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Town of Killington Water System Feasibility Study

Public Information Meeting

August 23, 2011

Introductions

Aldrich + Elliott, PC

- Joe Duncan, PE, Senior Engineer

Hoffer Consulting Inc.

- Jeff Hoffer, PG, Hydrogeological Subconsultant

Aldrich + Elliott, PC

6 Market Place, Essex Junction, VT

BACKGROUND

Current Water Sources

- Over 600 drilled wells in Killington Mountain Basin
- At present, water quantity demands appear to be met
- Existing water quality issues at some regulated water systems in the area (petroleum, radium, arsenic, iron, and manganese)
- No State-mandated testing required for private wells, so extent of potential water quality problems is unknown

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Potential Future Water Needs

- Continued growth may lead to competition for sustainable groundwater quantities
- Sustainable usage and protection of groundwater may be better achieved by municipal source
- Municipal system may provide more reliable drinking water source and could include fire protection
- Planned development at Killington Ski Resort includes bringing water from wells on Route 4 to the resort that could potentially also supply a Town municipal water system

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Project Purpose

- Town has concerns about water quantity and quality
- Town wishes to assess viability of a municipal water system to serve the Killington Mountain Basin area
- This potential municipal system could be done:
  - In conjunction with the planned development at the Killington Ski Resort
  - Through development of another water source
  - Utilization of excess capacity from existing private water sources

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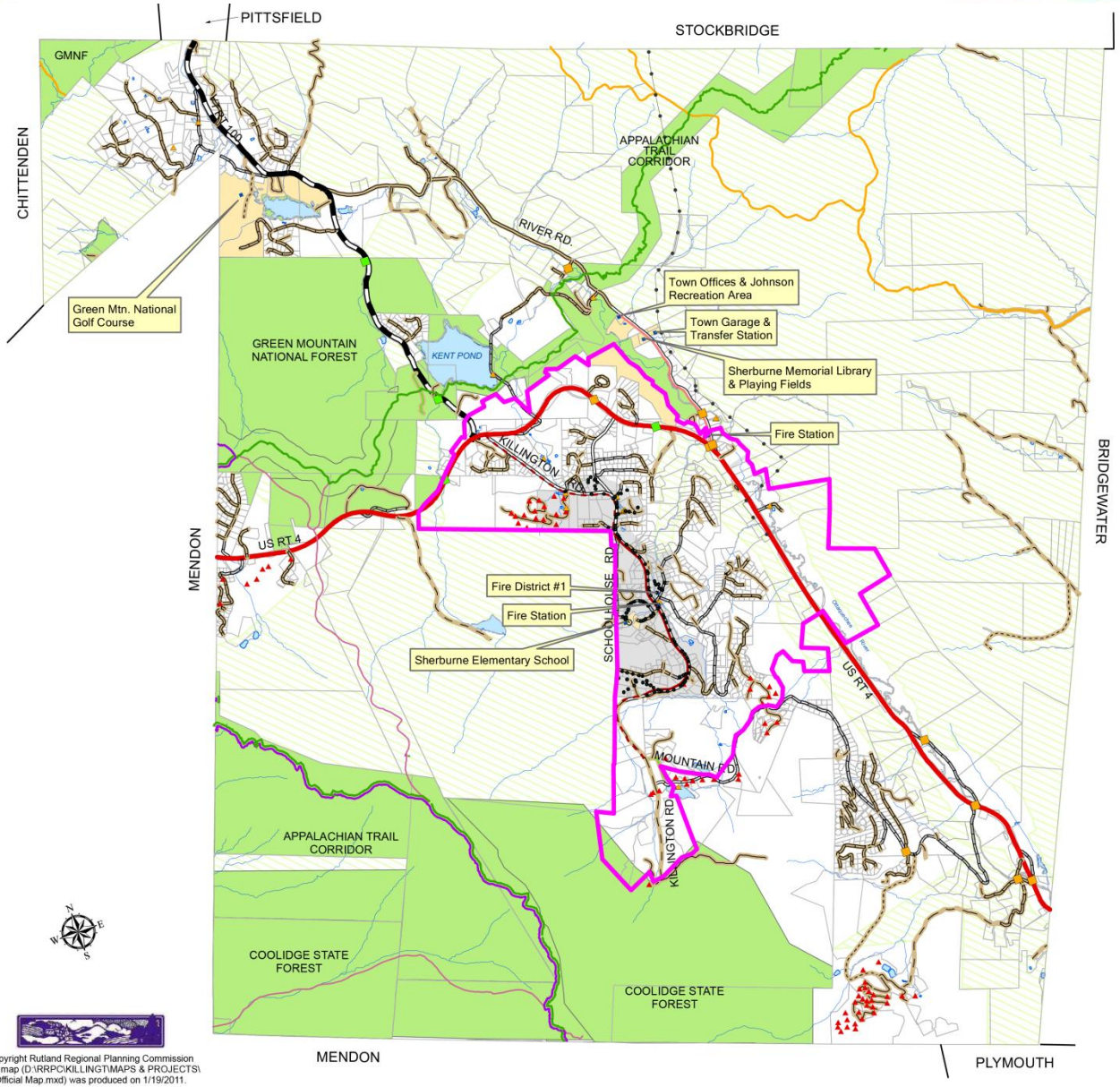

