

WINNIPESAUKEE RIVER BASIN PROGRAM

ADVISORY BOARD MEETING AGENDA

March 18, 2021

10:00 am

Due to the COVID-19 crisis and in accordance with Governor Sununu's Emergency Order #12 and Executive Order 2020-04 this meeting is to be conducted electronically.

The public has access to listen to and participate in this meeting by using the following link:

<https://us02web.zoom.us/j/85956009938?pwd=Z3FyZ3VaTjFMdWZWODRpV3NLODNQUT09>

Meeting and entering the password: 948721

Listen only: Call 1-646-558-8656 and enter Webinar ID: 859 5600 9938

For problems, please call 603-528-6379

1. February 18, 2021 Meeting Minutes for review and approval
2. WRBP Monthly Summary Report – February 2021
3. Citizen Comments for items on the agenda
4. Governance Guidelines, MOA and possible By-Laws
5. Rate Assessment Update:

Discussion on plan developed after meeting with 4 southern communities on March 4, 2021.

6. Authority –

Update on creating a WRBP Commission as a State “agency”

Review of the escrow account

7. Replacement Fund
8. Other Business:
 - a. Next Advisory Board Meeting Thursday, April 15, 2021
 - b. Decision on method to meet.

9. Adjournment

Item 1

WINNIPESAUKEE RIVER BASIN PROGRAM

ADVISORY BOARD MEETING MINUTES

February 18, 2021 – Conducted Electronically

Members Present: The meeting was called to order by Wes Anderson (Laconia), chair, at 10:02 am. Sharon McMillin (DES), Rene Pelletier (DES), Jeanne Beaudin (Belmont), Glen Brown (Northfield), Trish Stafford (Sanbornton), Brian Sullivan (Franklin), and Meghan Theriault (Gilford) were present at that time.

Wes announced that due to the ongoing COVID-19 crisis and in accordance with Governor Sununu's Emergency Order No. 12 and Executive Order 2020-04, that the meeting would be conducted electronically, and was being hosted via Laconia's Zoom Video Communications account.

Wes introduced guest, Justin Hanscom (Deputy Director of Franklin Municipal Services Department), and thanked him for attending.

Minutes: Glen moved, seconded by Jeanne, to approve the January 28, 2021 meeting minutes. A roll call vote was taken and the motion carried.

Monthly Summary Report: Sharon distributed the *Monthly Summary Report* for January 2021 by email prior to the meeting.

- Energy Efficiency Upgrades – The installation work for the aeration blower and two RAS pumps by WRBP staff is ongoing. The custom pumps are expected to be delivered in March.
- WRBP Infrastructure O&M Responsibilities – No updates at this time.
- Replacement Fund – DES forwarded the AG Office's opinion on the proposed statutory changes to the Advisory Board chairman on January 4, 2021. The opinion indicated that the AG Office did not foresee any difficulty with changing the reimbursement scheme as discussed by the Advisory Board last July.
- Governance Work Plan – No updates at this time.
- Rate Assessment Formula – Belmont's I/I report is under review and Franklin's is pending. Related discussion will take place at next month's Advisory Board meeting.

Wes asked when the Energy Efficiency upgrades would be completed. Sharon expected them to be completed in May or June. The custom pumps will arrive next month. Glen congratulated the WRBP for the outstanding payback for this project.

Citizens Comments for Agenda Items: Wes asked if there were any guests from the member communities participating on the call and if they had any questions, comments, or concerns regarding the agenda items. As there were no guests participating, he moved on to the next agenda item.

Governance Guidelines, MOA, and By-Laws Update: Wes announced that there were no updates at this time. He will continue to work on these documents.

Rate Assessment Formula Update: Wes asked the members to refer to the handouts that were distributed by email prior to the meeting, specifically to Item 5 that contained background information for the draft rate allocation discussion, Attachment 1 – Flow Diagram of the System, Attachment 2 – WRBP 7/7/2020 Model, and Attachment 3 – Proposed Modification to the WRBP Model.

Wes explained that the discussion today will center on two pieces. The first piece is the mathematical formula that represents the flow in the system. The second piece is the selection of variables which would be plugged into the formula including I/I; recognizing the tolerance of the metering devices as an issue.

The variables are known, measurable inputs taking into account the tolerance of the measuring devices. The unknown inputs included unmetered areas and I/I. Assumptions can be based off of known inputs from metered areas to help develop inputs for the unmetered areas.

The goal is for the Advisory Board to recommend a new rate allocation methodology at next month's meeting. The model will be based upon the formula, and will include assumed numbers for the unknown variables. When the draft rate allocation model was first presented by the WRBP, Belmont and Tilton had two issues. The first was that the model assigned the remaining unknown flows to Belmont and Tilton only. The second was the assumptions made in the model for the unknown variables in the unmetered areas. Since that time, Belmont and Franklin's consultant have recommended some proposed changes to the model, which are included in Item 5.

