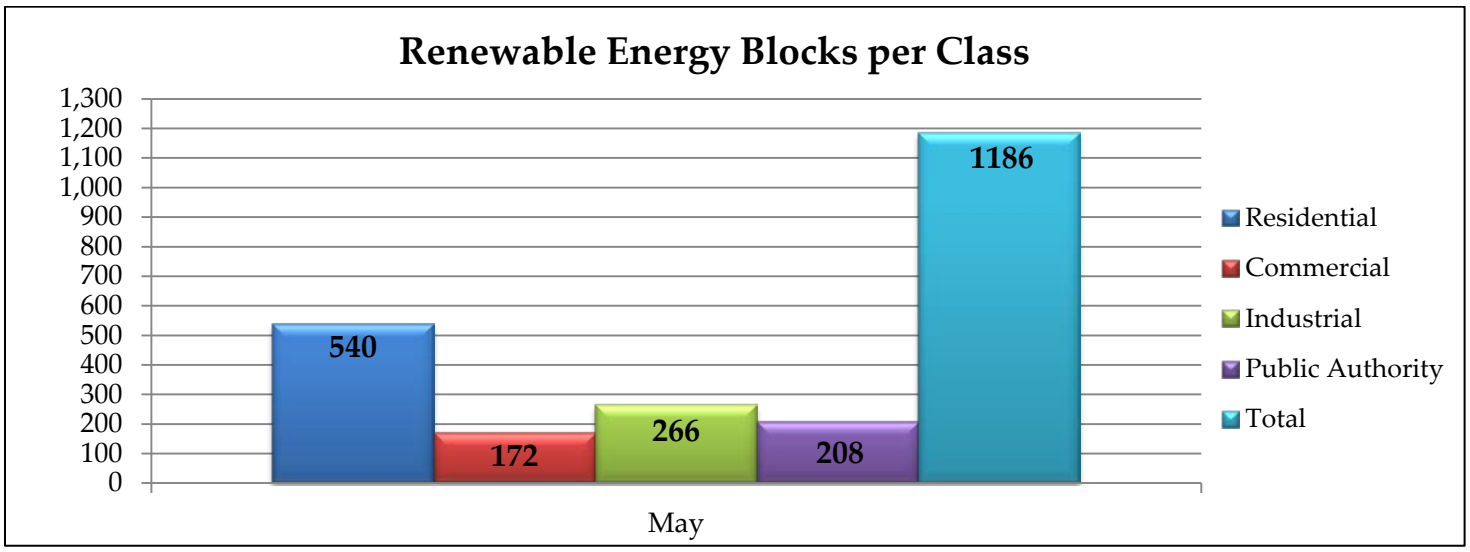


The total customer incentives provided for January compared to the customer incentives collections from Focus on Energy.



The year-to date customer incentives provided compared to the customer incentives collections from Focus on Energy.

Renewable Energy Blocks

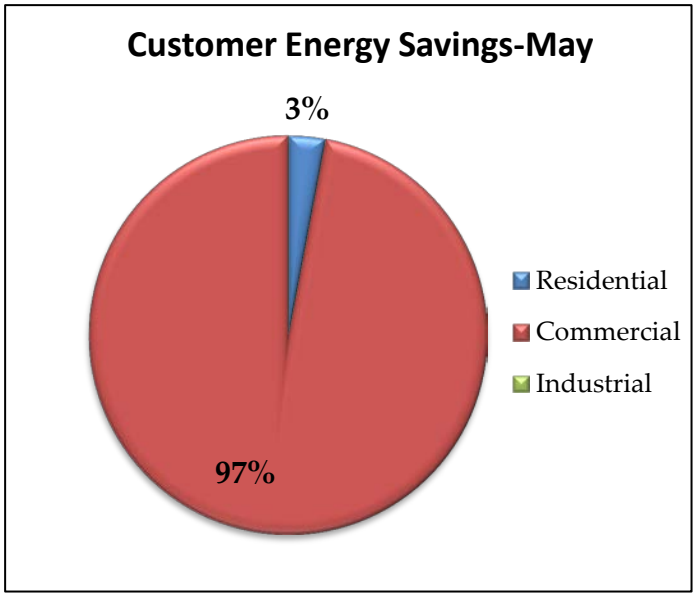


Renewable energy blocks are sold at $3 for 300kWh of renewable energy.

