To: Woonsocket City Council and the Mayor of Woonsocket				
From: Woonsocket Water Treatment Plant Project Advisory Committee *				
Date: June 20, 2011				
Subject: Report regarding recommende	d site for new Water Treatment Plant			
Received – Council President:	Date:			
Received – Mayor:	Date:			
*Water Treatment Plant Project Advisor	y Committee – members:			
Owen Bebeau - Secretary				
James Cournoyer - Chairman Paul Levreault				
Allen Rivers				
Matt Tessitore				
City Council Liaisons to the Committee:				
Chris Beauchamp Dan Gendron				

The Water Treatment Plant Project Advisory Committee ("Committee") reviewed a number of locations at which a new water treatment plant could potentially be sited, in addition to reviewing the feasibility and merits of installing an inter-connect pipeline to purchase water from the Pawtucket Water Supply Board.

The following sites were reviewed and considered (in no particular order):

			Number of
		City Owned	non-City
	<u>Site</u>	Privately Owned	<u>Owners</u>
1	North Smithfield / Firing Range	City Owned	NA
2	Triangle Site	City & Private	2
3	Manville Road	Privately Owned	13
4	Bernon Heights #1	Privately Owned	1
5	Bernon Heights #2	City Owned	NA
6	Bernon Heights #3	City & Private	2
7	Ocean State Finishing	Privately Owned	1
8	Hillview Ave	Privately Owned	2

Recommendation: The Water Advisory Committee, by unanimous vote, recommends the building of an 8MGD plant on the **Bernon Heights # 1** site.

Further, the Committee, by unanimous vote, ranked the top 3 sites as follows:

- 1. Bernon Heights #1
- 2. Hillview Ave
- 3. North Smithfield / Firing Range

Rationale behind recommendation and rankings: The key drivers behind the recommendations and rankings were cost, flexibility for future expansion and renewal, ease/complexity of acquisition (in the case of privately owned sites) and certainty (i.e. the elimination or absence of uncertain items).

From a purely <u>physical</u> site standpoint, the North Smithfield / Firing Range site is the optimal site, primarily because the raw water from the reservoir can be gravity fed to the treatment plant, eliminating the need for a pump station (which is required for all other sites considered). In addition, the North Smithfield site does not require the acquisition of property.

Because the North Smithfield site is the optimal site from a physical standpoint, the Committee used the North Smithfield site as the base-line to compare all other sites to. That is, all other sites were viewed in terms of their incremental costs (both tangible and intangible) as compared to the North Smithfield site.

That being said, the physical advantages of the North Smithfield site are mitigated by:

- The risk and uncertainty of taxes that would be paid to the Town of North Smithfield
 - In the <u>absence</u> of a negotiated tax treaty, the annual taxes on a facility sited in North Smithfield could range from \$600,000 per year to over \$1 million dollars per year (see <u>Table 5 on page 8</u>)

- the full 50+ year expected life of the facility <u>must</u> be taken into account when considering taxes to be paid (see <u>Table 6</u> on page 9 for breakeven ...that is, the maximum amount of taxes the water department could pay in order to be indifferent from a cost perspective relative to the Bernon Heights #1 site).
 - RIGL 39-15-11 <u>Grant of right to lay pipes and build reservoirs Exemption from taxation</u> appears to provide the Town Council of North Smithfield with the authority to exempt the project from taxes. However, RIGL 44-3-9 <u>Exemption or stabilizing of taxes on property used for manufacturing, commercial, or residential purposes</u>, which may or may not apply, seems to limit tax agreements to <u>no more</u> than <u>20 years</u>.
- the North Smithfield site does <u>not</u> provide the flexibility to construct a replacement plant at the site 50 years from now at the end of the plant's expected useful life. One of the key issues we face today is the inability to site a new/replacement plant at the site of the existing Water Treatment Plant.
- Siting the facility in North Smithfield could likely add additional layers of review and approval (e.g. NS Planning and Zoning)
- Although not a significant concern in of itself, the North Smithfield site would require the City to find an alternative site for the police shooting range. Although this issue is not considered to be a "deal breaker" by the Committee, it is nonetheless, a consideration. Also, it was suggested that the shooting range could remain, albeit moved, at the North Smithfield site if a water treatment plant is sited at this location, however, the Committee had strong reservations with this alternative given the relative close proximity the live-fire site would have to employees and other individuals frequenting the treatment plant.

