

Barnes Aquifer

Protection Advisory Committee

**Report on Fiscal Year 2011 Activities
(July 2010 to June 2011)**

**Prepared by the
Pioneer Valley Planning Commission
In cooperation with
The Barnes Aquifer Protection Advisory Committee**

August 2011

**BARNES AQUIFER PROTECTION ADVISORY COMMITTEE
(BAPAC)**

Fiscal Year 2011, July 2010 to June 2011 Annual Report
Prepared by Pioneer Valley Planning Commission

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The Pioneer Valley Planning Commission would like to acknowledge the contributions of the municipal members of the Barnes Aquifer Protection Advisory Committee:

Charles Darling, Westfield, 2010-2011 Chair
Karen Leigh, Westfield
Michael Czerwiec, Easthampton, 2010-2011 Vice Chair
Robert Newton, Easthampton
Thomas Newton, Easthampton
Stuart Beckley, Easthampton
Darleen Buttrick, Easthampton
Chester Seklecki, Easthampton
Jeff Burkott, Holyoke
Alicia Zoeller, Holyoke
John Barrett, Holyoke
Joseph Slattery, Southampton
James Labrie, Southampton

PVPC Staff Credits

Writing and Research: Anne Capra, Principal Planner, AICP, Principal Planner

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
INTRODUCTION 2
BAPAC ACCOMPLISHMENTS, JULY 2010 TO JUNE 2011 9
RECOMMENDATIONS FOR FISCAL YEAR 2012 14
BAPAC LONG-TERM WORK PLAN..... 15
APPENDICES 17

APPENDIX A MEETING MINUTES
APPENDIX B DRI COMMENT LETTERS

EXECUTIVE SUMMARY

Summary of Accomplishments for Fiscal Year 2011

BAPAC met monthly from September to June, with the exception of March, 2011 due to a snow storm cancellation. During Fiscal Year 2011, BAPAC reviewed and commented on 5 DRIs, Westfield, 3; Holyoke 1; and, Easthampton, 1.

Recommendations for Fiscal Year 2011

BAPAC should continue to promote regional action for protecting inter-municipal water resources. The key issues that should continue to be addressed through FY 2011 are:

- Support the implementation of best management practices for developments occurring within the recharge area through commenting on Developments of Regional Impact (DRI);
- Distribute Best Management Practices Factsheets for pollutant removal and recharge to Planning Boards and developers to encourage better systems for aquifer protection;
- Seek funding to perform outreach to residents within TCE affected areas of the Zone II to ensure all private well users are not consuming contaminated water;
- Continue to seek funding to host a training workshop and discussion forum about the Barnes Aquifer for municipal officials;
- Seek funding to identify important parcels for the protection of the Barnes Aquifer;
- Continue to develop strong arguments and scientific data to support BAPAC's DRI comments; and,
- Continue public outreach and education about issues concerning the Barnes Aquifer and actions residents can take to ensure its protection.

INTRODUCTION

Importance of the Barnes Aquifer

The Barnes Aquifer has been widely recognized as one of the Commonwealth's most important regional groundwater supplies. The aquifer extends over 12 miles, providing water for over 60,000 residents in the communities of Easthampton, Southamptton and Westfield. Although the aquifer extends into Holyoke, the City no longer draws water from the aquifer due to TCE contamination at its wells, closing the Pequot and Coronet Homes Wells in 1988. Nine active municipal wells and a large (108 unit) well field tap the regional aquifer, drawing a total safe yield of 21 million gallons per day. Portions of the aquifer in Easthampton have been designated a "sole source aquifer" by the U.S. Environmental Protection Agency.

Regional Approach to the Barnes Aquifer

The size, importance, and inter-municipal geography of the Barnes Aquifer demands regional cooperation and regional solutions to fully protect this critical water supply. Recognizing this, the PVPC and municipal officials from Easthampton, Holyoke, Southamptton, and Westfield convened an initial meeting in March of 1988 to discuss cooperative strategies for protecting the Barnes Aquifer. Out of this meeting grew the idea for creating a regional aquifer protection advisory committee.

On September 26, 1988, the Barnes Regional Aquifer Protection Advisory Committee held its first meeting. This ad hoc committee began work on a regional water supply protection strategy, and on an inter-municipal compact to formalize municipal commitments to implement the strategy.

Creation of the Barnes Aquifer Protection Advisory Committee

In December 1989, the chief elected officials in the Cities of Westfield and Holyoke, the Towns of Easthampton and Southamptton, and the Pioneer Valley Planning Commission signed the "Memorandum of Agreement for Barnes Aquifer Protection" at a public ceremony. This agreement to act cooperatively to protect a natural resource of regional significance was the culmination of a yearlong planning effort by PVPC and a voluntary advisory task force of local officials and residents. The intergovernmental compact created a standing Barnes Aquifer Protection Advisory Committee (BAPAC) with the authority to review and comment on "developments of regional impact" in the aquifer recharge area, and to develop a regional aquifer protection strategy.