POWERFUL CHOICES
a sustainable energy project for river falls

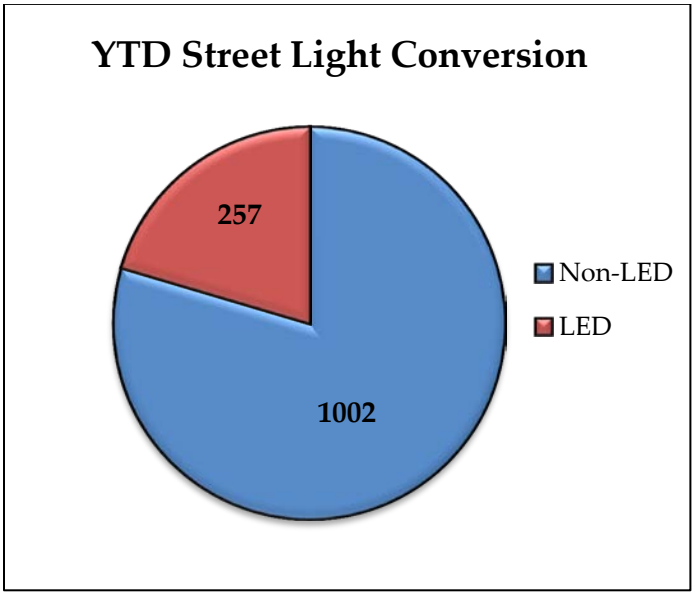
POWERful Choices! Dashboard

Energy Savings



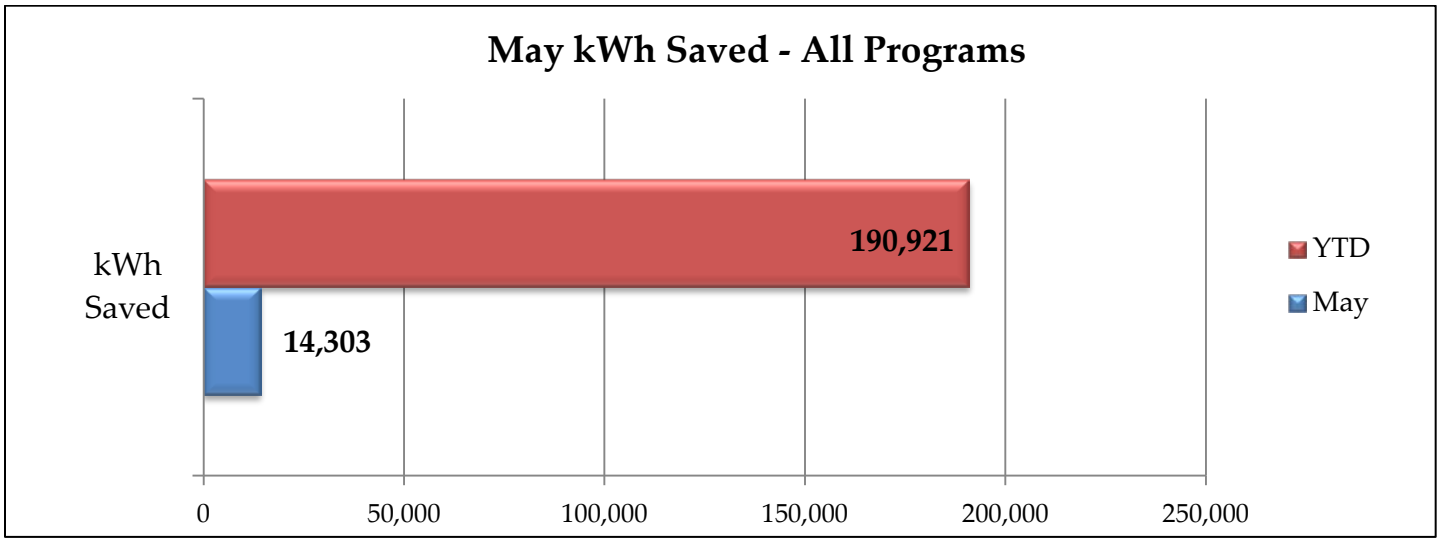
Monthly cumulative percentage of kilowatt hours saved per customer sector.