Wes asked Jeanne if she could discuss some of the proposed changes. Jeanne felt that they addressed the remaining unknown flow; however, she was concerned that Tilton has not been available to discuss them. Underwood has done a lot of work on Belmont's behalf, and Jeanne was more comfortable with Underwood's work than with the information originally submitted with the draft rate allocation model. However, there will still be winners and losers, and no one knew where Tilton stood. Jeanne wanted to know if Tilton agreed with the proposed changes and whether Tilton planned to do an I/I study. Wes concurred, noting that at the meeting before last, Tilton had confirmed that it was not planning to do an I/I study.

Wes asked Brian if he could update the membership on Underwood's work in Franklin. Brian has been in touch with Cole, and Underwood is still working in Franklin. Wes expressed a concern about the I/I coming from the interceptor system that is coming to the treatment plant. He felt that it should be divided up equally between the ten member communities. Wes noted that some I/I would have to be divided up only between the four southernmost member communities.

Wes asked Meghan and Trish how they felt about the proposed changes. Meghan felt that the changes were an improvement because they used known data instead of design data. She had no issue with sharing the upstream I/I. For the most part she agreed with Underwood's reporting so far. Trish did not have a comment at this time.

Sharon had a question regarding water use. She asked why 80 percent water use was used instead of the 90 percent recommended by Underwood. Wes affirmed that Attachment 3 used 80 percent and that he had plugged the number for the sake of discussion. It could be changed.

Wes acknowledged that Underwood has made a suggestion regarding the RSA regarding flow (length of pipe) and strength. Sharon noted that the Advisory Board had already voted to proceed with a flow-based formula and to possibly consider strength later. She was not sure that there was a need to change the RSA at this point in time. Wes concurred. He just wanted to affirm that the membership still felt that way; given that Underwood raised the issue.

Wes offered to call Tilton and set up a meeting with the four southernmost member communities so that they could talk. Brian offered to extend an invitation to Underwood, if there was an interest in having them attend.

Authority Workgroup Update: Wes indicated that the Laconia City Manager was talking to others in the Governance Group and would be able to provide possible next steps in the next 1-2 weeks. An update of the escrow account was included in the handout package sent to members.

Replacement Fund: Wes announced that there were no updates at this time due to the timing of the next N.H. legislative session. Sharon asked if Wes planned to share the AG's letter and findings. Wes noted that he may have already sent the letter out by email already, and agreed to redistribute it.

Other Business: The meeting adjourned at 10:27 am. The next meeting will be held on Thursday, March 18, 2021 at 10:00 am via Laconia's Zoom Video Communications account. The minutes were prepared by Pro-Temp Staffing.

Item #2

**Summary Report to the WRBP Advisory Board
February 2021**

Projects	Status & Schedule	Budget	Other info
Energy Efficiency Upgrades at WRBP Facilities	In order to qualify for a CWSRF loan and Eversource incentive requirements, the project is proposed to be substantially complete on or about Dec 31, 2020. A task order for engineering support was executed. The aeration blower and 2 RAS pumps were purchased and plans and specifications for WRBP installation have been approved. Blower delivered late December; custom pumps delivery expected in March. Installation work by WRBP staff is on-going.	The estimated project budget is \$400K with 50% principal forgiveness from the CWSRF and a \$100K Eversource incentive making the overall budget \$100K and a <1-year simple payback based on estimated electricity savings.	This equipment upgrade was recommended by the energy audit of all WRBP facilities completed in early 2020. Project includes a smaller aeration blower, 2 RAS pumps and staff-installed facility lighting. The AB expressed support of the project at their August and Sept meetings.
<i>Solids Handling Process Upgrades</i>	<i>Phased projects included in the Solids Handling Master Plan developed for the Franklin WWTP are being identified for completion of the alternative analyses (10% design) to move forward to a 30% design.</i>	<i>Budgetary costs are still being developed as the project phases are advanced to the 30% design.</i>	<i>The Solids Handling Process Upgrade Project has been forecast in the WRBP CIP since FY18.</i>

Program Initiatives	Status & Schedule	Budget	Other info
WRBP Infrastructure O&M Responsibilities - Memoranda of Agreement	Belmont, Northfield, DAS, Gilford and Tilton Executed MOAs with DES. MOAs for Bay District, Sanbornton, Meredith, Franklin and Laconia were re-sent in February 2020 and are under review by members.	The AG's office developed language for MOAs to clarify the O&M responsibilities of properties, facilities or components that are indeterminate.	Discussion continues with the 5 members.
Replacement Fund	Replacement fund valuation reset to include pipelines pending in FY20. The pipeline lining repair and plant water repair funded from the replacement fund were completed.	Legislation to modify the Replacement Fund statute was proposed by Gilford at the meeting in July. Discussions continued regarding the current assessment methodology and proposed revisions.	Laconia and Gilford are reimbursing the Replacement Fund for the Pendleton Forcemain repairs. The changes to the replacement fund reimbursement methodology vote

