

Liberty Utilities (EnergyNorth)
Revenue Deficiency and Revenue Requirement
Test Year With Known and Measurable Changes

Line	Description	Reference	EnergyNorth	Keene	Total
1	Rate Base	RR-EN-5; RR-K-5	\$ 249,735,328	\$ 2,267,196	\$ 252,002,525
2					
3	Target Rate of Return on Rate Base	RR-4	7.36%	7.36%	7.36%
4					
5	Operating Income Requirement	Line 1 X Line 3	\$ 18,380,520	\$ 166,866	\$ 18,547,386
6					
7	Operating Income at Present Rates	RR-EN-2; RR-K-2	\$ 9,961,580	\$ (368,566)	\$ 9,593,014
8					
9	Operating Income Deficiency	Line 5 - Line 7	\$ 8,418,940	\$ 535,432	\$ 8,954,372
10					
11	Gross-up Factor for Additional Income Taxes	Line 19	1.6504	1.6504	1.6504
12					
13	Revenue Deficiency	Line 9 X Line 11	\$ 13,894,933	\$ 883,697	\$ 14,778,630
14					
15	<u>Gross-up Factor for Income Taxes</u>				
16	Federal Income Tax Rate		34.00%	34.00%	34.00%
17	New Hampshire State Income Tax Rate		8.20%	8.20%	8.20%
18	Combined Income Tax Rate	Line 16 + Line 17 - (Line 16 X Line 17)	39.41%	39.41%	39.41%
19	Gross-up Factor	1 / (1 - Line 18)	1.6504	1.6504	1.6504
20					
21	Additional Income Tax Required	Line 13 - Line 9	\$ 5,475,993	\$ 348,265	\$ 5,824,258
22					
23	Distribution Revenue at Present Rates	RR-EN-2; RR-K-2	\$ 70,218,715	\$ 1,343,810	\$ 71,562,525
24					
25	% Increase Needed	Line 13 / Line 23	19.79%	65.76%	20.65%
26					
27	Revenue with Increase	RR-EN-2; RR-K-2	\$ 84,113,648	\$ 2,227,507	\$ 86,341,155
28					
29	% Increase Needed - Total Revenue		11.57%	34.05%	12.05%

Liberty Utilities
Docket No. DG 17-048
Petition for Rate Increase LU Set 1 Information Requests

Received: December 8, 2017
Request Number: LU 1-24

Date of Response: December 21, 2017
Witness: Stephen Frink

Request:

Reference Bates 000008, line 22 through Bates 000007, lines 17 - 19. Regarding the following statement, "In the immediate filing the Company has made no effort to demonstrate how Liberty's ratepayers might benefit from a rate consolidation by quantifying potential current and future benefits that might be realized through consolidation," please provide citations to prior Commission orders on rate consolidation where such a demonstration was required.

Response:

Staff is unaware of any Commission orders on rate consolidation that require a demonstration of potential current and future benefits to be realized through rate consolidation.

Liberty Utilities
Docket No. DG 17-048
Petition for Rate Increase LU Set 1 Information Requests

Received: December 8, 2017
Request Number: LU 1-25

Date of Response: December 21, 2017
Witness: Stephen Frink

Request:

Reference Bates 000012, lines 7 – 9. Please describe what the Settlement Agreement in DG 14-155 allows for EnergyNorth to charge the Keene Division for corporate services. Please also provide a citation to any requirement that Liberty provide a separate calculation of what those costs would be if the Settlement Agreement did not exist.

Response:

Item #5 in the terms and conditions of the DG 14-155 settlement agreement addresses corporate charges to be charged by EnergyNorth to the Keene Division:

5. EnergyNorth will charge \$200,000 of corporate expenses annually to the Keene Division, which amount shall be adjusted annually for inflation, starting January 1, 2016. This charge shall include all costs for management services provided to the Keene Division, such as legal, regulatory, finance and human resources, but shall not include the cost of any mutual aid for emergency services or services for other events outside of normal business operations, which shall be billed separately by EnergyNorth to the Keene Division.

Order 25,736 approving the settlement does not directly state that Liberty provide a separate calculation for corporate costs but the Commission analysis indirectly provides for that (page 6):

“The Settlement Agreement requires EnergyNorth to manage and operate what will become the Keene Division separately, without a change in distribution rates, and without substantial changes in the Keene Division’s operation. Thus, the financial concerns raised in Mr. Frink’s and Mr. Rubin’s pre-filed testimony are premature. They will be addressed, if necessary, in a future rate case as Mr. Rubin recommended in his pre-filed testimony and as Mr. Frink suggested at the hearing.”

The primary financial concern that rate consolidation would result in cost shifting cannot be accurately determined and addressed without knowing the actual costs to serve Keene, of which corporate costs are one component.

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

DG 17-048
Distribution Service Rate Case

Staff Data Requests - Set 2

Date Request Received: 6/16/17
Request No. Staff 2-41

Date of Response: 10/31/17
Respondent: William Clark

REQUEST:

Please provide a comprehensive business plan for the Keene Division that includes a Discounted Cash Flow analysis based on stand-alone operating, supply and capital costs and revenue estimates. The business plan should include a detailed description of plans and costs to convert Keene customers from propane air service to natural gas service and expected sales and revenue growth. Provide an electronic version of the DCF analysis and supporting schedules with all spreadsheets in "live format."

RESPONSE:

Please refer to Confidential Attachment Staff 2-41.xlsx for a DCF analysis of the five-year growth projections of the Keene Division if fuel supply switched to natural gas and EnergyNorth distribution rates. (Temp Rates effective July 1, 2017).

Phase 1 will include customers along Production Ave and [REDACTED]. [REDACTED] on Production Ave., has already committed to taking service and is expected to be served from the temporary CNG facility to be constructed in summer of 2017. Adding this customer would put the temporary facility at its maximum capacity. The remaining customers would be expected to be converted in summer of 2018.

Phase 2 will be an extension of high pressure main from the existing "high line" to serve [REDACTED]. This Phase also includes an extension on Winchester Street south of Route 101. Phase 2 is expected to commence in spring of 2019.

Phase 3 would continue across Main Street and down Marlboro Street as well as Optical Avenue to serve customers such as [REDACTED], and [REDACTED]. This phase is expected to begin in spring of 2020.

Phase 4 would begin an extension north along Route 9 with [REDACTED]. This phase is also expected to begin in spring of 2020.

Phase 5 extends further north and is expected to begin in spring of 2021.

The existing Keene customers will be converted over multiple years by geography and strategic valves to isolate these customers from the propane air system. It is expected to take between four and seven years to accomplish the conversion. Current estimates are conversion costs will be approximately \$850 per customer, which equates to \$1,062,500 (based on 1250 customers). These costs will be borne by all (existing and new) Keene Division customers over a number of years through the Keene Division COG.

The identities of potential customers for each phase of the Company's planned expansion in Keene is confidential customer information, and confidential business information. Therefore, pursuant to RSA 91-A:5, IV, and Puc 203.08(d), the Company has a good faith basis to seek confidential treatment of this information, and will submit a motion seeking confidential treatment prior to the final hearing in this docket.

SUPPLEMENTAL RESPONSE:

Please refer to Confidential Attachment Staff 2-41.1.xlsx for an updated DCF analysis. This updated analysis includes four additional units in Phase 1. These units are under construction at the [REDACTED] and have committed to take service. Phase 2 and Phase 3 remain unchanged. Phase 4 has been updated to include an extension, which will serve [REDACTED]. This extension will also allow for the northern section of low pressure piping to be connected to the new high pressure pipe via a regulator station. Phase 5 now includes the residential homes along the distribution route. This addition assumes a 60% saturation rate and includes the cost of service lines as well as the associated distribution revenues.