Street Light Conversion Program



This change is another example of our City leading by example in energy efficiency and environmental stewardship. The goal is to have 70 percent of the street lights converted to LED by 2018.

kWh Saved

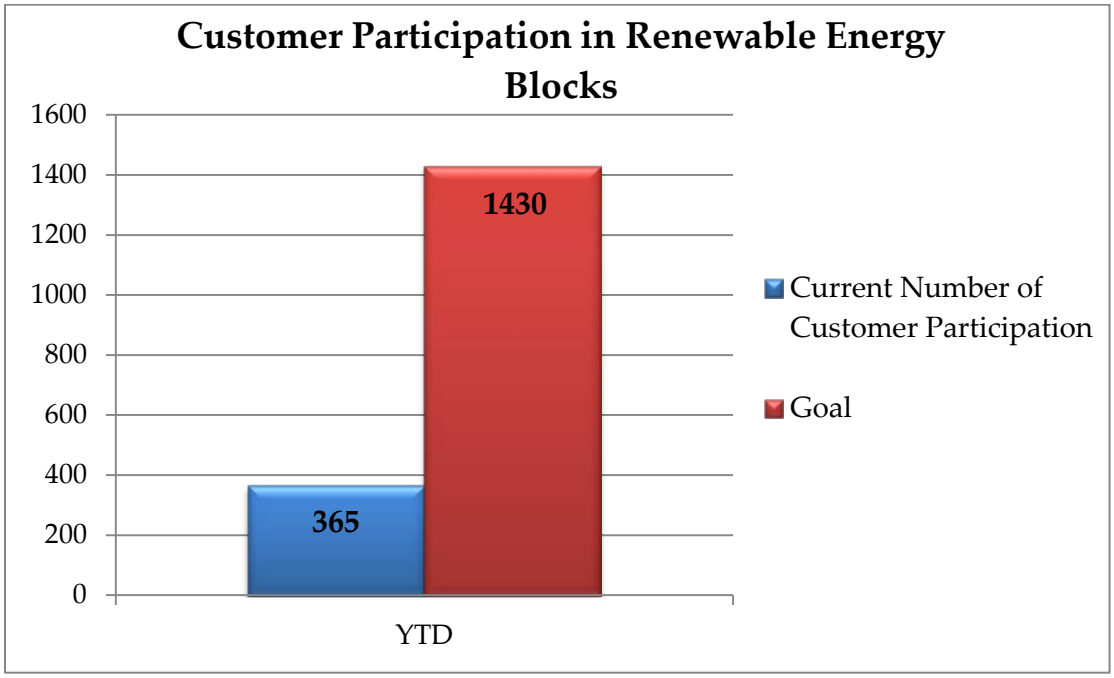


Energy savings resulting from programs such as upgrades to lighting, motors, HVAC, variable frequency drives, and refrigeration. All customer sectors are included.

POWERFUL CHOICES
a sustainable energy project for river falls

POWERful Choices! Dashboard

Renewable Energy Block Participation



River Falls currently ranks 10th in the nation for customer participation and 2nd in Wisconsin. The 2015 goal is for River Falls to become first in the state. The current level of customer participation in Renewable Energy Blocks is 5.9 percent. The goal is to reach 10 percent customer participation by December 2015.

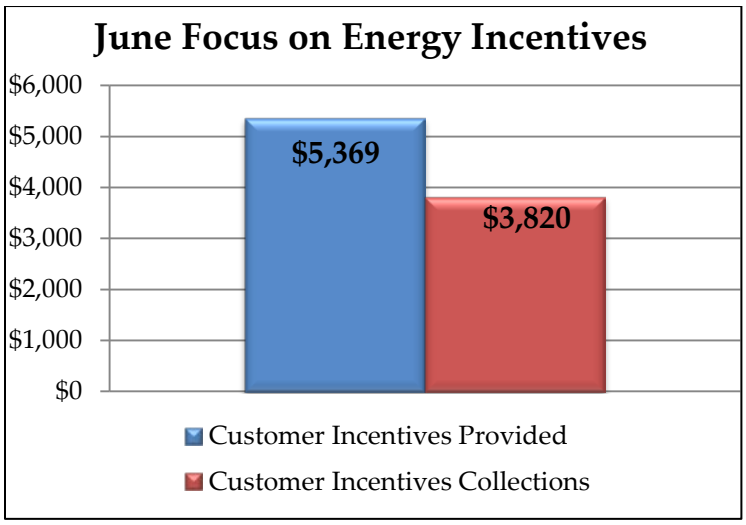
POWERFUL CHOICES
a sustainable energy project for river falls