	Legislation will be required to change the current Replacement Fund reimbursement methodology. DES forwarded the AG's opinion on these proposed statutory changes to the Advisory Board chairman on 1/4/2021.		that failed on 5/21/2020 was revisited on July 16 to reflect a preference for 50% reimbursement by all members based on the current percent allocation and 50% collected from only those members using the fund for the expenses.
Governance Work Plan	The work plan to evaluate alternative governance structures for the WRBP was approved at the 10/2/2016 Advisory Board meeting. The legal firm presented their roadmap at the July 2018 meeting; and members approved starting the Phase I efforts. The AG's office documented DES' and DOT's cooperation with the Advisory Board to perform due diligence. DES presented a scope of work for completing some due diligence items on 4/27/2020. DES responded on 6/9/2020 to Laconia's letter dated 5/3/2020.	DES responded to the Gilford letter requesting clarification regarding ownership transfer of assets on 1/25/2017. Laconia escrow agreement will collect funds for the study with an initial budget of \$50K in 2018 and \$50K in 2019. Additional escrow funds will be collected for the pending due diligence phase using the same formula. Scope and budget for the due diligence phase was presented at the May 2020 meeting. Members voted not to proceed or expend additional funds until public meetings were held with stakeholders, elected officials, and legislators.	The Governance group engaged legal assistance to evaluate next steps to get to a decision point on governance options. DES' 11/8/18 response to the Phase I Roadmap presentation held at DES on 9/28/18 was discussed at the November 2018 meeting. A draft WRBC District Cooperative Agreement table of contents and draft legislation was discussed at the 9/11/19 meeting. The AG's office provided preliminary observations on 1/15/2020. Three members are not in favor of governance changes, six members have voted in favor of proceeding, DAS has abstained.
Rate Assessment Formula	DES' preliminary analysis of the relative contribution of flow, strength and capacity (shared) costs on 5/5/2016. The Advisory Board resolved to have a draft formula by 1/1/2019; workgroup met on 7/25/18 and 8/16/18. Draft Phase I reports were provided to the workgroup and W-P revised the report based on comments. W-P presented Phase I information at the December 2019 meeting. The 4 southern member communities provided the requested information for the proposed hybrid rate	The full Advisory Board has expressed interest in participating in this discussion with DES regarding a draft rate formula. Updated flow and capacity information prepared by DES was presented to the rate assessment workgroup on 8/16/18. A Flow Metering Rate Allocation study task order was finalized on 1/22/19 for the four southern members where current measured flow data is not accurate enough for billing. DES provided a draft hybrid model in March 2020; that was discussed at the April 2020 meeting. Franklin and Northfield agreed with the model; Tilton was absent and Belmont is reviewing. At	DES presented preliminary flow and capacity findings from the 3 rd party flow metering evaluations in March 2017 and WRBP Franklin WWTP Capacity Status in July 2017. W-P gathered GIS and connection data from the southern 4 communities as part of the study. Members chose not to engage W-P in data collection for the hybrid analyses, but to use WRBP and member resources. At the May 2020 meeting, Belmont did not agree with the data or method used for their assessment or I/I contributions from the 4 southern

	assessment model. On 10/27, Franklin's consultant reviewed their draft efforts with WRBP and Franklin staff. Belmont's I/I report under review and Franklin's pending; with expected discussion at the March 2021 meeting.	the June 2020 meeting, Laconia presented an alternate model for assessing unmetered flows and allocating I/I to all members equally.	communities. Additional information from the 4 southern members is being evaluated by the WRBP and DES with the assistance of Franklin's and Belmont's consultant.
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Changes from previous report are shown in bold italics.

Dates to Remember:

1. The next Advisory Board meeting will be postponed to **Thursday March 18, 2021** via conference call at 10am; public venue is the City of Laconia DPW office.

Other Information:

1. Ken Noyes (Chief Operator) retired in February 2021.

Prepared by: Sharon McMillin
Sharon McMillin - DES, WRBP Administrator

Reviewed and in concurrence: Rene Pelletier
Rene Pelletier - DES, Assistant Director, Water Division

Respectfully submitted on: _____

Item #5

Topic: Discussion on the draft rate allocation model based on Belmont and Franklin’s consultant’s comments

Background: The following was summarized in my March 4, 2021 e-mail to members of the board.

The objective of the March 4, 2021 meeting with the 4 downstream communities was to determine how to reach consensus with the 4 communities on how to handle the “unknown flow” that was identified in the WRBP model and that was assigned to two of the 4 southern communities.

The basic concept was to first identify the possible sources of the unknown flow.

The unknown flow consists of:

- I and I in the WRBP interceptor from the Winnisquam pump station to the last meter before the treatment plant.
- Water consumption from the unmetered areas in the 4 communities
- I & I in the unmetered areas of the four communities.

The 4 communities, for water consumption in the unmetered areas of the communities, are considering using an average consumption factor based on historical water use that Underwood has found in the many rate studies they have performed.

Also they are planning on:

- Applying the I and I planning factors from Belmont’s recent study to Northfield as their systems are similar in age and material.
- Applying the I and I planning factors from Franklin’s recent study to Tilton as their systems are similar in age and material.
- Using an updated version of Underwood’s suggested modifications to the WRBP model (the one in your Feb 18th Advisory Board agenda packet) to share the unknown I and I from the 4 communities among the 4 communities.