The estimated revenue used in this analysis is premised on EnergyNorth's currently effective rates (temporary rates that became effective on July 1, 2017). Therefore, the actual revenue level will be higher beginning in the second year, since the rate case will be completed and permanent rates will be in effect. While [REDACTED] very recently decided to utilize bottled propane for the 2017 – 2018 heating season, they have expressed a desire to convert to natural gas in the summer of 2018. Therefore, revenue from that customer is included for the Year 1 revenue of Phase 1.

Also attached are maps of the five phases as well as the construction estimates for Phases 2-5. See Attachment Staff 2-41.2. Phase 1 construction is close to completion and includes all actuals with assumptions for the few remaining services. In addition, the updated spreadsheet tracks the Keene Division's LDAC payments at an assumed \$.045 per therm rate. See Attachment Staff 2-41.3.xlsx for an updated GPM spreadsheet with EnergyNorth temporary rates.

The final business plan will be completed once the Commission approves EnergyNorth's request to set the Keene Division's distribution rates at the level of EnergyNorth's distribution rates. That business plan will include information such as, but not limited to, the marketing plan, operations, how the sales force will be utilized (i.e., personnel in the Keene Division, personnel in the central office or a combination of the two). Since EnergyNorth's growth plans are contingent on approval of its proposal regarding the Keene Division's distribution rates, it would not be productive to establish a detailed business plan prior to receiving such approval.

The shaded (or redacted) information above and within Confidential Attachment Staff 2-41.1.xlsx is the identity and estimated usage of potential customers, which constitutes confidential customer and commercial information exempt from disclosure under RSA 91-A:5, IV, and RSA 363:37 and :38. Therefore, pursuant to Puc 203.08(d), the Company has a good faith basis to seek confidential treatment of this information and will submit a motion seeking confidential treatment prior to the final hearing in this docket.

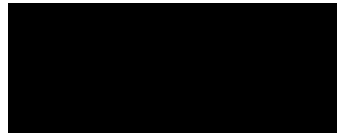
Keene

Rate Base model	CapEx					
Capital Cost Direct	\$112,500	Return	55%	9.75%	14.77%	8.13%
Required Return (pre tax)	10.15%	Debt	45%	4.50%	4.50%	2.03%
Depreciation	2,813					10.15%
OpEx						
NPV (Delta yrs 1-10, discount rate 10.15%)	\$119,713.61	if positive it passes				
Number of customers	9					

	MACRS R:	MACRS Table	Book Depr (40 yrs/2.5%)	Delta	Tax Rate	DIT	ADIT	Rate Base	Return Required	Property Tax 3.60%	Insurance 0.10%	O&M p/Cust \$ 35	Revenue Requirement	Annual Revenues EN Temp Rates as of 7/1/2017	Delta
								112,500							
1	3.75%	4,219	2,813	(1,406)	34%	(478)	(478)	109,209	\$11,252	\$4,050	\$113	\$315	\$18,542	\$36,095.00	\$17,553.25
2	7.22%	8,121	2,813	(5,309)	34%	(1,805)	(2,283)	104,592	\$10,850	\$3,932	\$113	\$321	\$18,028	\$36,095.00	\$18,066.75
3	6.68%	7,512	2,813	(4,699)	34%	(1,598)	(3,881)	100,182	\$10,392	\$3,765	\$113	\$328	\$17,410	\$36,095.00	\$18,684.71
4	6.18%	6,949	2,813	(4,137)	34%	(1,406)	(5,287)	95,963	\$9,954	\$3,607	\$113	\$334	\$16,820	\$36,095.00	\$19,274.85
5	5.71%	6,427	2,813	(3,615)	34%	(1,229)	(6,516)	91,921	\$9,535	\$3,455	\$113	\$341	\$16,256	\$36,095.00	\$19,839.27
6	5.29%	5,946	2,813	(3,133)	34%	(1,065)	(7,582)	88,043	\$9,133	\$3,309	\$113	\$348	\$15,715	\$36,095.00	\$20,379.84
7	4.89%	5,499	2,813	(2,687)	34%	(913)	(8,495)	84,318	\$8,747	\$3,170	\$113	\$355	\$15,197	\$36,095.00	\$20,898.37
8	4.52%	5,087	2,813	(2,275)	34%	(773)	(9,268)	80,732	\$8,376	\$3,035	\$113	\$362	\$14,699	\$36,095.00	\$21,396.49
9	4.46%	5,020	2,813	(2,207)	34%	(750)	(10,019)	77,169	\$8,013	\$2,906	\$113	\$369	\$14,214	\$36,095.00	\$21,881.15
10	4.46%	5,019	2,813	(2,206)	34%	(750)	(10,769)	73,606	\$7,652	\$2,778	\$113	\$376	\$13,731	\$36,095.00	\$22,363.65
11	4.46%	5,020	2,813	(2,207)	34%	(750)	(11,519)	70,043	\$7,290	\$2,650	\$113	\$384	\$13,249	\$36,095.00	\$22,846.00
12	4.46%	5,019	2,813	(2,206)	34%	(750)	(12,269)	66,481	\$6,929	\$2,522	\$113	\$392	\$12,767	\$36,095.00	\$23,328.21
13	4.46%	5,020	2,813	(2,207)	34%	(750)	(13,020)	62,918	\$6,567	\$2,393	\$113	\$399	\$12,285	\$36,095.00	\$23,810.25
14	4.46%	5,019	2,813	(2,206)	34%	(750)	(13,770)	59,355	\$6,205	\$2,265	\$113	\$407	\$11,803	\$36,095.00	\$24,292.15
15	4.46%	5,020	2,813	(2,207)	34%	(750)	(14,520)	55,792	\$5,844	\$2,137	\$113	\$416	\$11,321	\$36,095.00	\$24,773.87
16	4.46%	5,019	2,813	(2,206)	34%	(750)	(15,271)	52,229	\$5,482	\$2,009	\$113	\$424	\$10,840	\$36,095.00	\$25,255.45
17	4.46%	5,020	2,813	(2,207)	34%	(750)	(16,021)	48,666	\$5,120	\$1,880	\$113	\$432	\$10,358	\$36,095.00	\$25,736.84
18	4.46%	5,019	2,813	(2,206)	34%	(750)	(16,771)	45,104	\$4,759	\$1,752	\$113	\$441	\$9,877	\$36,095.00	\$26,218.08
19	4.46%	5,020	2,813	(2,207)	34%	(750)	(17,522)	41,541	\$4,397	\$1,624	\$113	\$450	\$9,396	\$36,095.00	\$26,699.14
20	4.46%	5,019	2,813	(2,206)	34%	(750)	(18,272)	37,978	\$4,036	\$1,495	\$113	\$459	\$8,915	\$36,095.00	\$27,180.03
	2.23%														

Assumptions for growth

ADTH



Keene

Rate Base model	CapEx	Return	55%	9.75%	14.77%	8.13%
Capital Cost Direct	\$1,269,959	Debt	45%	4 50%	4 50%	2.03%
Required Return (pre tax)	10.15%					10.15%
Depreciation	31,749					
OpEx						
NPV (Delta yrs 1-10, discount rate 10.15%)	\$1,152,300.75	if positive it passes				
Number of customers	30					