BOUNDARY FOR MOUNTAIN ACCESS ROAD WATER STUDY AREA

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PROJECT APPROACH

Phase I – Needs Assessment

- Define level of interest, need, and general costs
- Needs Survey Questionnaire
- Range of costs and rates to be developed to assess affordability
- Phase I Public Input Meeting will be held to get sense for willingness to proceed

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Phase II – Technical Assessment

- Phase II will occur only if there is willingness to proceed at end of Phase I
- Development of alternatives and recommended plan for a municipal system based on Phase I Needs Assessment
- Review of municipal water entity options

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PROJECT SCHEDULE, COSTS, AND FUNDING

Project Schedule

- This study is the first step of the project
- Phase I began June 2011 and to be completed in September 2011
- Phase II (as needed) to be completed March 2012

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Typical Project Schedule

- Preliminary Engineering 1 to 2 yrs (2011-2012)
- Funding Determination ½ yr (2012)
- Bond Vote ½ yr (2013)
- Final Design 1 to 2 yrs (2013-2014)
- Construction 1 to 2 yrs (2014-2016)

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Project Cost

- At this point only costs for project are engineering study fees
  - Phase I Needs Assessment $11,200
  - Phase II Technical Assessment $ 8,300
  - Total Study Costs $19,500
- Town not obligated to move into Phase II and time and money is saved if there is no willingness to proceed past Phase I

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Project Funding

- Only study costs are authorized to date (maximum of $19,500)
- Study funded thru State Planning Loan at 0% for 5 years
- If project does not move past study Town will pay back loan (max annual payment of $3,900 per year)
- If project moves forward study costs are rolled into future funding source

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INTERIM WATER SOURCE REPORT

Existing Groundwater Availability

- Over 600 drilled wells in the study area including 19 regulated systems
- 1/8 of land in study area is in an existing source protection area
- 11 of 19 regulated systems have at least one water quality parameter exceeding drinking water standards
- Continued growth may eventually lead to competition for sustainable quantities of groundwater and may also continue to threaten water quality

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FIGURE 2
Google Earth™ Image Showing Approximate Study Area Boundaries,
Town of Killington Water System Feasibility Study, Killington, Vermont