The current timeline for finalizing the rate allocation formula follows:

March meeting

- Obtain agreement on the sources of the unknown flow
- Obtain agreement on the concept of how to divide the unknown flow among the four communities

April Meeting

- Review the planning factors proposed for I & I flow in Northfield and Tilton
- Review an update to Underwood’s suggested changes to the WRBP model that was provided at the Feb 18th meeting
- Discuss the steps and timeline to obtain a decision from the member communities on the proposed changes to the WRBP model.

May Meeting

- Discuss any issues raised by the member community governing bodies. If the governing body of any member community has an issue with the model please provide comments as soon as you have them. Do not wait for this meeting to raise them.
- Vote to approve the WRBP model with proposed changes if all communities have obtained a decision from their governing bodies by then. (A majority must vote yes to approve the model.)

Attachment 1 is a flow diagram of the system.

Attachment 2 is copy of the WRBP 7/7/2020 model.

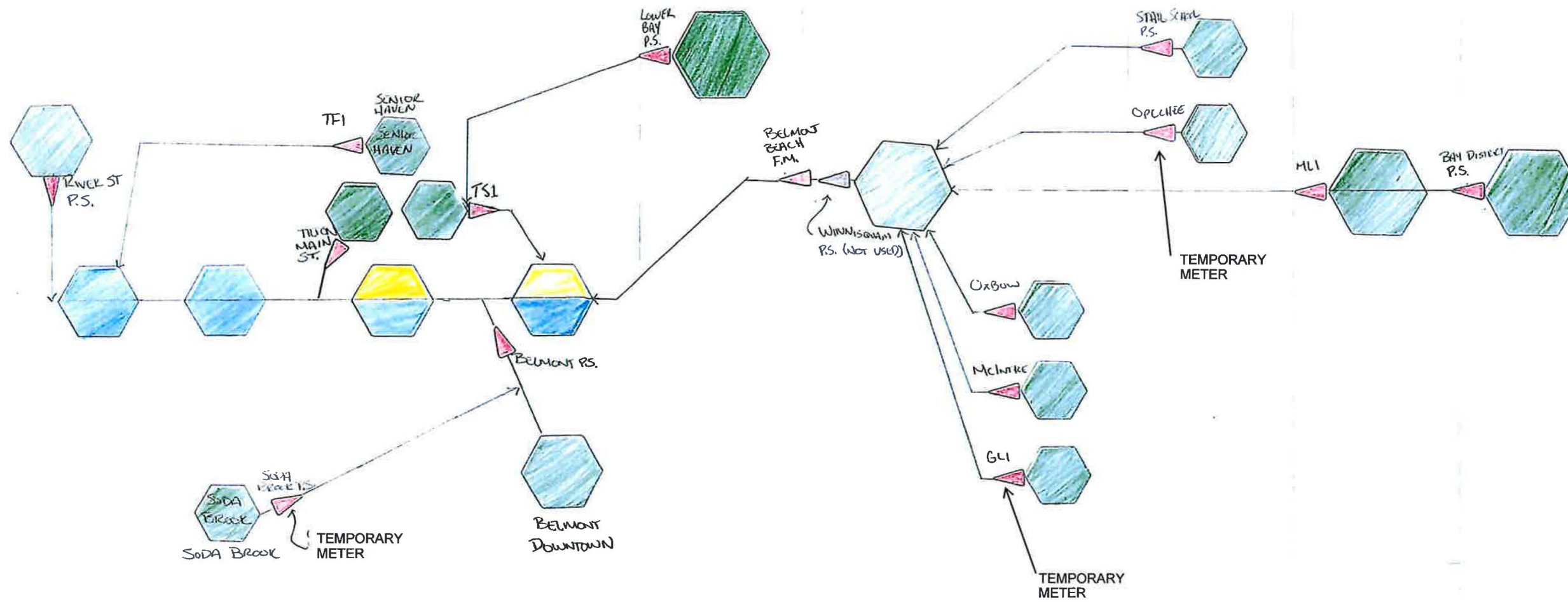
Attachment 3 is a copy of the Proposed modifications to the WRBP model.

Attachment 4 is for the discussion on how to divide I/I in the interceptor among the member communities

WRBP FLOW SCHEMATIC
AND HYBRID FLOW MODEL INFORMATION
UNDERWOOD ENGINEERS
SEPTEMBER 2020

COMMUNITY
FORMULA FOR
FLOW ESTIMATION

COMMUNITY	FRANKLIN	NORTHFIELD	TILTON	BELMONT	SANDBORTON	LACONIA	GILFORD	STATE SCHOOL/ NHODAS	MERRIDEN	BAY DISTRICT
	RIVER ST P.S. + WATER DATA	WATER DATA (TN AQUADUCT + SODA BROOK)	[TILTON MAIN ST. + TFI + TSI] + WATER DATA + DEMOGRAPHIC DATA	[BELMONT P.S. - SODA BROOK - EPTAM - QUALITY CONTROL] + WATER DATA + DEMOGRAPHIC DATA	LOWER BAY P.S. + TSI	BELMONT BEACH - OXBOW - MLI	OXBOW + MCINTIRE + GL1	STATE SCHOOL P.S. + OPECHEE	ML1 - BAY DISTRICT P.S.	BAY DISTRICT P.S.