	MACRS R:	MACRS Table	Book Depr (40 yrs/2.5%)	Delta	Tax Rate	DIT	ADIT	Rate Base	Return Required	Property Tax	Insurance	O&M p/Cust \$ 35	Revenue Requirement	Annual Revenues EN Temp Rates as of 7/1/2017	Delta
								1,269,959		3.60%	0.10%				
1	3.75%	47,623	31,749	(15,874)	34%	(5,397)	(5,397)	1,232,813	\$127,016	\$45,719	\$1,270	\$1,050	\$206,803	\$372,148.00	\$165,344.88
2	7.22%	91,678	31,749	(59,929)	34%	(20,376)	(25,773)	1,180,688	\$122,485	\$44,381	\$1,270	\$1,071	\$200,956	\$372,148.00	\$171,191.66
3	6.68%	84,795	31,749	(53,046)	34%	(18,036)	(43,809)	1,130,903	\$117,313	\$42,505	\$1,270	\$1,092	\$193,929	\$372,148.00	\$178,218.65
4	6.18%	78,445	31,749	(46,696)	34%	(15,877)	(59,686)	1,083,277	\$112,370	\$40,713	\$1,270	\$1,114	\$187,215	\$372,148.00	\$184,932.63
5	5.71%	72,553	31,749	(40,804)	34%	(13,873)	(73,559)	1,037,655	\$107,637	\$38,998	\$1,270	\$1,137	\$180,791	\$372,148.00	\$191,357.21
6	5.29%	67,117	31,749	(35,368)	34%	(12,025)	(85,584)	993,881	\$103,100	\$37,356	\$1,270	\$1,159	\$174,634	\$372,148.00	\$197,513.75
7	4.89%	62,076	31,749	(30,327)	34%	(10,311)	(95,895)	951,821	\$98,744	\$35,780	\$1,270	\$1,182	\$168,725	\$372,148.00	\$203,422.53
8	4.52%	57,428	31,749	(25,679)	34%	(8,731)	(104,626)	911,341	\$94,555	\$34,266	\$1,270	\$1,206	\$163,046	\$372,148.00	\$209,101.93
9	4.46%	56,666	31,749	(24,917)	34%	(8,472)	(113,098)	871,120	\$90,460	\$32,808	\$1,270	\$1,230	\$157,517	\$372,148.00	\$214,630.62
10	4.46%	56,653	31,749	(24,904)	34%	(8,467)	(121,565)	830,904	\$86,378	\$31,360	\$1,270	\$1,255	\$152,012	\$372,148.00	\$220,136.13
11	4.46%	56,666	31,749	(24,917)	34%	(8,472)	(130,037)	790,684	\$82,296	\$29,913	\$1,270	\$1,280	\$146,507	\$372,148.00	\$225,640.99
12	4.46%	56,653	31,749	(24,904)	34%	(8,467)	(138,504)	750,467	\$78,213	\$28,465	\$1,270	\$1,306	\$141,002	\$372,148.00	\$231,145.51
13	4.46%	56,666	31,749	(24,917)	34%	(8,472)	(146,976)	710,247	\$74,131	\$27,017	\$1,270	\$1,332	\$135,499	\$372,148.00	\$236,649.36
14	4.46%	56,653	31,749	(24,904)	34%	(8,467)	(155,443)	670,030	\$70,049	\$25,569	\$1,270	\$1,358	\$129,995	\$372,148.00	\$242,152.84
15	4.46%	56,666	31,749	(24,917)	34%	(8,472)	(163,915)	629,810	\$65,967	\$24,121	\$1,270	\$1,385	\$124,492	\$372,148.00	\$247,655.63
16	4.46%	56,653	31,749	(24,904)	34%	(8,467)	(172,382)	589,593	\$61,885	\$22,673	\$1,270	\$1,413	\$118,990	\$372,148.00	\$253,158.04
17	4.46%	56,666	31,749	(24,917)	34%	(8,472)	(180,854)	549,373	\$57,803	\$21,225	\$1,270	\$1,441	\$113,488	\$372,148.00	\$258,659.74
18	4.46%	56,653	31,749	(24,904)	34%	(8,467)	(189,321)	509,157	\$53,720	\$19,777	\$1,270	\$1,470	\$107,987	\$372,148.00	\$264,161.03
19	4.46%	56,666	31,749	(24,917)	34%	(8,472)	(197,793)	468,936	\$49,638	\$18,330	\$1,270	\$1,500	\$102,486	\$372,148.00	\$269,661.58
20	4.46%	56,653	31,749	(24,904)	34%	(8,467)	(206,260)	428,720	\$45,556	\$16,882	\$1,270	\$1,530	\$96,986	\$372,148.00	\$275,161.70
	2.23%														

Assumptions for growth

ADTH



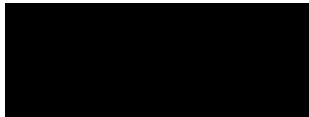
Keene

Rate Base model	CapEx	Return	55%	9.75%	14.77%	8.13%
Capital Cost Direct	\$1,294,905	Debt	45%	4 50%	4 50%	2.03%
Required Return (pre tax)	10.15%					10.15%
Depreciation	32,373					
OpEx						
NPV (Delta yrs 1-10, discount rate 10.15%)	\$510,291.99	if positive it passes				
Number of customers	5					

	MACRS R	MACRS Table	Book Depr (40 yrs/2.5%)	Delta	Tax Rate	DIT	ADIT	Rate Base	Return Required	Property Tax 3.60%	Insurance 0.10%	O&M p/Cust \$ 35	Revenue Requirement	Annual Revenues EN Temp Rates as of 7/1/2017	Delta
								1,294,905							
1	3.75%	48,559	32,373	(16,186)	34%	(5,503)	(5,503)	1,257,029	\$129,511	\$46,617	\$1,295	\$175	\$209,970	\$269,627.00	\$59,657.24
2	7.22%	93,479	32,373	(61,107)	34%	(20,776)	(26,280)	1,203,880	\$124,891	\$45,253	\$1,295	\$179	\$203,990	\$269,627 00	\$65,636.78
3	6.68%	86,461	32,373	(54,088)	34%	(18,390)	(44,670)	1,153,118	\$119,618	\$43,340	\$1,295	\$182	\$196,807	\$269,627 00	\$72,820.08
4	6.18%	79,986	32,373	(47,614)	34%	(16,189)	(60,858)	1,104,556	\$114,577	\$41,512	\$1,295	\$186	\$189,942	\$269,627 00	\$79,684.58
5	5.71%	73,978	32,373	(41,605)	34%	(14,146)	(75,004)	1,058,038	\$109,752	\$39,764	\$1,295	\$189	\$183,373	\$269,627 00	\$86,254.36
6	5.29%	68,436	32,373	(36,063)	34%	(12,261)	(87,265)	1,013,404	\$105,126	\$38,089	\$1,295	\$193	\$177,076	\$269,627 00	\$92,551.23
7	4.89%	63,295	32,373	(30,922)	34%	(10,514)	(97,779)	970,518	\$100,684	\$36,483	\$1,295	\$197	\$171,031	\$269,627 00	\$98,595.85
8	4.52%	58,556	32,373	(26,183)	34%	(8,902)	(106,681)	929,243	\$96,413	\$34,939	\$1,295	\$201	\$165,220	\$269,627 00	\$104,406.98
9	4.46%	57,779	32,373	(25,406)	34%	(8,638)	(115,319)	888,232	\$92,237	\$33,453	\$1,295	\$205	\$159,562	\$269,627 00	\$110,064.85
10	4.46%	57,766	32,373	(25,393)	34%	(8,634)	(123,953)	847,226	\$88,074	\$31,976	\$1,295	\$209	\$153,928	\$269,627 00	\$115,699.49
11	4.46%	57,779	32,373	(25,406)	34%	(8,638)	(132,591)	806,215	\$83,912	\$30,500	\$1,295	\$213	\$148,293	\$269,627 00	\$121,333.89
12	4.46%	57,766	32,373	(25,393)	34%	(8,634)	(141,225)	765,209	\$79,750	\$29,024	\$1,295	\$218	\$142,659	\$269,627 00	\$126,968.37
13	4.46%	57,779	32,373	(25,406)	34%	(8,638)	(149,863)	724,198	\$75,587	\$27,548	\$1,295	\$222	\$137,024	\$269,627 00	\$132,602.61
14	4.46%	57,766	32,373	(25,393)	34%	(8,634)	(158,496)	683,192	\$71,425	\$26,071	\$1,295	\$226	\$131,390	\$269,627 00	\$138,236.91
15	4.46%	57,779	32,373	(25,406)	34%	(8,638)	(167,134)	642,181	\$67,263	\$24,595	\$1,295	\$231	\$125,756	\$269,627 00	\$143,870.97
16	4.46%	57,766	32,373	(25,393)	34%	(8,634)	(175,768)	601,175	\$63,100	\$23,119	\$1,295	\$236	\$120,122	\$269,627 00	\$149,505.10
17	4.46%	57,779	32,373	(25,406)	34%	(8,638)	(184,406)	560,164	\$58,938	\$21,642	\$1,295	\$240	\$114,488	\$269,627 00	\$155,138.97
18	4.46%	57,766	32,373	(25,393)	34%	(8,634)	(193,040)	519,158	\$54,776	\$20,166	\$1,295	\$245	\$108,854	\$269,627 00	\$160,772.91
19	4.46%	57,779	32,373	(25,406)	34%	(8,638)	(201,678)	478,147	\$50,613	\$18,690	\$1,295	\$250	\$103,220	\$269,627 00	\$166,406.60
20	4.46%	57,766	32,373	(25,393)	34%	(8,634)	(210,311)	437,141	\$46,451	\$17,213	\$1,295	\$255	\$97,587	\$269,627 00	\$172,040.34
	2.23%														