For more information please contact: Mike Noreen
(715) 426-3467or mnoreen@rfcity.org

POWERful Choices! Dashboard

For June 2015

Focus on Energy Program



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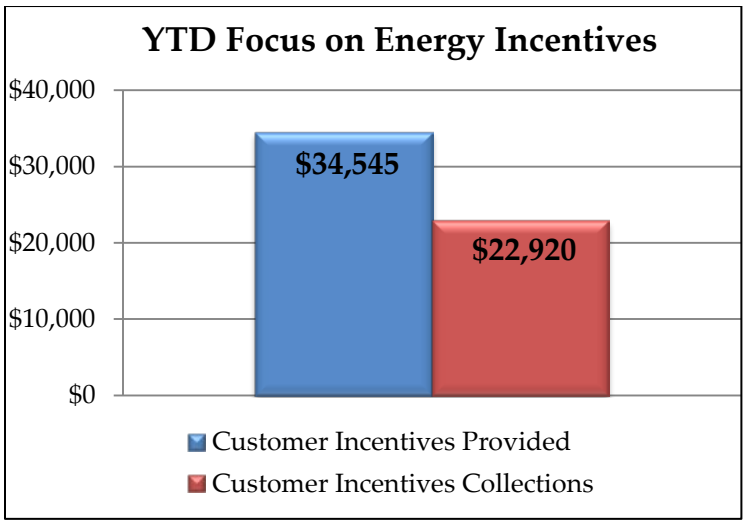

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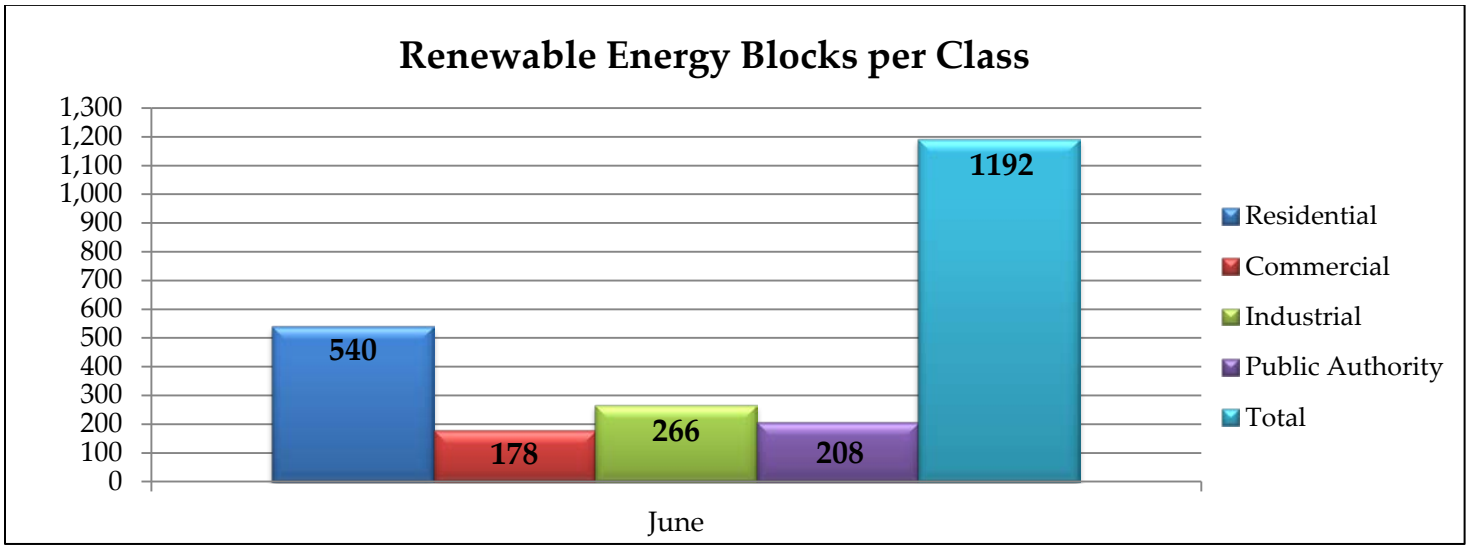
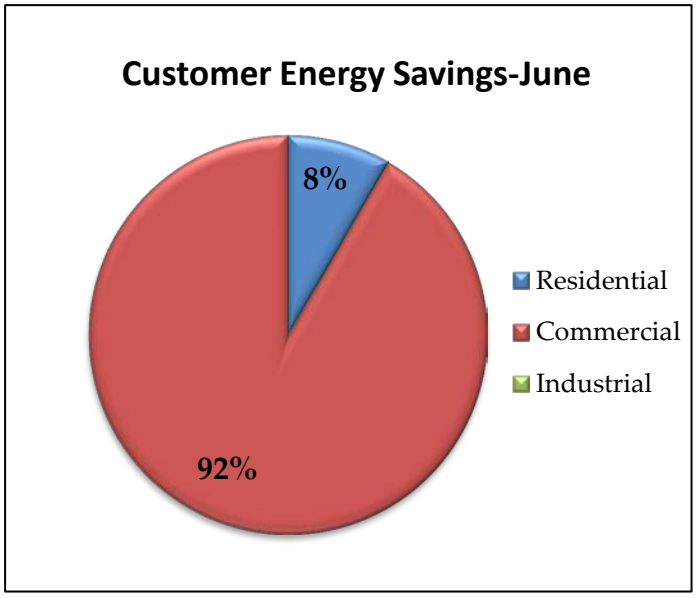