WWTF
WWTP INFLUENT - PARSHALL FUME
ACCURACY UNKNOWN
STP1 - AV SENSOR ± 5%

LEGEND

SEWER BASIN
WITH WASTEWATER
FLOW DATA

SEWER BASIN
WITH WATER DATA
FOR ALL SEWER
CONNECTIONS AND NO
SEWER DATA

SEWER BASIN WITH
WATER DATA FOR
SOME SEWER CONNECTIONS
AND NO SEWER DATA

SEWER FLOW METER
LOCATION

RIVER ST. P.S.
ULTRASONIC DOPPLER
± 1% ± 3"

SODA BROOK
AV SENSOR ± 15%

TFI
60' TRAZZADAL FUME
± 10%

TSI
10% PALMER-BOWLUS
FUME ± 6%

BELMONT P.S.
MAGMETER ± 0.5/3%

LOWER BAY P.S.
MAGMETER ± 0.5/3%

BELMONT BEACH
NOT EVALUATED IN
WR FLOW METER
ASSESSMENT

WINNISQUAM P.S.
MAGMETER (3/1-10/1) 1%

OXBOW
3" INCH PARSHALL ± 8%

MCINTIRE
10" PALMER-BOWLUS ± 5%

GL1
10" AV SENSOR ± 15%

STATE SCHOOL P.S.
CALCULATED - WETWELL
DRAWDOWN ± 20%

OPECHEE
10" AV SENSOR ± 10%

ML1
36" AV SENSOR ± 8%

BAY DISTRICT P.S.
MAGMETER 10.5/1.3%

Sewer Flow Volumes

Metered + Unmetered Flows in 4 Members	Baseline metered sewer flows (4 yr MG total) includes I/I since sewer metered	Water Use Flow (4 yr MG Total)	Subtotal: metered + water use	Demographic Units (4 yr Totals based on current year)	% of total MG for areas using demographics %	MG of remaining WWTP flows based on demographic %	Total Sewer Flows = Metered + Water Use + Demographic (MG)	Total flow % = metered + unmetered w/o I/I factor	current O&M %	Change w/ DES model
Belmont	Belmont PS - Soda Brook - Eptam - Quality Control 150.51	4 yrs water use - Sunlake 8.14 4 yrs water use - Cates 7.95 4 yrs water use - Westview 5.10 4 yrs w/ avg as yr 4 water use - Solar 7.11 4 yr water use - Court St. 15.38	43.68	residential 320.06 commercial 44.45 364.51	87%	310.67	504.85	6.43%	3.80%	2.63%
Franklin	River St PS 955.63 Totals: 955.63	Water Use 2016-2019 4 yr. 134.23	134.23				1089.86	13.89%	15.75%	-1.86%
Northfield		T-N Aqueduct Northfield only Water Use + Soda Brook (4 yrs) 145.50	145.50				145.50	1.85%	2.60%	-0.75%
Tilton	Tilton Main + TF1 + TS1 392.84	water use 4 yrs. - Pennichuck 3.07 water use Lochmere - flat rate 34.16 water use T/N Aqueduct 95.13	132.36	flat rate 55.20	13%	47.05	572.25	7.29%	4.25%	3.04%
Other communities	Bay District PS 142.42 Gilford Oxbow + McIntire + GL1 1128.82 Laconia Belmont Beach - Oxbow - ML1 - GL1 - Opechee 3329.93 Meredith ML1 - Bay District PS 696.72 Sanbornton Lower Bay PS + TS1 117.93 NHDAS State School PS + Opechee 117.45						142.42 1128.82 3329.93 696.72 117.93 117.45	1.82% 14.39% 42.44% 8.88% 1.50% 1.50%	1.15% 0.117 49.87% 9.25% 0.68% 0.95%	0.67% 2.69% -7.43% -0.37% 0.82% 0.55%
Totals:	7032.25	455.77	7488.02	419.71		357.71	7845.73	100.00%		
% flows accounted for by these methods:	89.63%	5.81%	95.44%			4.56%	100.00%			

For water use and demographic flows, could add a factor for I/I based on existing I/I studies or pipe age, size and material using available standard design/construction references (significant additional work for each pipe segment and/or collector sewer shed).

Temporary meters used in analysis include GL1, Opechee and Soda Brook.

Used 135 gpd per unit per Belmont's request - value used for Tilton and Belmont to be consistent.

Added sewershed to Franklin water meter total.

Corrected entry for Belmont - Solar and Court st. water use.