Assumptions for grow h

ADTH



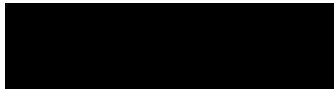
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Rate Base model	CapEx	Return	55%	9.75%	14.77%	8.13%
Capital Cost Direct	\$1,160,012	Debt	45%	4.50%	4.50%	2.03%
Required Return (pre tax)	10.15%					10.15%
Depreciation	29,000					
OpEx						
NPV (Delta yrs 1-10, discount rate 10.15%)	\$609,822.26	if positive it passes				
Number of customers	4					

	MACRS R:	MACRS Table	Book Depr (40 yrs/2.5%)	Delta	Tax Rate	DIT	ADIT	Rate Base	Return Required	Property Tax 3.60%	Insurance 0.10%	O&M p/Cust \$ 35	Revenue Requirement	Annual Revenues EN Temp Rates as of 7/1/2017	Delta
								1,160,012							
1	3.75%	43,500	29,000	(14,500)	34%	(4,930)	(4,930)	1,126,082	\$116,019	\$41,760	\$1,160	\$140	\$188,080	\$266,531.00	\$78,451.00
2	7.22%	83,741	29,000	(54,741)	34%	(18,612)	(23,542)	1,078,469	\$111,881	\$40,539	\$1,160	\$143	\$182,723	\$266,531.00	\$83,807.98
3	6.68%	77,454	29,000	(48,454)	34%	(16,474)	(40,016)	1,032,995	\$107,157	\$38,825	\$1,160	\$146	\$176,288	\$266,531.00	\$90,243.32
4	6.18%	71,654	29,000	(42,654)	34%	(14,502)	(54,518)	989,492	\$102,641	\$37,188	\$1,160	\$149	\$170,138	\$266,531.00	\$96,393.08
5	5.71%	66,271	29,000	(37,271)	34%	(12,672)	(67,191)	947,820	\$98,319	\$35,622	\$1,160	\$152	\$164,252	\$266,531.00	\$102,278.83
6	5.29%	61,307	29,000	(32,306)	34%	(10,984)	(78,175)	907,835	\$94,175	\$34,122	\$1,160	\$155	\$158,611	\$266,531.00	\$107,920.10
7	4.89%	56,701	29,000	(27,701)	34%	(9,418)	(87,593)	869,417	\$90,196	\$32,682	\$1,160	\$158	\$153,196	\$266,531.00	\$113,335.41
8	4.52%	52,456	29,000	(23,455)	34%	(7,975)	(95,568)	832,442	\$86,369	\$31,299	\$1,160	\$161	\$147,989	\$266,531.00	\$118,541.56
9	4.46%	51,760	29,000	(22,759)	34%	(7,738)	(103,306)	795,703	\$82,628	\$29,968	\$1,160	\$164	\$142,921	\$266,531.00	\$123,610.42
10	4.46%	51,748	29,000	(22,748)	34%	(7,734)	(111,041)	758,968	\$78,900	\$28,645	\$1,160	\$167	\$137,873	\$266,531.00	\$128,658.49
11	4.46%	51,760	29,000	(22,759)	34%	(7,738)	(118,779)	722,230	\$75,171	\$27,323	\$1,160	\$171	\$132,825	\$266,531.00	\$133,706.34
12	4.46%	51,748	29,000	(22,748)	34%	(7,734)	(126,513)	685,495	\$71,442	\$26,000	\$1,160	\$174	\$127,777	\$266,531.00	\$138,754.27
13	4.46%	51,760	29,000	(22,759)	34%	(7,738)	(134,251)	648,757	\$67,713	\$24,678	\$1,160	\$178	\$122,729	\$266,531.00	\$143,802.00
14	4.46%	51,748	29,000	(22,748)	34%	(7,734)	(141,985)	612,022	\$63,985	\$23,355	\$1,160	\$181	\$117,681	\$266,531.00	\$148,849.79
15	4.46%	51,760	29,000	(22,759)	34%	(7,738)	(149,724)	575,284	\$60,256	\$22,033	\$1,160	\$185	\$112,634	\$266,531.00	\$153,897.37
16	4.46%	51,748	29,000	(22,748)	34%	(7,734)	(157,458)	538,549	\$56,527	\$20,710	\$1,160	\$188	\$107,586	\$266,531.00	\$158,945.02
17	4.46%	51,760	29,000	(22,759)	34%	(7,738)	(165,196)	501,811	\$52,798	\$19,388	\$1,160	\$192	\$102,539	\$266,531.00	\$163,992.45
18	4.46%	51,748	29,000	(22,748)	34%	(7,734)	(172,930)	465,076	\$49,070	\$18,065	\$1,160	\$196	\$97,491	\$266,531.00	\$169,039.95
19	4.46%	51,760	29,000	(22,759)	34%	(7,738)	(180,669)	428,338	\$45,341	\$16,743	\$1,160	\$200	\$92,444	\$266,531.00	\$174,087.24
20	4.46%	51,748	29,000	(22,748)	34%	(7,734)	(188,403)	391,603	\$41,612	\$15,420	\$1,160	\$204	\$87,396	\$266,531.00	\$179,134.58
	2.23%														

Assumptions for growth

ADTH



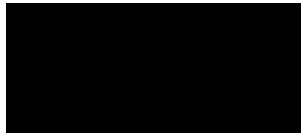
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Rate Base model	CapEx						
Capital Cost Direct	\$1,097,309	Return	55%	9.75%	14.77%	8.13%	
Required Return (pre tax)	10.15%	Debt	45%	4.50%	4.50%	2.03%	
Depreciation	27,433					10.15%	
OpEx							
NPV (Delta yrs 1-10, discount rate 10.15%)	\$263,867.75	if positive it passes					
Number of customers	58						