With the above in mind, coupled with the following additional considerations, the Committee unanimously recommended the **Bernon Heights #1** site as the top rated site:

- Since the property is located in Woonsocket, it eliminates the risk and uncertainty of <u>taxes</u> to be paid, as compared to the North Smithfield site
 - The one-time upfront incremental costs of the <u>non-North Smithfield</u> sites must be compared to the <u>ongoing</u> tax payments that would be required if the plant is located in North Smithfield
- Since the property is located in Woonsocket, it eliminates the potential need for review and approval from North Smithfield officials
- The <u>size</u> of the property (18.9 acres), although not entirely usable, provides more than adequate space to site a replacement plant in the future
- The property's relative (as compared to other sites considered) remoteness from residential sites, in addition to its close proximity to the existing 30-inch water main
- Clearly defined access to the site
- The site has a <u>single</u> seller who has provided the city with a clear indication of interest including price, which, compared to the other privately owned locations under consideration, provides the city with an easy and non-complex acquisition opportunity (i.e. no easements required, no multiple parties to negotiate with)
- The property, due to its high elevation, provides the city with the potential to locate revenue producing antenna towers, as well as the possibility to site a wind-turbine in the future

Similar to the Bernon #1 site, the <u>Hillview</u> site eliminates the risk and uncertainty around the taxes that would be associated with the North Smithfield site, as well as Planning and Zoning approvals from North Smithfield. However, the Hillview site was ranked <u>below</u> the Bernon Heights #1 site for the following reasons:

- The site would likely require acquisition / easements from multiple parties
- To date, none of the property owners have provided a <u>price</u> at which they would be willing to sell
- Although the main site is 9.5 acres, it is not clear whether or not the site would accommodate a
 new/replacement plant in the future (note: one of the initial criteria noted by CDM was a "minimum of 8
 acres").
- Access to the site is not entirely clear there is potential access from Hillview Ave or from the more
 densely populated residential areas of Bertanshaw and Marion

In summary, the Committee put a premium on <u>certainty</u> (i.e. the elimination of uncertainty around taxes and approvals relative to the North Smithfield site, as well as certainty of acquisition) and <u>flexibility</u> for future renewal and replacement (i.e. the Committee wanted to eliminate for future generations the issue that it currently faces, which is the lack of a suitable site for the inevitable replacement of the plant). It is the firm belief of the Committee that Bernon Heights #1 achieves those objectives and provides the City with the best alternative.

Note: the **Ocean State** site did <u>not</u> make the Top 3 based on several factors including the inability of the site to provide for future renewal and replacement, the incremental cost versus the alternatives (a key driver of which was, unlike the other sites under consideration, the inability to use existing water mains, as well as the costs associated with putting in new water lines via paved roads requiring the additional costs of police details and repaving not associated with the other privately owned sites, as the majority of new lines associated with the other sites would be constructed through vacant off-street land without the need to repave), the desire not to take a potential industrial development site off line, as well as real and perceived environmental issues.

Balance of page intentionally left blank

Cost impact: As noted above, the Committee considered the North Smithfield site to be the "base-line" to which the other alternative sites would be compared against. The city's engineering consultants, Camp Dresser McKee Inc. (CDM), reviewed the various sites under consideration and provided cost estimates for each of the variable elements associated with each site. The following **Table 1** summarizes the high-level cost estimates:

Table 1					Incremental Cost
NS Firing Range:			Unit Cost	Total Cost	vs <u>NS Site</u>
Access Road	500	lineal ft	\$166.41	\$83,205	<u>NO Oite</u>
Raw Water Pump Station	-	mroar re	\$3,565,093	\$0	
Raw Water Piping	_	lineal ft	\$243.00	\$0	
Finished Water Piping	3,000	lineal ft	\$324.00	\$972,000	
Sewer	3,000	lineal ft	\$153.95	\$461,850	
Hazardous Waste Remediation	1		\$450,000	\$450,000	
Rock Removal	500	cubic yds	\$75.00	\$37,500	
Acquisition Cost	N/A		\$0.00	\$0 \$2,004,555	
Bernon #1:			•	<u> </u>	
Access Road	1,300	lineal ft	\$166.41	\$216,333	
Raw Water Pump Station	1		\$3,565,093	\$3,565,093	
Raw Water Piping	1,500	lineal ft	\$243.00	\$364,500	
Finished Water Piping	1,500	lineal ft	\$324.00	\$486,000	
Sewer	1,500	lineal ft	\$153.95	\$230,925	
Hazardous Waste Remediation	-		\$0.00	\$0	
Rock Removal	20,000	cubic yds	\$75.00	\$1,500,000	
Acquisition Cost	\$31,881	per acre	\$600,000	\$600,000 \$6,962,851	\$4,958,296
Hillyiann			•	<u> </u>	
Hillview: Access Road	1,600	lineal ft	\$166.41	\$266,256	
Raw Water Pump Station	1,000	iii leai it	\$3,565,093.00	\$3,565,093	
Raw Water Piping	1,160	lineal ft	\$243.00	\$281,880	
Finished Water Piping	1,160	lineal ft	\$324.00	\$375,840	
	850	lineal ft			
Sewer		iirieai it	\$153.95	\$130,858	
Hazardous Waste Remediation	1		\$0.00	\$0	
Rock Removal	10,000	cubic yds	\$75.00	\$750,000	
Acquisition Cost *	\$31,881	per acre	\$402,657	\$402,657	A0 700 000
			:	\$5,772,583	\$3,768,028
Ocean State:					
Access Road	200	lineal ft	\$166.41	\$33,282	
Raw Water Pump Station	1		\$3,565,093	\$3,565,093	
Raw Water Piping	6,000	lineal ft	\$243.00	\$1,458,000	
Finished Water Piping (2100 30"; 1500 8")	3,600	lineal ft	\$253.13	\$911,268	
Sewer	-	lineal ft	\$153.95	\$0	
Hazardous Waste Remediation	-		\$450,000	\$0	
Rock Removal	15,000	cubic yds	\$75.00	\$1,125,000	
Acquisition Cost	\$151,832	per acre	\$1,450,000	\$1,450,000	
	, -	,	. ,,	\$8,542,643	\$6,538,088
* Hillview Acquisiton cost: none provided by ow	ners; assumed s	same per acre	e price as Bernon #1	_	

<u>Table 2</u> below provides a side-by-side comparison of the four sites. It is important to note that the numbers in <u>Table 1</u> and <u>Table 2</u> do <u>not</u> include any costs associated with paying taxes to North Smithfield.

Table 2				
	<u>NS</u>	Bernon Hts #1	<u>Hillview</u>	Ocean State
Access Road	\$83,205	\$216,333	\$266,256	\$33,282
Raw Water Pump Station	\$0	\$3,565,093	\$3,565,093	\$3,565,093
Raw Water Piping	\$0	\$364,500	\$281,880	\$1,458,000
Finished Water Piping	\$972,000	\$486,000	\$375,840	\$911,268
Sewer	\$461,850	\$230,925	\$130,858	\$0
Hazardous Waste Remediation	\$450,000	\$0	\$0	\$0
Rock Removal	\$37,500	\$1,500,000	\$750,000	\$1,125,000
Acquisition Cost	\$0	\$600,000	\$402,657	\$1,450,000
i i	\$2,004,555	\$6,962,851	\$5,772,583	\$8,542,643
Incremental one-time cost versus NS				
Site (excluding impact of taxes)		\$4,958,296	\$3,768,028	\$6,538,088

Based on the above noted incremental one-time costs associated with each of the sites, coupled with the recurring costs of lost taxes (i.e. the loss of taxes resulting from the removal of private property from the tax rolls) and incremental electricity, the Bernon Heights #1 site would result in a \$450,102 annual incremental cost versus North Smithfield [see number circled in green in <u>Table 3</u> below], assuming the upfront costs are financed over <u>20 years</u> (the \$450,102 would drop to \$378,034 if financed over <u>30 years</u>). This \$450,102 annual incremental cost would equate to roughly <u>\$44 per year</u> for the average 4-member household. As a reminder, the \$450,102 and the \$44 does <u>not</u> factor in the cost of taxes to be paid to North Smithfield.

By way of comparison to the Hillview site, this \$44 cost <u>per year</u> for the average 4-member household is approximately **\$10** <u>more</u> than the Hillview site, however, the Committee believes this relatively immaterial cost difference is more than offset by the other items supporting the Bernon Heights #1 recommendation, chief of which is the size and resultant flexibility of the Bernon Heights #1 property.