Renewable energy blocks are sold at $3 for 300kWh of renewable energy.

POWERFUL CHOICES
a sustainable energy project for river falls

POWERful Choices! Dashboard

Energy Savings



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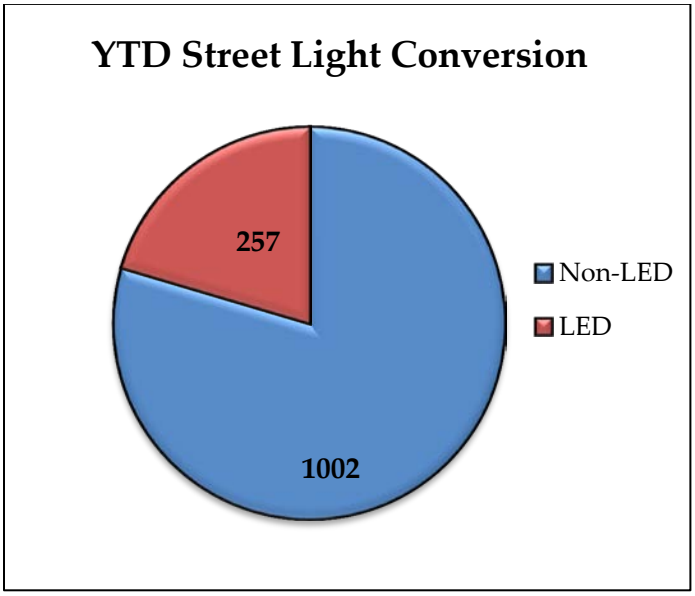