	MACRS R	MACRS Table	Book Depr (40 yrs/2.5%)	Delta	Tax Rate	DIT	ADIT	Rate Base	Return Required	Property Tax 3.60%	Insurance 0.10%	O&M p/Cust \$ 35	Revenue Requirement	Annual Revenues EN Temp MEP Rates as of 7/1/2017	Delta
								1,097,309							
1	3.75%	41,149	27,433	(13,716)	34%	(4,664)	(4,664)	1,065,213	\$109,748	\$39,503	\$1,097	\$2,030	\$179,811	\$202,903.00	\$23,091.86
2	7.22%	79,215	27,433	(51,782)	34%	(17,606)	(22,269)	1,020,174	\$105,833	\$38,348	\$1,097	\$2,071	\$174,782	\$202,903.00	\$28,121.33
3	6.68%	73,267	27,433	(45,835)	34%	(15,584)	(37,853)	977,158	\$101,365	\$36,726	\$1,097	\$2,112	\$168,733	\$202,903.00	\$34,170.10
4	6.18%	67,781	27,433	(40,348)	34%	(13,718)	(51,572)	936,007	\$97,093	\$35,178	\$1,097	\$2,154	\$162,955	\$202,903.00	\$39,947.96
5	5.71%	62,689	27,433	(35,257)	34%	(11,987)	(63,559)	896,587	\$93,004	\$33,696	\$1,097	\$2,197	\$157,428	\$202,903.00	\$45,475.29
6	5.29%	57,993	27,433	(30,560)	34%	(10,390)	(73,949)	858,763	\$89,084	\$32,277	\$1,097	\$2,241	\$152,132	\$202,903.00	\$50,770.55
7	4.89%	53,636	27,433	(26,204)	34%	(8,909)	(82,858)	822,421	\$85,320	\$30,915	\$1,097	\$2,286	\$147,052	\$202,903.00	\$55,851.24
8	4.52%	49,620	27,433	(22,188)	34%	(7,544)	(90,402)	787,445	\$81,701	\$29,607	\$1,097	\$2,332	\$142,170	\$202,903.00	\$60,733.24
9	4.46%	48,962	27,433	(21,529)	34%	(7,320)	(97,722)	752,692	\$78,162	\$28,348	\$1,097	\$2,378	\$137,418	\$202,903.00	\$65,484.51
10	4.46%	48,951	27,433	(21,518)	34%	(7,316)	(105,038)	717,943	\$74,635	\$27,097	\$1,097	\$2,426	\$132,688	\$202,903.00	\$70,215.24
11	4.46%	48,962	27,433	(21,529)	34%	(7,320)	(112,358)	683,191	\$71,108	\$25,846	\$1,097	\$2,475	\$127,958	\$202,903.00	\$74,944.89
12	4.46%	48,951	27,433	(21,518)	34%	(7,316)	(119,674)	648,442	\$67,580	\$24,595	\$1,097	\$2,524	\$123,229	\$202,903.00	\$79,673.70
13	4.46%	48,962	27,433	(21,529)	34%	(7,320)	(126,994)	613,689	\$64,053	\$23,344	\$1,097	\$2,575	\$118,502	\$202,903.00	\$84,401.38
14	4.46%	48,951	27,433	(21,518)	34%	(7,316)	(134,311)	578,940	\$60,526	\$22,093	\$1,097	\$2,626	\$113,775	\$202,903.00	\$89,128.19
15	4.46%	48,962	27,433	(21,529)	34%	(7,320)	(141,631)	544,188	\$56,999	\$20,842	\$1,097	\$2,679	\$109,049	\$202,903.00	\$93,853.84
16	4.46%	48,951	27,433	(21,518)	34%	(7,316)	(148,947)	509,439	\$53,472	\$19,591	\$1,097	\$2,732	\$104,324	\$202,903.00	\$98,578.57
17	4.46%	48,962	27,433	(21,529)	34%	(7,320)	(156,267)	474,686	\$49,944	\$18,340	\$1,097	\$2,787	\$99,601	\$202,903.00	\$103,302.09
18	4.46%	48,951	27,433	(21,518)	34%	(7,316)	(163,583)	439,937	\$46,417	\$17,089	\$1,097	\$2,842	\$94,878	\$202,903.00	\$108,024.66
19	4.46%	48,962	27,433	(21,529)	34%	(7,320)	(170,903)	405,184	\$42,890	\$15,838	\$1,097	\$2,899	\$90,157	\$202,903.00	\$112,745.98
20	4.46%	48,951	27,433	(21,518)	34%	(7,316)	(178,219)	370,436	\$39,363	\$14,587	\$1,097	\$2,957	\$85,437	\$202,903.00	\$117,466.29
	2.23%														