Table 3	Bernon Hts #1	<u>Hillview</u>
Annual cost @ 6% financed over 20-years	\$432,261	\$328,511
Plus Lost Taxes	\$2,841	\$2,879
Plus Incremental Electric	\$15.000	\$15,000
Total Annual Incremental Cost vs NS	\$450,102 \$103,712	\$346,390
Incremental cost per gallon billed	\$0.00040	\$0.00031
Incremental annual cost per Household	\$44 (\$10)	\$34
Incremental annual per customer/service connection	\$46	\$36
Annual cost @ 6% financed over 30-years	\$360,193	\$273,741
Plus Lost Taxes	\$2,841	\$2,879
Plus Incremental Electric	\$15,000_	\$15,000
Total Annual Incremental Cost vs NS	\$378,034 \$86,414	\$291,620
Incremental cost per gallon billed	\$0.00034	\$0.00026
Incremental annual cost per Household	\$37) (\$8)	\$29
Incremental annual per customer/service connection	\$39	\$30

<u>Table 4</u> below provides are re-cap of Table 3, along with additional info including taxes (Table 4b) and gallons billed (Table 4c).

Table 4a	Bernon Hts #1	<u>Hillview</u>		Ocean State
Annual cost @ 6% financed over 20-years	\$432,261	\$328,511		\$570,013
Plus Lost Taxes	\$2,841	\$2,879		\$21,099
Plus Incremental Electric	\$15,000	\$15,000		\$15,000
Total Annual Incremental Cost vs NS	\$450,102 \$103	\$3 46,390	\$259,721	\$606,111
Incremental cost per gallon billed	\$0.00040	\$0.00031	_	\$0.00054
Incremental annual cost per Household	\$44 (\$1	10) \$34		\$59
Incremental annual per customer/service connection	\$46	\$36		\$62
Annual cost @ 6% financed over 30-years	\$360,193	\$273,741		\$474,979
Plus Lost Taxes	\$2,841	\$2,879		\$21,099
Plus Incremental Electric	\$15,000	\$15,000		\$15,000
Total Annual Incremental Cost vs NS	\$378,034 \$86	\$414 \$291,620	\$219,458	\$511,078
Incremental cost per gallon billed	\$0.00034	\$0.00026	_	\$0.00046
Incremental annual cost per Household	\$37)	\$8) \$29		\$50
Incremental annual per customer/service connection	\$39	\$30		\$53

Table 4b	<u>Acres</u>	Assessed Value	Acres	Assessed Value	<u>Acres</u>	Assessed Value
Lot 275 Jillson	13.23	\$47,900				
Lot 48 Acre Ave	2.19	\$21,000				
Lot 9 Acre Ave	0.28	\$14,400				
Lot 27 Acre Ave	1.93	\$18,500				
Lot 32 Acre Ave	1.19	\$11,400				
Lot 9 Hillview Ave			3.14	\$69,100		
Lot 8 Miles Ave			9.49	\$45,600		
Lot 106 Manville Rd					3.26	\$103,000
Lot 23 Manville Rd					6.29	\$480,800
Total assessed value	18.82	\$113,200	12.63	\$114,700	9.55	583,800.00
Asking price	\$600,000		\$402,657		\$1,450,000	
Price per acre	\$31,881		\$31,881		\$151,832	
Tax Rate		\$25.1		\$25.1		\$36.1
Total lost annual Property Tax		\$2,841		\$2,879		\$21,099

Table 4c	
Total Gallons billed 2009	1,066,492,648 - source: Woonsocket Water Department
Total Gallons billed 2010	1,167,561,720 - source: Woonsocket Water Department
Two year Average Gallons billed	1,117,027,184
Average Gallons used per day per individual	80-100 - source: US Department of Interior, US Geological Survey
Average Household (4) use per day - gallons	300 - source: US Department of Interior, US Geological Survey
Average Household (4) use per year - gallons	109,500
Total customers / service connections	9,718 - source: Woonsocket Water Department
Note: Does not include the pending impact of Dowling Village	nd interconnect with Cumberland.