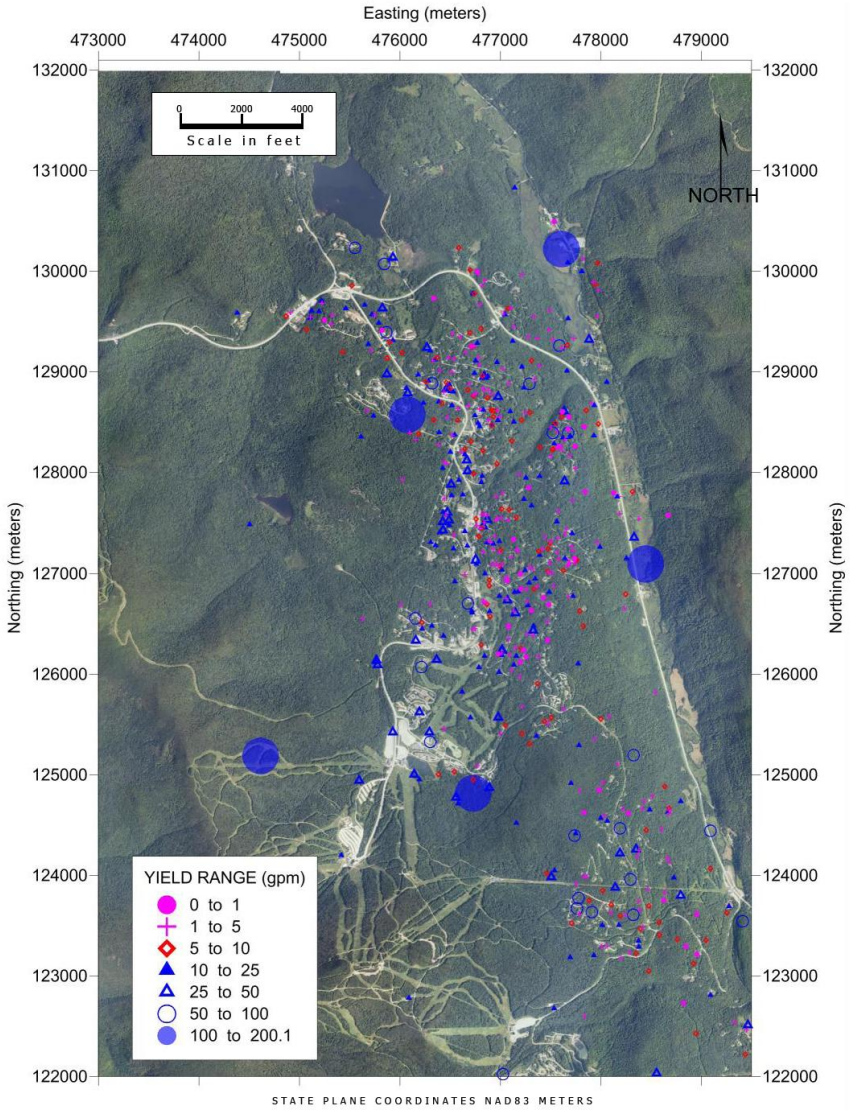
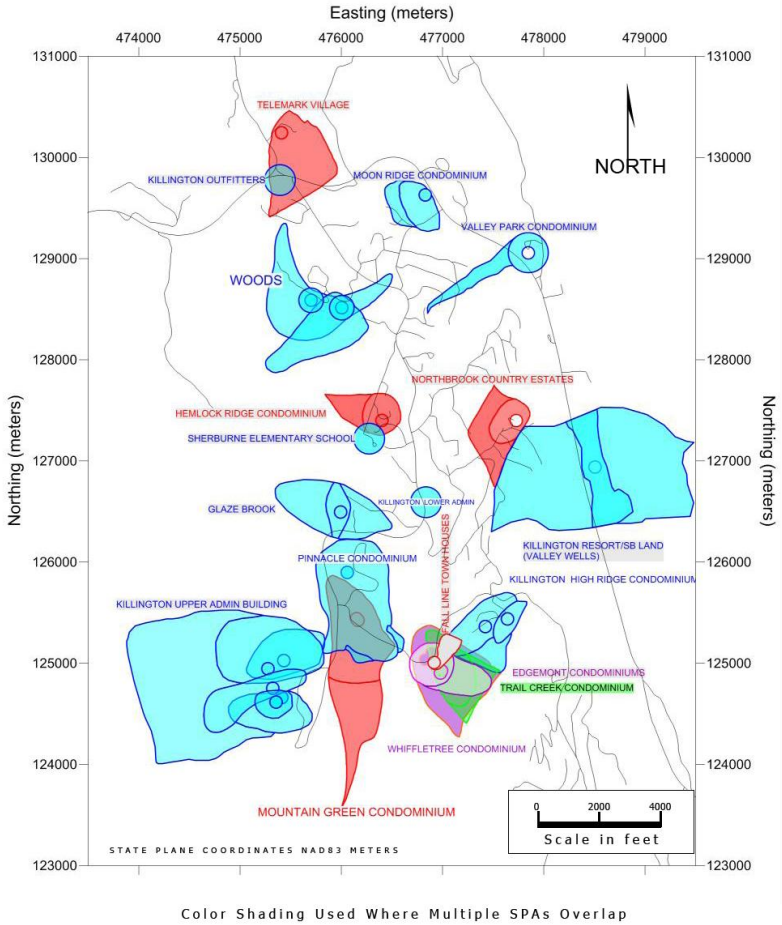