Assumptions for growth

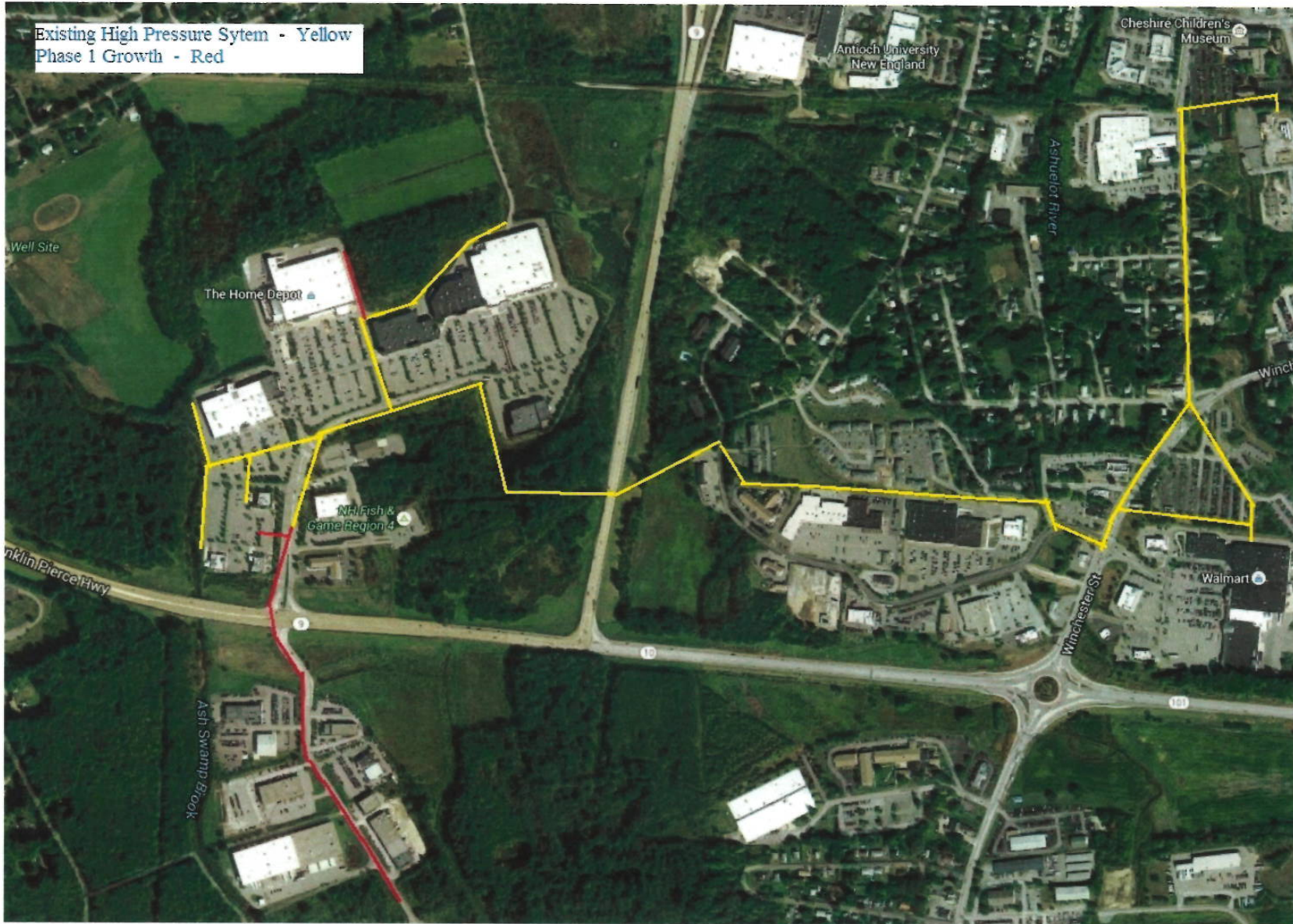
ADTH



Total Capex over 5 Years **\$4,934,685**
Required Return Pretax 10.15%

NPV **\$1,880,292**

Year	Book Depreciation	Return Required	Property Tax 3.60%	Insurance 0.10%	O&M	Revenue Requirement	Distribution Revenues	Delta	System ADTH	LDAC	LDAC & Delta Total	
1	\$ 2,813	\$11,252	\$4,050	\$113	\$315	\$ 18,542	\$36,095	\$17,553	125,000	\$ 0.045	\$ 56,250	
2	\$ 34,561	\$137,866	\$49,650	\$1,382	\$1,371	\$ 224,831	\$408,243	\$183,412	134,254	\$ 0.045	\$ 60,414	\$ 77,968
3	\$ 66,934	\$262,388	\$94,763	\$2,677	\$1,574	\$ 428,336	\$677,870	\$249,534	274,398	\$ 0.045	\$ 123,479	\$ 306,891
4	\$ 95,934	\$368,178	\$133,125	\$3,837	\$1,745	\$ 602,820	\$944,401	\$341,581	415,398	\$ 0.045	\$ 186,929	\$ 436,463
5	\$ 123,367	\$463,151	\$167,549	\$4,935	\$3,810	\$ 762,812	\$1,147,304	\$384,492	534,198	\$ 0.045	\$ 240,389	\$ 581,970
6	\$ 123,367	\$444,338	\$160,992	\$4,935	\$3,886	\$ 737,518	\$1,147,304	\$409,786	575,698	\$ 0.045	\$ 259,064	\$ 643,556
7	\$ 123,367	\$425,605	\$154,203	\$4,935	\$3,964	\$ 712,074	\$1,147,304	\$435,230	575,698	\$ 0.045	\$ 259,064	\$ 668,850
8	\$ 123,367	\$407,658	\$147,704	\$4,935	\$4,043	\$ 687,707	\$1,147,304	\$459,597	575,698	\$ 0.045	\$ 259,064	\$ 694,294
9	\$ 123,367	\$390,432	\$141,472	\$4,935	\$4,124	\$ 664,330	\$1,147,304	\$482,974	575,698	\$ 0.045	\$ 259,064	\$ 718,661
10	\$ 123,367	\$373,804	\$135,484	\$4,935	\$4,207	\$ 641,797	\$1,147,304	\$505,507	575,698	\$ 0.045	\$ 259,064	\$ 742,038
											\$ 259,064	\$ 764,571



Liberty Utilities Sales Estimating Tool
(2" - 6" Plastic)

ENGINEERING REVIEW REQUIRED

CLEAR ALL

Calendar Year
Address
Town
State Road ☐ YES ☒ NO

Proposed New Main Segments on Project

	1	2	3
*Proposed Size	6" 1001' - 2000'	4" 1001' - 2000'	2" 1001' - 2000'
Existing Conditions	In Pavement - Municipal	In Pavement - Municipal	Off Pavement - Municipal
Proposed Material	Plastic	Plastic	Plastic
Proposed Footage	2,190	4,805	2,450

* For multiple sizes use total length of project (i.e. if you need 750' total: 500' of 2" and 250' of 4", use 2" 501' - 1000' & 4" 501' - 1000')

Main Install Direct Cost

Proposed # of New Services w/ Main on Project

	1	2	3
Service Size	2"	< 2"	< 2"
Existing Conditions	Off Pavement - Municipal	In Pavement - Municipal	Off Pavement - Municipal
Service Material	Plastic	Plastic	Plastic
# of Services	12	9	9
Extra Footage > 100'			

Service Install Direct Cost

Proposed # of Main Connections on Project

	1	2	3
**Connection Size/Type	6 inch - PL to PL/CI	4 inch - PL to PL/CI	2 inch - PL to PL/CI
# of Main Connections	1	1	1

**Use connection size of new main to be installed

Main Connection Direct Cost

HDD

Unit Cost (\$/ft) - Direct

Estimate - Direct

of Residential Meters

Residential GPM

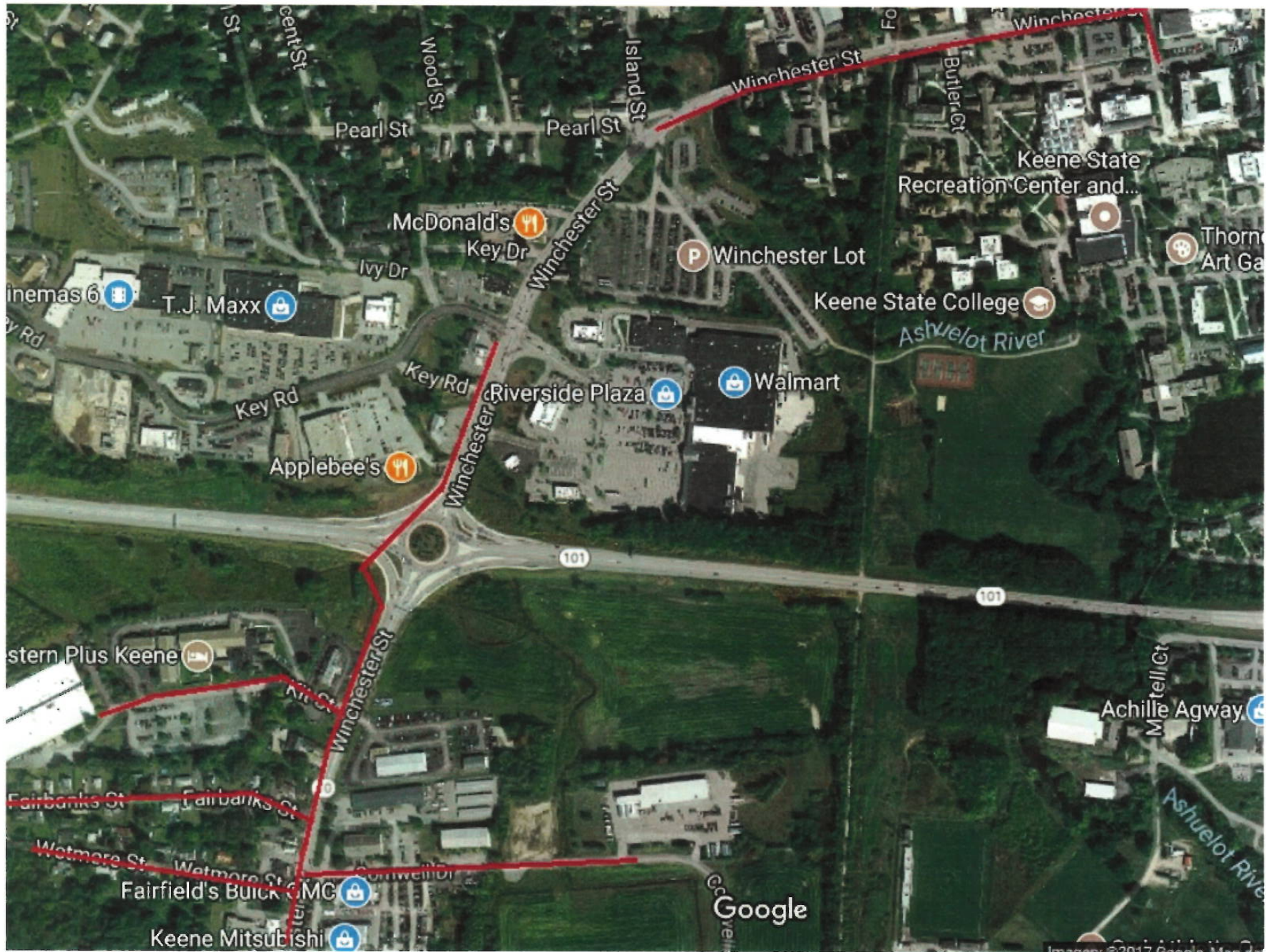
Commercial GPM

CIAC

Comments

*15% Contingency Built In

Ver. 8 - Liberty Utilities - Effective 2/19/2016



Liberty Utilities Sales Estimating Tool
(2" - 6" Plastic)