Potential taxes to be paid to North Smithfield

In the <u>absence</u> of a negotiated tax treaty, the annual taxes on a facility sited in North Smithfield could be in the range of \$600,000 to over \$1 million dollars per year. See <u>Table 5</u> below:

Table 5	For illustrative purposes only				
	Commercial Rate \$17.65	Commercial Rate \$17.65	Tangible Rate \$43.00		
Total Cost of <u>Plant</u>	100% of Plant Value is taxed as <u>Real Property</u>	2/3rds of Plant Value is taxed as <u>Real Property</u>	1/3rd of Plant Value is taxed as <u>Tangible Property</u>	<u>Total Tax</u>	
\$30,000,000 \$35,000,000 \$40,000,000 \$45,000,000 \$50,000,000	\$529,500 \$617,750 \$706,000 \$794,250 \$882,500	\$353,000 \$411,833 \$470,667 \$529,500 \$588,333	\$430,000 \$501,667 \$573,333 \$645,000 \$716,667	\$783,000 \$913,500 \$1,044,000 \$1,174,500 \$1,305,000	

Balance of page intentionally left blank

Maximum amount of taxes that can be paid to North Smithfield (i.e. Breakeven):

The incremental one-time cost of <u>Bernon Heights #1</u> versus <u>North Smithfield</u> is approximately **\$4,958,000** as noted in <u>Table 1</u>. Based on this cost, coupled with the incremental recurring costs of lost taxes on Bernon Heights #1 plus the incremental electricity costs, the <u>most</u> that Woonsocket could pay to North Smithfield on an annual basis for 50 years (the assumed useful life of the plant) is **\$332,398** (see <u>Table 6</u> below).

Bernon #1 NS - Breakeven Tax Annual pmt to achieve NPV of the second s	
Lost annual taxes of Bernon Annual Incremental Electricity Break-even	\$4.958 \$314,557 \$2,841 \$15,000 \$332,398
Discount Rate 6%	6%
Year	
1 432,261 314,557	
2 432,261 314,557	
3 432,261 314,557	
4 432,261 314,557	
5 432,261 314,557	
6 432,261 314,557	
7 432,261 314,557	
8 432,261 314,557	
9 432,261 314,557	
10 432,261 314,557	
11 432,261 314,557	
12 432,261 314,557	
13 432,261 314,557 14 432,261 314,557	
14 432,261 314,557 15 432,261 314,557	
16 432,261 314,557 16 314,557	
17 432,261 314,557 17 314,557	
18 432,261 314,557	
19 432,261 314,557	
20 432,261 314,557	
21 0 314,557	
22 0 314,557	
23 0 314,557	
24 0 314,557	
25 0 314,557	
26 0 314,557	
27 0 314,557	
28 0 314,557	
29 0 314,557	
30 0 314,557	
31 0 314,557	
32 0 314,557	
33 0 314,557	
34 0 314,557	
35 0 314,557	
36 0 314,557	
37 0 314,557	
38 0 314,557	
39 0 314,557	
40 0 314,557	
41 0 314,557	
42 0 314,557	
43 0 314,557 44 0 314,557	
· · · · · · · · · · · · · · · · · · ·	
45 0 314,557 46 0 314,557	
46 0 314,557 47 0 314,557	
47 0 314,557 48 0 314,557	
49 0 314,557	
50 0 4,958,000 NPV 314,557	4,958,000 NPV

It should be noted that even if the City were able to negotiate a favorable tax agreement (of which it is imperative that any such agreement covers the <u>full 50-year</u> estimated useful life of the plant), the Committee still advises the alternative sites since the North Smithfield site will <u>not</u> accommodate the eventual replacement plant.

Pawtucket Interconnect:

The Committee also reviewed the merits and feasibility of an inter-connect with the Pawtucket Water Supply Board, coupled with the subsequent building of a smaller 4MGD plant at the site of the existing plant.