Wes' version: 135 gpd/connection regardless of # bedrooms or baths or residential vs commercial*365d/yr*4 yrs		gal 4 yrs	MG 4 yrs	MG 4 yrs	assumes 300gpd/idm	MG 4 yrs
uses 135gpd for 1065 connections	from Belmont	209,911,500	209.91	357.71	Belmont	
used 135 gpd for 64 connections	from Tilton	12,614,400	12.61	222.53	Tilton I/I per 2015 CMOM idm - entire town	39.83
		222,525,900	222.53	135.19	Northfield	
					Franklin - from 4 unmetered areas from I/I study	32.78

Attachment 2

Proposed Hybrid Model for Determining Flow Contributions from unmetered locations in Belmont, Franklin, Tilton and Northfield

Info used in Model:

Franklin	<p>Water Use data from Franklin DPW ID all sewer users that DO NOT go through River St. PS - completed 12/17/19 Confirmed all but 1 sewer users are on City water (1 not on water has a sewer flow meter installed) 100% water use = 80% sewer volume/year I/I distributed purely by IDM</p>
Northfield	<p>Annual Water Use from Tilton-Northfield Aqueduct 100% water use = 80% sewer volume/year Subtract businesses (currently 2) on Route 140 in Belmont billed by T-N Aqueduct IDM information provided by WRBP was used to estimate a placeholder I/I flow. Community specific I/I information could be used to refine I/I flow estimates.</p>
Belmont	<p>Water use and/or determine Units from property records for unmetered areas ID all sewer customers that DO NOT go into Belmont PS (from sewer user list already provided or updated version) <i>ID what unit entries on this spreadsheet are based on (looks like historic flow based units or similar)</i> Get water use data for all Belmont sewer customers billed by water companies; 100% water use = 80% sewer volume/year Property records of non-Belmont PS customers (in lieu of water or sewer flow data) Use property records and TR-16 or M&E 5th ed. Or Env-Wq definitions of units * GPD per unit to determine property unit and then total number of units (Env-Wq 704.03). Town of Belmont water data used to estimate water use to be approximately 125 gpd/connection. Use property records and unit flows to estimate water use from unmetered areas without water meters at 125 gpd/connection. Wastewater flows estimated to be 125 gpd * 80% = 100 GPD/EDU</p>
Tilton	<p>Water use and/or determine Units from property records for unmetered areas ID all sewer users that DO NOT go through TS-1 and TF-1 and Tilton Main St. flow meters <i>W-P determined that these 3 meters are accurate for billing purposes</i> Get water use data for all Tilton sewer customers billed by T-N Aqueduct & Lochmere; 100% waste use = 80% sewer volume/year Use property records and unit flows to estimate sanitary wastewater flows from unmetered areas without water meters at 100 gpd/connection. Use property records and TR-16 or M&E 5th ed. Or Env-Wq definitions of units * GPD per unit to determine property unit and then total number of units (Env-Wq 704.03). IDM information provided by WRBP was used to estimate a placeholder I/I flow. Community specific I/I information is needed</p>
<p>Total all units and assign reference guidance GPD flows for these 2 communities without complete water use info Normalize units to account for the % total flows being addressed (% changes with rolling average) Assessment % based on metered baseline % + normalized unit % in each community</p>	

	MG	MGD	%	
WWTP Influent flows (MG) (2015-2018)	7845.73	5.37		
sewer metered 4 yr totals	7032.25	4.82	89.63%	Metered flows include I/I since total flows through each metering location or pump stations was metered over at least 4 years.
unmetered 4 yr total	813.48	0.56	10.37%	These unmetered flows were evaluated using the methods above.
			100.00%	

Attachment 2

Sewer Flow Volumes

Metered + Unmetered Flows in 4 Memb	Sewer Metered Areas		Un-Metered Areas				Total Sewer Flows = Metered + Water Use + Demographic (MG) + I/I Estimate	Total Sewer Flows = Metered + Water Use + Demographic (MGD) + I/I Estimate	Total flow % = metered + unmetered + I/I
	Baseline metered sewer flows (4 yr MG total) includes I/I since sewer metered (Note 1) (2015-2018)	Water Use Flow (4 yr MG Total) 80% Water to Sewer Ratio	Property Data Flow (4 yr Totals based on current year) (Note 2)	Un-assigned Flows distributed as I/I evenly by IDM (4 yr MG Total)					
Belmont	Belmont PS - Soda Brook - Eptam - Quality Control 150.51 Totals (4 yr MG total): 150.51 Annual Average (MGD): 0.103	4 yrs water use - Sunlake 6.51 4 yrs water use - Cates 6.36 4 yrs water use - Westview 4.08 4 yrs w/ avg as yr 4 water use - Solar 5.69 4 yr water use - Court St. 12.30 34.94 0.024	residential 91.76 commercial 12.70 104.46 0.072	Note 3 Percentage of IDM for unmetered areas of Belmont, Franklin, Northfield, and Tilton 41.4% Adjusted Community I/I Flow 127.72 0.087			417.64	0.286	5.32%
Franklin	River St PS 955.63 Totals: 955.63 Annual Average (MGD): 0.655	Water Use 2016-2019 4 yr. 107.38 107.38 0.074		Note 4 Percentage of IDM for unmetered areas of Belmont, Franklin, Northfield, and Tilton 25.1% Adjusted Community I/I Flow 77.44 0.053			1140.45	0.781	14.54%
Northfield		T-N Aqueduct Northfield only Water Use + 116.40 116.40 0.080		Note 5 Percentage of IDM for unmetered areas of Belmont, Franklin, Northfield, and Tilton 11.3% Adjusted Community I/I Flow 34.86 0.024			151.26	0.104	1.93%
Tilton	Tilton Main + TF1 + TS1 392.84 Totals: 392.84 Annual Average (MGD): 0.269	water use 4 yrs. - Pennichuck 3.07 water use Lochmere - flat rate 34.16 water use T/N Aqueduct 95.13 132.44 0.091	64 @ 100 gpd 9.34 9.34 0.006	Note 6 Percentage of IDM for unmetered areas of Belmont, Franklin, Northfield, and Tilton 22.2% Adjusted Community I/I Flow 68.49 0.047			603.11	0.413	7.69%
Other communities	Bay District PS 142.42 Gilford Oxbow + McIntire + GL1 1128.82 Laconia Belmont Beach - Oxbow - ML1 - GL1 - Opechee 3329.93 Meredith ML1 - Bay District PS 696.72 Sanbornton Lower Bay PS + TS1 117.93 NHDAS State School PS + Opechee 117.45						142.42 1128.82 3329.93 696.72 117.93 117.45	0.098 0.773 2.281 0.477 0.081 0.080	1.82% 14.39% 42.44% 8.88% 1.50% 1.50%
Totals:	7032.25	391.16	113.81	308.51	7845.73	5.374	100.00%	100.00%	
% flows accounted for by these methods compared to WWTF Influent:	89.63%	4.99%	1.45%	3.93%	100.00%				