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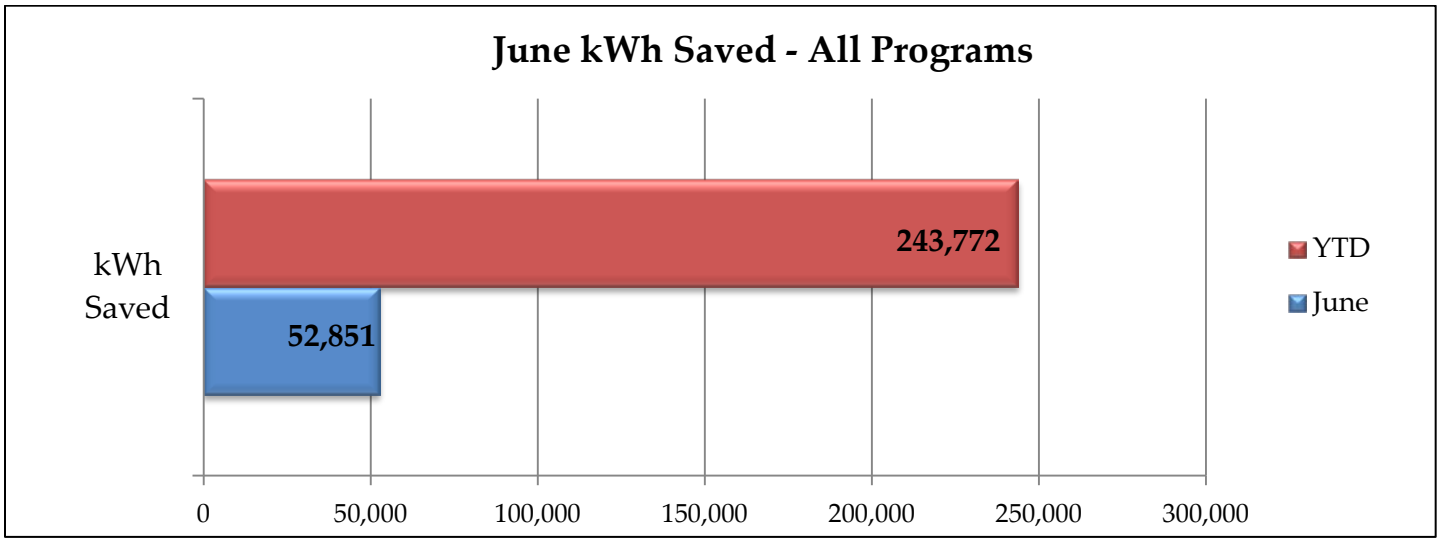
kWh Saved



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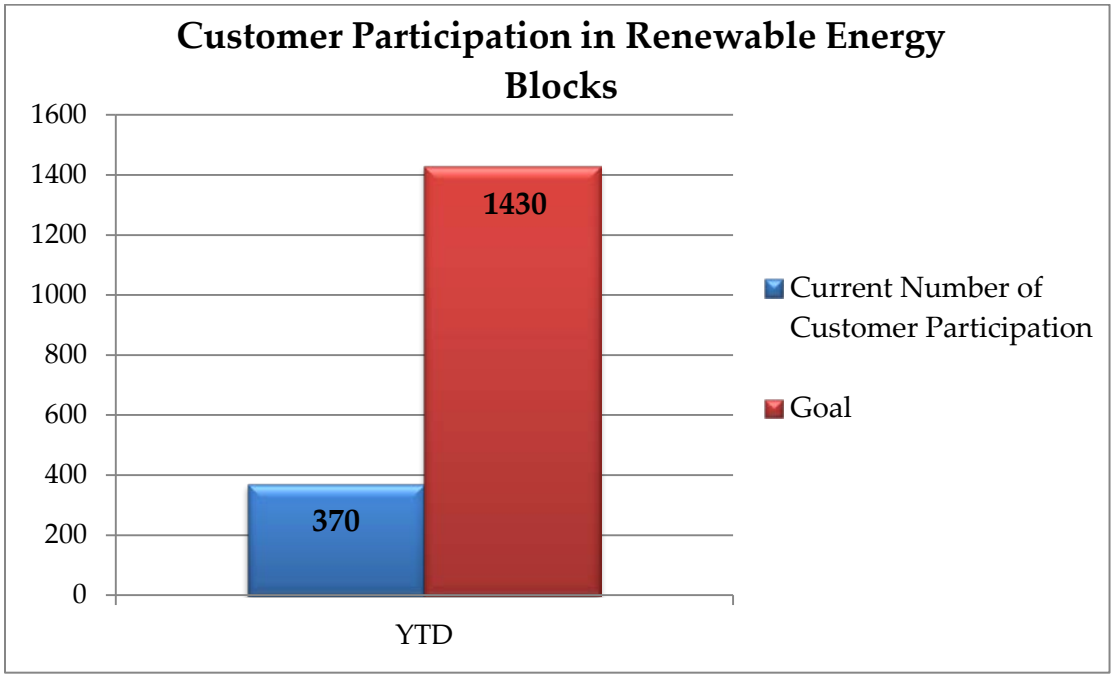