The Committee determined that this was <u>not</u> a recommended course of action based the following:

- It was concluded that building an inter-connect pipeline to Pawtucket could <u>not</u> be completed in time to meet the March 2013 DEM consent decree deadline, due in part to the complexities and anticipated time delays related to permitting and easement negotiations.
- An unwillingness of other communities (i.e. Cumberland, Lincoln and Pawtucket) to share in the upfront costs
- An unwillingness of other communities (i.e. Cumberland, Lincoln) to commit to purchasing water delivered via the pipeline
- Limited, if any, funding available from the RI Water Resources Board. A key requirement for RIWRB funding is for the pipeline to be an "emergency inter-connect". The more permanent nature of the proposed Pawtucket to Woonsocket pipeline creates potential issues relative to this requirement.
- The significant incremental costs associated with purchasing water from Pawtucket. Based on the plan presented, the City would be required to purchase <u>all</u> of its water from Pawtucket for at least <u>two</u> years while the new plant was constructed, which would cost roughly \$5.3 million dollars per year based on 4MGD at Pawtucket's whole-sale bulk rate of \$2.73 per 100 cubic feet. This \$5.3 million annual cost would be in <u>addition</u> to the capital cost of constructing the pipeline, with very little, if any, offsetting cost savings from the existing Water Department budget. In addition, even after the new Woonsocket Plant was built, there would be an on-going requirement to purchase water from Pawtucket in order to keep the line "wet". Even at just half-a-million gallons per day, the cost would be over \$650,000 per year.
- There are <u>no</u> known plans that would provide new customers / increased water consumption, which would otherwise allow the costs to be spread over a larger customer base.
- Uncertainties around taxes to be paid to other communities thru which the pipeline would run
- Concerns that if the pipeline were built, it may lead to abandonment of Woonsocket's water resources (or a lengthy delay in building a new plant)

Other

The Committee

The Committee was established by Resolution of the City Council dated October 28, 2010. The Mayor named the Committee members (Owen Bebeau, James Cournoyer, Paul Levreault, Allen Rivers, and Matt Tessitore), along with two City Council liaisons (Chris Beauchamp and Dan Gendron) in the first week of January 2011 and scheduled its first meeting on January 25, 2011.

The Committee then held the following meetings:

February 3, 2011 – CDM February 9, 2011 – Carol Lariviere – Superintendent, Woonsocket Water Department February 18, 2011 – site visits (existing WTP, NS site)

February 23, 2011 - Kenneth Burke, Chief of Staff, Rhode Island Water Resources Board

March 3, 2011 – James Marvel, former Superintendent, Woonsocket Water Department

March 10, 2011 – Joel Mathews, Planning Director, City of Woonsocket

March 16, 2011 – Sheila McGauvran, Public Works Director, City of Woonsocket

April 6, 2011 – Water Department Personnel – Executive Session

April 13, 2011 – CDM/Carol Lariviere – Executive Session

April 28, 2011 - CDM/Carol Lariviere - Executive Session

May 19, 2011 - CDM - Executive Session

June 14, 2011 - CDM - Executive Session

Costs contained in this report:

The costs contained and referenced in this report are based on <u>estimates</u>. It is the general belief of the Committee that the estimates are conservative (that is, they are on the high side). Thus, the incremental costs versus the base-line would likely be less than what has been presented.

Also, for <u>illustrative purposes only</u>, assuming the cost of a new plant is \$40 million (excluding the incremental costs associated with each site discussed above) and financed at a rate of 6% for either 20 years or 30 years, the cost per household of 4 *could* range from **\$285/year** to **\$342/year** as shown in **Table 7** below.

Table 7 Cost of Plant		\$40,000,000	\$40,000,000
Financed at 6% over		20 years	30 years
Annual Payment	Α	\$3,487,382	\$2,905,956
Total Gallons billed in 2009 & 2010 Assumed Annual Gallons for Household of 4 Total customer/connections - 2010	B C D	1,117,027,184 109,500 9,718	1,117,027,184 109,500 9,718
Cost per Gallon Annual Cost per 1,000 Gallons Annual Cost Per 1M gallons	E (A / B) F (E x 1,000) G (E x 1M)	\$0.0031 \$3.12 \$3,122	\$0.0026 \$2.60 \$2,602
Annual Cost per Household * Annual Cost per Customer	H (C x E)	\$3,122 \$342 \$359	\$2,002 \$285 \$299
* Assumes a Household of 4 uses 300 gallons	s per day; 109,500	gallons per year.	

Water department personnel

Lastly, the Committee would like to extend a special thanks to the folks at the Water Department, in particular recently retired Superintendent Carol Lariviere, as well as staff members Dan Darling, Mark Vigani and Bruce Burlingame. Their interest and attendance at the meetings, along with their open and professional insights and views were invaluable and very much appreciated.

End.