Assumptions/Data Sources:

1. Temporary meters (3 months of data) used in analysis include GL1, Opechee and Soda Brook.
2. Sewer estimates from demographic units for Belmont and Tilton assumes 100 GPD per connection (125 GPD x 80%) for residential users and 50 GPD per connection for seasonal properties. Commercial properties are estimated using the Town of Belmont EDU based billing system and 100 GPD per EDU.
3. Belmont IDM for the Rte. 3 Area (known as sewer subbasins F, G, H, I, J, K, L, M, N, O, and P on the Town of Belmont's sewer maps) is 108.29
4. The IDM for these areas of Franklin is approximately 65.85
5. Northfield was estimated using the total municipal IDMs provided by WRBP (29.46 idm)
6. IDM data provided by WRBP for Tilton gravity sewers in the area designated TN1 (58.19 idm)

I/I Adjustment for unmetered areas

WWTF Influent Flow (4 yr MG total)	7845.73
less sewer metered flow (4 yr MG total)	-7032.25
less water use flow (4 yr MG total)	-391.16
less property data flow (4 yr MG total)	-113.81
Un-assigned flows (4 yr MG total)	308.51

Attachment 3

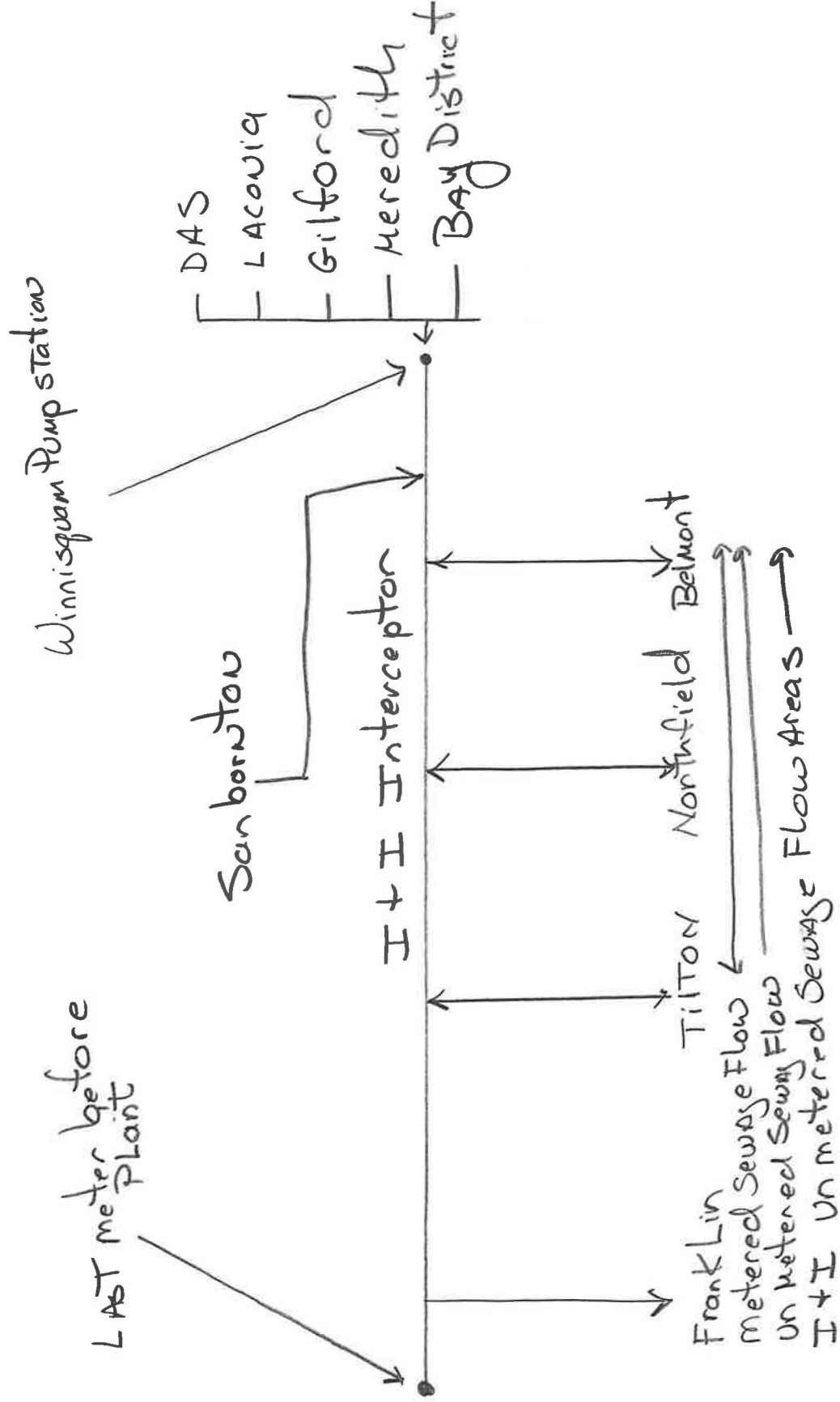
System Flow

$$\text{Total Flow} = \text{TOTAL Metered Flow} + \text{I/I interceptor} + \text{Flow From unmetered Areas}$$

Must Determine \Rightarrow I + I in interceptor from Winnisquam Pump Station
To 1st Meter before Plant

\Rightarrow Flow from unmetered Areas

Flow from Unmetered Areas \Rightarrow Water consumption +
I + I from Unmetered Areas



LAST meter before Plant

Winnisquam Pump station

Sanbornston

I + I Interceptor

DAS

LACONIA

Gilford

Meredith

Bay District

Franklin

Metered Sewage Flow

Unmetered Sewage Flow

I + I Unmetered Sewage Flow Areas

TILTON

Northfield

Belmont

Division of $I + I$ in Interceptor

$$X(Y) + A(Y) + B(Y) + C(Y) + D(Y) + E(Y) = Y$$