ENGINEERING REVIEW REQUIRED

CLEAR ALL

Calendar Year
Address
Town
State Road ☐ YES ☒ NO

Proposed New Main Segments on Project

	1	2	3
*Proposed Size	6" 1001' - 2000'	4" 1001' - 2000'	2" 1001' - 2000'
Existing Conditions	In Pavement - Municipal	In Pavement - Municipal	Off Pavement - Municipal
Proposed Material	Plastic	Plastic	Plastic
Proposed Footage	7,075		

* For multiple sizes use total length of project (i.e. if you need 750' total: 500' of 2" and 250' of 4", use 2" 501' - 1000' & 4" 501' - 1000')

Main Install Direct Cost

Proposed # of New Services w/ Main on Project

	1	2	3
Service Size	2"	< 2"	< 2"
Existing Conditions	In Pavement - Private	In Pavement - Municipal	Off Pavement - Municipal
Service Material	Plastic	Plastic	Plastic
# of Services	5		
Extra Footage > 100'	2,000		

Service Install Direct Cost

Proposed # of Main Connections on Project

	1	2	3
**Connection Size/Type	6 inch - PL to PL/CI	4 inch - PL to PL/CI	2 inch - PL to PL/CI
# of Main Connections	1	1	1

**Use connection size of new main to be installed

Main Connection Direct Cost

HDD

Unit Cost (\$/ft) - Direct

Estimate - Direct

of Residential Meters

Residential GPM

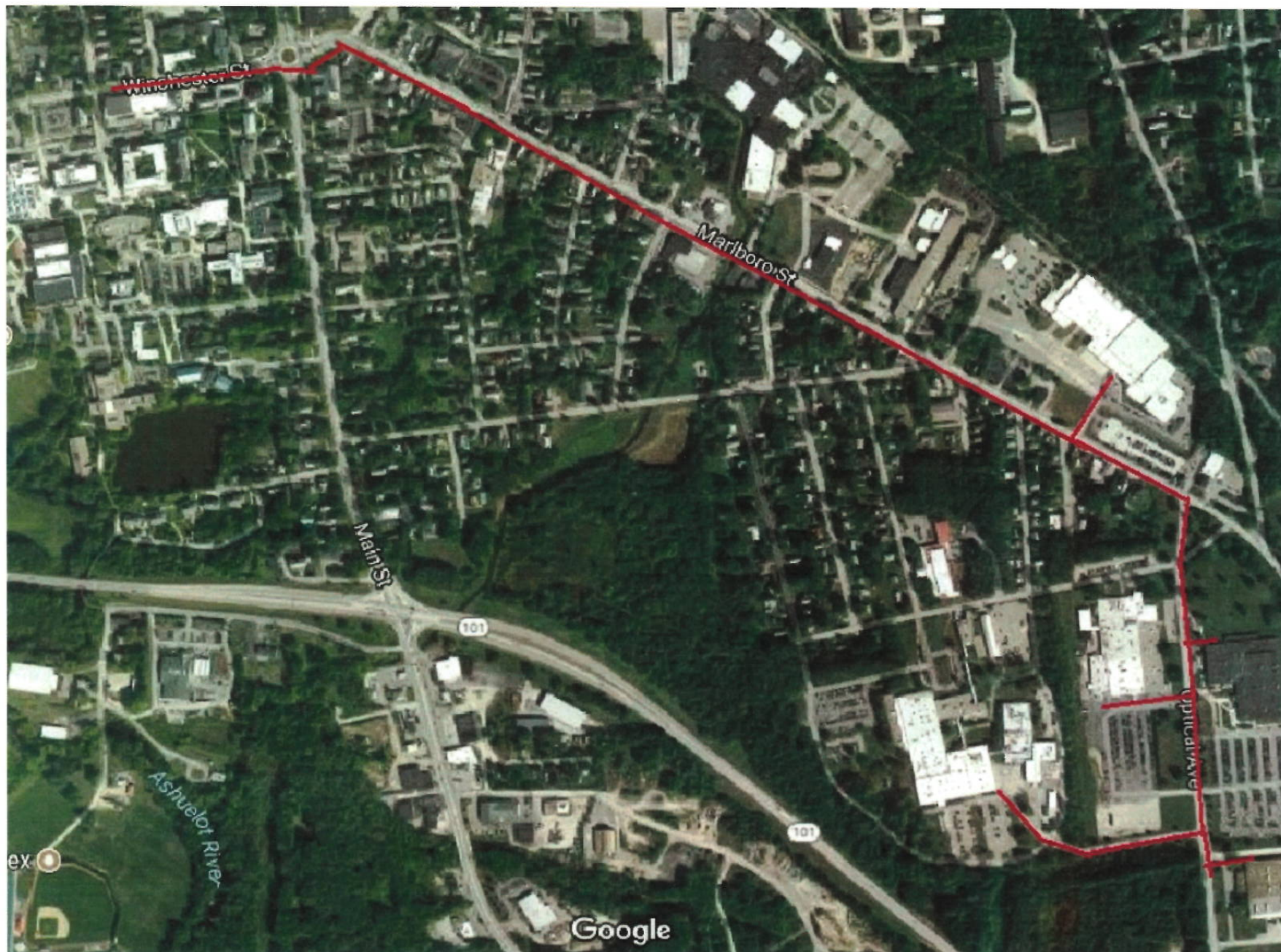
Commercial GPM

CIAC

Comments

*15% Contingency Built In

Ver. 8 - Liberty Utilities - Effective 2/19/2016



Liberty Utilities Sales Estimating Tool
(2" - 6" Plastic)

ENGINEERING REVIEW REQUIRED

CLEAR ALL

Calendar Year
Address
Town
State Road ☐ YES ☒ NO

Proposed New Main Segments on Project

	1	2	3
*Proposed Size	6" 1001' - 2000'	4" 1001' - 2000'	2" 1001' - 2000'
Existing Conditions	Off Pavement - Municipal	In Pavement - Municipal	Off Pavement - Municipal
Proposed Material	Plastic	Plastic	Plastic
Proposed Footage	15,629		

* For multiple sizes use total length of project (i.e. if you need 750' total: 500' of 2" and 250' of 4", use 2" 501' - 1000' & 4" 501' - 1000')

Main Install Direct Cost

Proposed # of New Services w/ Main on Project

	1	2	3
Service Size	2"	< 2"	< 2"
Existing Conditions	In Pavement - Private	In Pavement - Municipal	Off Pavement - Municipal
Service Material	Plastic	Plastic	Plastic
# of Services	4		
Extra Footage > 100'	2,500		

Service Install Direct Cost

Proposed # of Main Connections on Project

	1	2	3
**Connection Size/Type	6 inch - PL to PL/CI	4 inch - PL to PL/CI	2 inch - PL to PL/CI
# of Main Connections	1	1	1

**Use connection size of new main to be installed

Main Connection Direct Cost

HDD

Unit Cost (\$/ft) - Direct

Estimate - Direct

of Residential Meters

Residential GPM

Commercial GPM

CIAC

Comments

*15% Contingency Built In

Ver. 8 - Liberty Utilities - Effective 2/19/2016



Liberty Utilities Sales Estimating Tool
(2" - 6" Plastic)

ENGINEERING REVIEW REQUIRED

CLEAR ALL

Calendar Year
Address
Town
State Road ☐ YES ☒ NO

Proposed New Main Segments on Project

	1	2	3
*Proposed Size	4" 1001' - 2000'	4" 1001' - 2000'	2" 1001' - 2000'
Existing Conditions	Off Pavement - Municipal	In Pavement - Municipal	Off Pavement - Municipal
Proposed Material	Plastic	Plastic	Plastic
Proposed Footage	17,225		