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POWERFUL CHOICES
a sustainable energy project for river falls

For more information please contact: Mike Noreen
(715) 426-3467or mnoreen@rfcity.org

River Falls Municipal Utilities
Monthly Report

June 2015

ELECTRIC

- Maintenance repairs performed. This is maintenance work found through our required system inspections.
- Substation monthly inspections completed.
- UG Service installs continue weekly.
- Pole sets continue along County MM for the feeder extension.
- Finished installing the Elster meters to our large power customers.
- Fixed street lights, bulb replacement and some with LED fixtures.
- Paulson Road switch moved to allow the pathway to go along the road from Shopko to Highland Drive.
- Installed primary extension to Ramer Field.
- Started Pine Ridge cable replacement work and will be an ongoing process this summer.
- Continued the Sterling Ponds Corporate Park installation.
- Replaced air compressor on River Falls Transmission Breaker 12 (RF 12).
- Training this month - Excavation and Spill Prevention and Countermeasures.
- Helped with Tri-Angles park with locates for city owned equipment.

RIVER FALLS WASTE WATER TREATMENT FACILITY

June 1-7, 2015 – A large amount of time was spent on landscaping and grounds keeping this week including planting of several trees. Broadleaf weed killer will also be applied weather permitting. A modified designed pin for connecting Daft skimmer flights was fabricated and installed on our Daft (diffused air flotation thickener). This pin failure is the cause for the largest maintenance breakdown issues with the Daft, 36 pins will be manufactured and installed.

June 8-14, 2015 – The clarifiers were switched this week; this is done annually to maintain equal hours of run time on the equipment. A tour was given to the UW-River Falls resource sustainability class as well as some city staff. Met with MSA Engineering to review preliminary design drawings. The preliminary drawings were good and there was a good deal of input from staff. A more detailed drawing will be coming soon and the project is moving forward.

June 15-21, 2015 – The grit classifier was put back on line this week after sump pump repairs were completed. Entrance gate issues are becoming more frequent, a service technician was scheduled for repairs. Replacement of the electric gate equipment may be necessary in the near future. Clean up of the area where the new solids handling building will be put was done including removal of the scrap metal truck dumpster container. Grounds keeping continued with the application of weed killer.

June 22-30, 2015 – Scum tank issues required sometime this week. Requests for quotes for an array of pumps and equipment were sent out as part of our preventative maintenance program and the plant upgrade project. Quotes were also requested from laboratories for annual analysis required on the new WPDES permit. The new treatment plants WPDES permit takes effect July 1 2015.

WATER/SEWER

- Finished water main hookups to new College Sports Complex on Sycamore and Orange Streets.
- Repaired underground sewer main at East Division and North 8th Streets. This repair was done in-house, no contractor hired, 18 homes affected.
- Crew attended all day Competent Person Excavation Training.
- Repaired water main break at Valley View and Broadway. Eleven homes were affected and Total Excavating was contracted for repair.
- Finished city wide hydrant flushing and inspection.
- Completed walk-thru inspection of new Corporate Park water and sewer utilities.
- Hired Hydro Clean (Infratech) to do manhole restoration, monform repair. Fourteen manholes scheduled to be worked on.
- Sewer cleaning contracted with LNT Utility continues.
- Replace pickup UT216 with new pickup, per the Vehicle Replacement Schedule.
- Promoted Greg Koehler to Lead Water Works Operator.
- Changed contact with the DNR “operator in charge” from Steve Paurus to Greg Koehler for DNR reporting.
- Accepted retirement notice from Steve Paurus, last day of work to be July 6, 2015.