FIGURE 3
Aerial Photograph Showing Well Locations Identified By Yield Ranges,
Town of Killington Water System Feasibility Study, Killington, Vermont.



Color Shading Used Where Multiple SPAs Overlap

FIGURE 4
Existing Source Protection Areas for PCWS and NTNC Water Systems
in the Study Area,
Town of Killington Water System Feasibility Study, Killington, Vermont

Options for Municipal Source

- Municipal system typically requires 250 to 500+ gpm
- Well yields from the bedrock aquifer in the study area range a few gpm to over 100 gpm
- For bedrock multiple wells will be needed and may require a relatively large land area (or separate areas) to minimize interference and protect source water quality
- “Valley Wells” on Route 4 indicate high quality source of water with 500+ gpm
- From a hydrogeologic standpoint, the sand and gravel aquifer option offers much less uncertainty with respect to the anticipated volumes compared to the bedrock aquifer
- A combined water system serving the Resort and the Town may be a cost-effective means to provide water to the area

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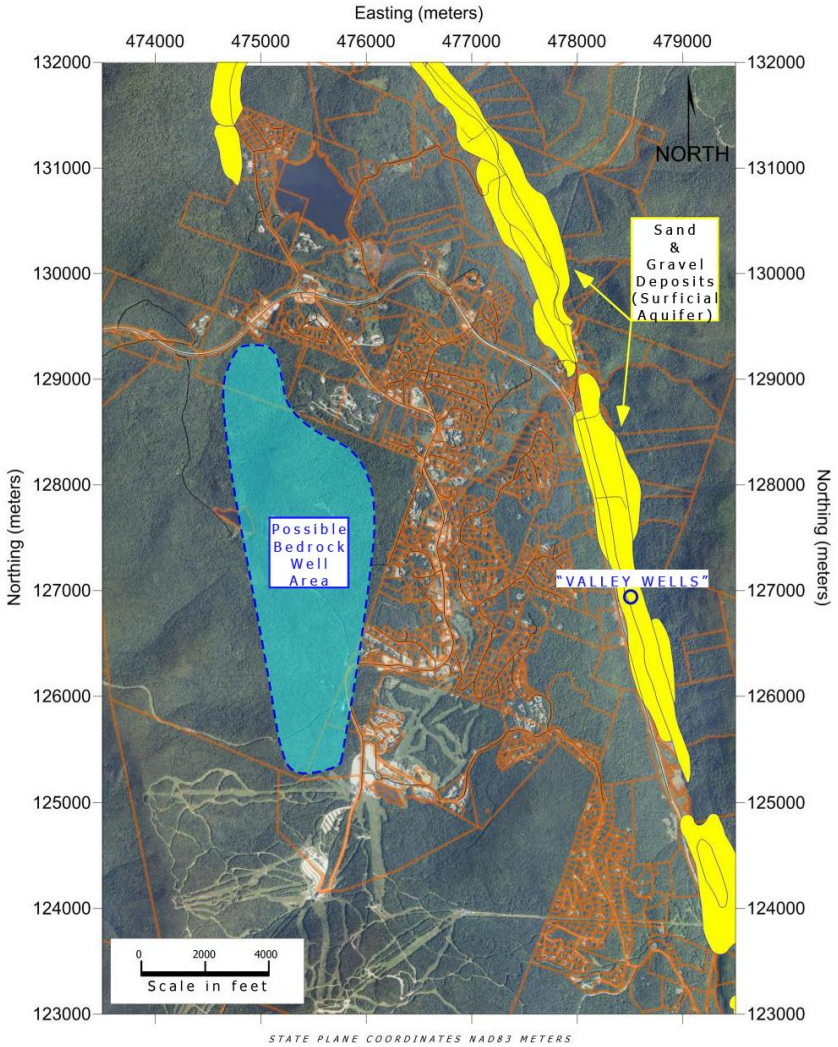