Y = Unknown flow due to $I + I$ in Interceptor

X = Factor for flow assigned to 5 upstream communities

A = Factor for unknown flow assigned to Belmont

B = Factor for unknown flow assigned to Sanbarton

C = Factor for unknown flow assigned to Tilton

D = Factor for unknown flow assigned to Northfield

E = Factor for unknown flow assigned to Franklin

Item #6

As of Jan 2, 2021

Rath, Young & Pignatelli Road Map Study

Budget Tracking sheets

Funds Available \$ 51,900.00

Invoice #	Date of Invoice		Invoice Amount	Funds remaining
Road Map Development				
Invoice # 1	5/22/2018		\$ 2,858.00	\$ 49,042.00
Invoice # 2	6/20/2018		\$ 6,890.18	\$ 42,151.82
Invoice #3	6/30//2018		\$ 6,958.00	\$ 35,193.82
Invoice #4	8/20/2018		\$ 2,656.00	\$ 32,537.82
Road Map Phase 1				
<i>Carry Over from Previous Phase</i>				\$ 32,537.82
<i>Escrow for this phase</i>				\$ 65,000.00
<i>Total Available</i>				\$ 97,537.82
Invoice #1-1	20-Sep-18	79111	\$ 800.00	\$ 96,737.82
Invoice# 1-2	18-Oct-18	79407	\$ 896.00	\$ 95,841.82
Invoice #1-3	15-Feb-19	80548	\$ 924.00	\$ 94,917.82
Invoice #1-4	15-Mar-19	80800	\$ 759.00	\$ 94,158.82
Invoice #1-5	6/10/2019	81583	\$ 396.00	\$ 93,762.82
Invoice #1-6	7/18/2019	82002	\$ 330.00	\$ 93,432.82
Invoice #1-7	8/15/2019	82241	\$ 66.00	\$ 93,366.82
Invoice #1-8	9/17/2019	82524	\$ 1,584.00	\$ 91,782.82
Invoice 1-9	10/28/2019	82912	\$ 396.00	\$ 91,386.82

Invoice #	Date of Invoice		Invoice Amount	Funds remaining
Invoice 1-10	5/11/2020	84667	\$ 1,224.00	\$ 90,162.82
Invoice 1-11	6/19/2020	85172	\$ 782.00	\$ 89,380.82
Invoice 1-12	9/23/2020	85982	\$ 2,550.00	\$ 86,830.82
Invoice 1-13	10/23/2020	86266	\$ 1,394.00	\$ 85,436.82
Invoice 1-14	11/13/2020	86449	\$ 525.00	\$ 84,911.82
Invoice 1-15	12/15/2020	86722	\$ 1,480.00	\$ 83,431.82