ENGINEERING TECH WORK

- Six new home laterals
- Three sanitary lateral repairs
- One sewer main repair (8th and Division)
- Assist Greg K with isolating UW water for shut down and new water hook up
- Plan review – outlot 9 in South Point

CONSERVATION AND EFFICIENCY

- Advanced Metering Infrastructure developments
  - All 30 meters have been installed and a recording properly
  - RFMU and WPPI staff meet weekly via teleconference
  - AMI customer informational breakfast planned for July 23rd
  - All elected and appointed city and utility officials are invited
- Community Solar
  - The Wisconsin Public Service Commission is currently reviewing submitted tariff
  - Construction is planned to begin in August
  - Online waiting list has approximately 55 customers
  - A "soft sell" marketing campaign has begun and stepped up efforts are ready to implement once the tariff is approved
- Loan program
  - Continue to develop a loan program using similar parameters of the original renewable energy finance program
    - 4%
    - 1-4 years
    - Paid back on property taxes
- Utility Box Beautification project
  - Utility box artwork has begun.
  - RFMU and the artists have received numerous positive comments on the work being done
  - RFMU has received wonderful positive press regarding this project
  - All boxes are to be completed before River Falls days.
- Demonstration in Energy Efficient Developments grant
  - RFMU in partnership with the UWRF has received a $4000 research grant from American Public Power Association
  - Partners in the research include UWRF student Natalie Johnson, UWRF professor Jarrod Blade and Conservation and Efficiency coordinator Mike Noreen
  - Title of research: *A Cost and Comparison Performance of a Net-Zero Eco Village with Conventional Construction Practices*
  - Research project starts in the summer of 2015 and concludes in the summer of 2016
- American Planners Association award
  - The City and Habitat for Humanity will receive a sustainable housing award from the American Planner Association of Wisconsin.
  - The award recognizes the collaboration between the entities and outcomes of the partnership
- Continuing Education
  - Attended APPA national Conference in Minneapolis
  - Attended Sustainable Land Use Communities seminar on Groundwater

STREET LIGHTS

3 Total Street Lights Repaired

- 1 Head/bulb/eye fix
- 1 replaced with LED
- 1 repair not specified

For May 1, 2015 – May 31, 2015

Move in applications = 210
New Access My Account = 58
Disconnected Services = 39
Reconnected Services = 33

As of 6-25-15 we had a total of 6572 Active utility Accounts.

Explanation

Move in applications - Customers that came into the office to sign up for service or submitted an online application. This information also would include new construction, customers new to River Falls, and customers moving within town. Anytime we need the meters read to end one account and begin a new account.

Access My Account - This is customers logging into the utilities E-Care for the first time. E-Care is an online utility dashboard where the customers can access their individual utility account to view information and make payments.

Disconnected – These are the number of services (electric or water) disconnected for non-payment and or properties in foreclosure with outstanding balances.

Reconnected – These are the number of services (electric or water) reconnected. Customers have paid, landlords have taken over, or new owner on foreclosed properties.

RIVER FALLS MUNICIPAL UTILITIES
ADDRESS 222 Lewis Street, River Falls, WI 54022
PHONE 715-425-0906
FAX 715-425-7217
WEBSITE www.rfmu.org

Dear Utility Advisory Board Members

You've received this invitation because River Falls Municipal Utilities has recently installed a new "smart" meter system in several industrial/commercial locations in River Falls. We thought you would like the opportunity to learn about this technology called Advanced Metering Infrastructure (AMI). AMI will provide these customers with detailed information about their energy usage on a more timely basis than in the past. They will be able to log in to a web portal and view the past day's usage, which will allow them to make more informed decisions regarding their energy use. You are invited to an informational breakfast to learn more about the AMI system, the web portal and its capabilities.

Advanced Metering Infrastructure (AMI) Large Power Breakfast

- Where: West Wind Supper Club
- When: Thursday, July 23rd breakfast starts at 7:30am and presentation starts at 8:00an and goes to 9:00am
- Who: Facility and Energy Managers (feel free to bring up to 5 personnel)

RSVP with Rhonda Davison
rdavison@rfcity.org or 715-426-3440

We hope you can make it to this valuable educational event.

Sincerely,

Mike Noreen l Conservation and Efficiency Coordinator
222 Lewis Street l River Falls, WI l 54022
(715) 426-3467 (direct) l (715) 505-3539 (cell)