FIGURE 5
Surficial Aquifer and Possible Area for Bedrock Groundwater Development,
Town of Killington Water System Feasibility Study, Killington, Vermont

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NEEDS SURVEY QUESTIONNAIRE

Questionnaire

- Purpose is to determine the level of interest and need for municipal water system
- Survey conducted by A+E
- Specific information will be confidential and not shared with Town or State
- Information will not be used for enforcement
- Survey mailed by A+E to property owner's mailing address listed in the Town's land records

TOWN OF KILLINGTON
WATER SYSTEM NEEDS ASSESSMENT

PROPERTY OWNER SURVEY

This survey is for the Town to better understand the current water needs of the Killington Road area. Your response is very important. Please, as soon as possible, return this survey in the self addressed stamped envelope to Aldrich + Elliott, PC, the Town's engineering consultant for this project. All surveys need to be submitted by **Friday, September 2, 2011**. Volunteers may contact and assist owners that are unable to submit timely responses.

All information gathered will be used for study purposes only. The information will be compiled by Aldrich + Elliott, PC and summarized by area; not by specific address. **Specific information by address will be confidential and will not be shared with the Town. The information will not be used to pursue any type of enforcement action relating to non-complying systems.**

Thank you for your response!

Property Owner(s) Name:	_____	Phone: (Day)	_____
Mailing Address:	_____	Phone (Evening):	_____
	_____		
Location (Street No. and Name):	_____		
Size of Lot:	_____ square feet or	_____ acres (please approximate if not sure)	

Property Description: _____ Residential _____ Number of Bedrooms
_____ Commercial _____ Type of Use

Any Questions? Call Joe Duncan, Aldrich + Elliott, PC at 1-800-989-3514
or email: jduncan@AEengineers.com

I. YOUR EXISTING WATER SUPPLY SYSTEM

1. When was your well installed?
   _____ Before 1970 _____ 1990-1995 _____ 2002-Present
   _____ 1970-1989 _____ 1996-2001 _____ Don't know
2. Please indicate any upgrades or repairs that have performed on your water system within the last 10 years: _____
3. Do you know where your water supply is located?
   _____ On my property _____ On property other than mine
4. Which type of water system do you have?
   _____ Individual drilled well _____ Community (shared) drilled well
   _____ Individual dug well _____ Community (shared) dug well
   _____ Individual spring or infiltration gallery _____ Don't know
5. Have you ever run out of water?
   _____ Yearly _____ Every few years _____ Never

6. Which statement best describes the quality of the water from your source (i.e., in regard to clearness, color, taste, odor, and hardness):
   _____ Always good quality _____ Poor quality seasonally _____ Always poor quality
   _____ Generally good quality, but water quality declines on a seasonal basis
7. Do you have any contamination issues with you source?
   _____ Radium _____ Petroleum
   _____ Bacteriological _____ Sulfur Odor Other _____
8. How concerned are you about having fire protection available for your property?
   _____ Very concerned _____ Somewhat concerned _____ Not concerned
9. How much would you be willing to pay per month for municipal water?

	$15 - $30		$30 - $50		>$50

II. COMMENTS

1. Do you have any comments/questions about the water needs for the Killington Road area?
2. Please comment on your interest/willingness for a municipal water project.

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WHERE TO GET MY WATER TESTED?

Testing Your Water Supply

- There are no requirements for testing private residential wells
- VDH recommends the following testing schedule:
  - Total coliform bacterial test: every year
  - Inorganic chemical test: every five years
  - Gross alpha radiation screening test: every five years
- VDH information on testing your water supply
  - http://healthvermont.gov/enviro/ph_lab/water_test.aspx#specificsupply
- VDH list of Laboratories Certified for Drinking Water Analysis:
  - http://healthvermont.gov/enviro/ph_lab/documents/certified_labs.pdf

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Questions?