* For multiple sizes use total length of project (i.e. if you need 750' total: 500' of 2" and 250' of 4", use 2" 501' - 1000' & 4" 501' - 1000')

Main Install Direct Cost

Proposed # of New Services w/ Main on Project

	1	2	3
Service Size	2"	< 2"	< 2"
Existing Conditions	In Pavement - Private	Off Pavement - Municipal	Off Pavement - Municipal
Service Material	Plastic	Plastic	Plastic
# of Services	5	53	
Extra Footage > 100'	500		

Service Install Direct Cost

Proposed # of Main Connections on Project

	1	2	3
**Connection Size/Type	6 inch - PL to PL/CI	4 inch - PL to PL/CI	2 inch - PL to PL/CI
# of Main Connections	4		

**Use connection size of new main to be installed

Main Connection Direct Cost

HDD

Unit Cost (\$/ft) - Direct

Estimate - Direct

of Residential Meters

Residential GPM

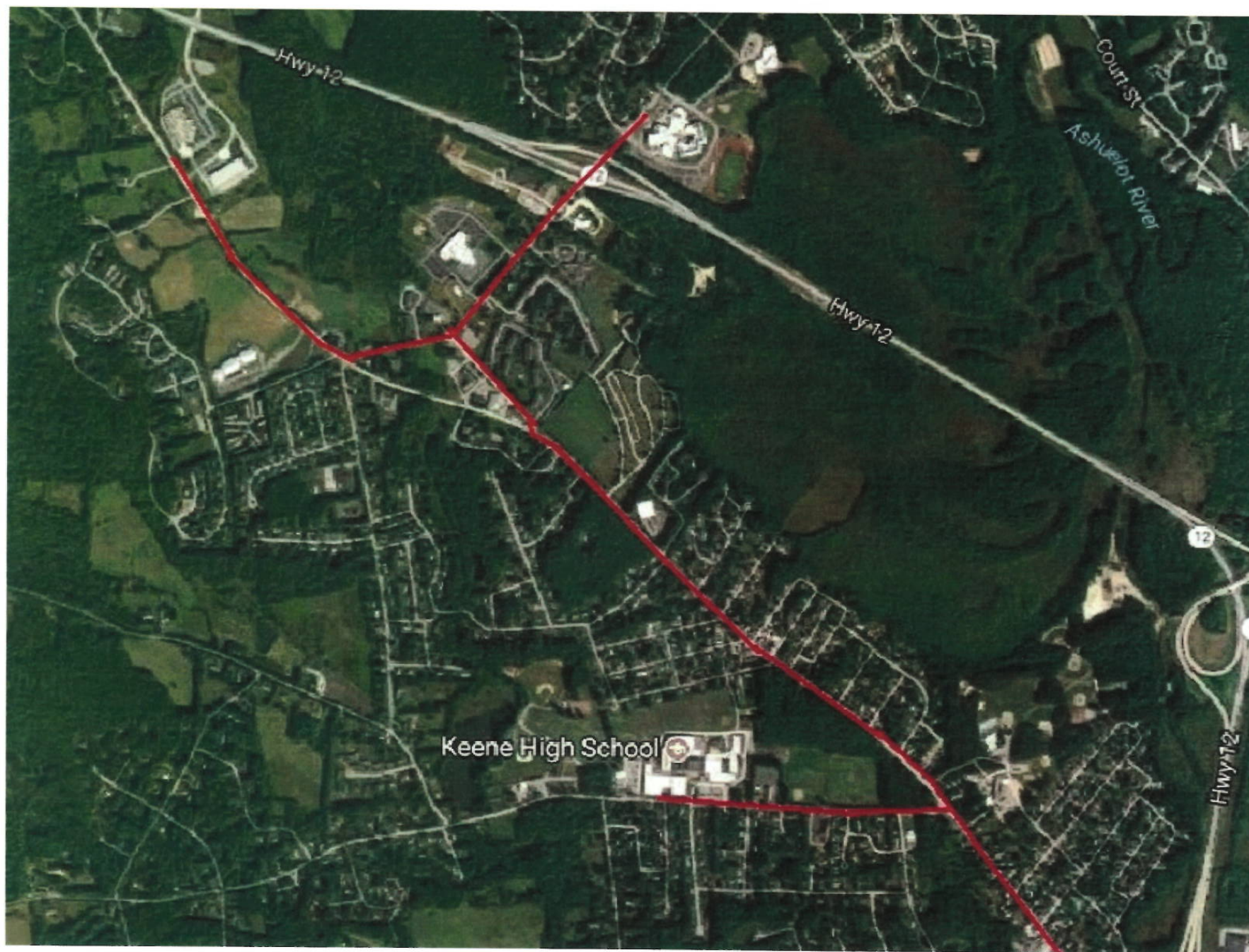
Commercial GPM

CIAC

Comments

*15% Contingency Built In

Ver. 8 - Liberty Utilities - Effective 2/19/2016



Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

DG 14-091

Liberty Utilities/iNATGAS Special Contract and Lease Agreement

Staff's Data Requests – Set 2

Date Request Received: 4/25/14
Request No. Staff 2-8

Date of Response: 5/9/14
Respondent: William J. Clark

REQUEST:

Ref. DR 1-4. What is the maximum capacity of the Concord station at full build out? Describe the facilities and associated costs necessary for full build out.

RESPONSE:

At full build out, the station capacity for thermal/filling applications, will be approximately 2,300,000 dth's per year. To achieve this build out, two additional compressors will be required as well some minor extensions of the canopy at the CNG station. Liberty's expected cost for this would be approximately \$600,000-\$700,000.

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

DG 14-091

Liberty Utilities/iNATGAS Special Contract and Lease Agreement

Staff Data Requests – Set 3

Date Request Received: 5/16/14
Request No. Staff 3-10

Date of Response: 5/30/14
Respondent: Francisco C. DaFonte

REQUEST:

Please provide detailed monthly calculations showing each of the iNATGAS mandatory capacity assignment offsets, by each supply/capacity asset, which would have flowed back to rate payers through the cost of gas if this transition had begun on November 1, 2013, and continued through October 31, 2014.

RESPONSE:

For the purposes of establishing the appropriate mandatory capacity assignment, the iNATGAS load is considered a high load factor customer. As such, the breakout of pipeline storage and peaking capacity is 54%, 15% and 31%, respectively based on the capacity allocation factors calculated to be effective November 1, 2013. Attachment Staff 3-10 provides the allocation factors by resource type as well as the specific allocation of each resource to the iNATGAS design day of 2,700 Dth in the first year of the contract. Based on the cost of each resource the capacity credits that would have flowed back to customers if iNATGAS had come on line for this past winter period would have been approximately \$55,722 per month and \$334,332 for the winter period. More importantly, other than peaking resources which are only available in the winter period, these capacity credits would flow back to EnergyNorth customers in the summer when capacity is much less valuable when put out to bid in the secondary market.

Table Staff 3-10 shows the capacity credits in the first year broken out by winter, summer and annual as well as the credits that would accrue to customers over a 3 year period assuming that iNATGAS is entitled to their full peak day capacity by remaining on the Company's sales service and that same prorata allocation of available resources to meet iNATGAS' design day requirements. The fourth year of the forecast is not included due to the uncertainty of the cost of any incremental resources added to the EnergyNorth portfolio; however, iNATGAS will be assigned their proportionate share of any incremental capacity

Table Staff 3-10

Year	INATGAS Peak Day (Dth)	Winter Capacity Credit	Summer Capacity Credit	Annual Capacity Credit
2014-2015	2,700	\$334,332	\$228,870	\$563,202
2015-2016	3,200	\$396,245	\$271,253	\$667,498
2016-2017	4,600	\$569,602	\$389,927	\$959,529