Barnes Aquifer Protection Advisory Committee Membership

The inter-municipal contract that created BAPAC specifies how many members are selected to the committee. The chief elected officials of each member community is to appoint three representatives and PVPC is to appoint one representative. BAPAC members for Fiscal Year 2010 were:

Easthampton	Stuart Beckley, Planning Department Thomas Newton, Water Department Michael Czerwiec, Water Department Robert Newton, resident and Smith College Chester Seklecki, Board of Health Darleen Buttrick, resident (replaced Stuart Beckley in May 2011)
Holyoke	Jeff Burkott, Planning Department Andrew Smith, Conservation Commission John Barrett, Water Commission
Southampton	Joseph Slattery, Water Department James Labrie, Planning Department
Westfield	Charles Darling, Water Department Karen Leigh, Conservation Commission
Pioneer Valley Planning Commission	Anne Capra, Principal Planner, BAPAC Facilitator Patty Gambarini, Senior Planner

Issues Affecting the Barnes Aquifer

Trichloroethylene (TCE) Contamination

In the early 1990s, the aquifer extending from Easthampton to Westfield was rendered largely unsuitable as a drinking water supply when it was found to be contaminated with trichloroethylene (TCE). At the onset of the investigation, the Hendrick Street Well Field and the adjacent Pines Well supplied drinking water to the City of Easthampton. This public water supply provided more than fifty percent of the City's drinking water needs.

The Massachusetts Department of Environmental Protection (DEP) sampled and inventoried nearly 400 private wells in Easthampton, Southamptton, Holyoke and Westfield. Numerous public and private wells in Easthampton, Holyoke and Southamptton had to be treated or shut down. In addition, DEP installed hundreds of microwells, enabling the sampling and analysis of groundwater, sampled surface water, and performed soil gas surveys and obtained soil samples to define the extent and pathway, as well as determine the source(s) of the TCE contamination that extended 4.5 miles within the aquifer. Hampton Ponds was also sampled and found not to be contaminated. The TCE contamination within groundwater is found at depth. DEP's investigation identified Southamptton Sanitary Engineering (SSE) and General Electric (GE) as potential responsible parties. GE has denied responsibility for dumping TCE and contaminating the aquifer, but has performed voluntary cleanup activities at the release site on Dupuis Road. SSE claimed they did not have the financial resources to perform further investigation and remediation. Much site assessment and some cleanup activities have been performed at this site by MA DEP.

The City of Holyoke closed two municipal wells in West Holyoke due to the TCE contamination. The City of Easthampton had to construct a water treatment plant for the same reason, costing approximately \$800,000. MA DEP estimates it has expended in excess of \$2 million in private well sampling, assisting in costs for the Easthampton water treatment plant, and risk reduction measures such as supplying bottled water and treatment filters. Approximately 30 homes in Southamptton and West Holyoke had TCE at levels of concern. DEP assisted Southamptton with more than twenty of the thirty affected residences within their community by applying funding intended for filters to purchasing a pipeline for delivery of municipal water at a cost of approximately \$200,000. Because of the unavailability of public water in most areas of West Holyoke (Rock Valley Road, Labrie Lane, Keyes Road and Mueller Road), DEP arranged

for bottled water for the short term and installed and maintained (for two years) whole house granular activated carbon filters in the eight remaining affected residences. Residents were provided with written sampling and maintenance recommendations and are sent annual reminders from DEP. DEP and the City of Holyoke estimate that it will cost approximately \$800,000 to \$1 million to install public water lines on Labrie Lane, Rock Valley Road, Keyes Road and Mueller Road. The City of Holyoke has stated it is unable to finance such a project at this time.

The activated carbon filters cost approximately \$2,000 per year to maintain and it is unclear how many homeowners are in fact maintaining their filters. It remains unclear whether homes built or purchased after filters were offered by DEP have measures in place to reduce their risk of exposure to harmful levels of TCE. Although public water is available in Southampton and Westfield, some property owners have chosen not to hook up and are still using TCE contaminated wells. At a public meeting in 2006 held by the Clean Water Coalition at the Hampton Ponds Association's building on Apremont Way numerous residents of the Hampton Ponds area of Westfield, Southampton and Holyoke stated that they were unaware that there was a contamination issue and that they were utilizing private wells. It is unknown how many people are in this situation. It is likely that these people took ownership of their homes after DEP had performed their outreach and were never contacted directly.

Development and Abandoned Monitoring Wells

Development pressures within the Barnes Aquifer Zone II are significant. Although each of the four communities enacted aquifer protection district zoning and participate in a regional aquifer oversight committee called the Barnes Aquifer Protection Advisory Committee (BAPAC), commercial, industrial and residential development continues to consume important recharge land, bringing with it new threats and opportunities for aquifer contamination.

One of the greatest threats to the aquifer associated with past contamination and on-going development is the installation of hundreds of monitoring wells within the Zone II. Sites where monitoring wells have been installed include commercial and industrial facilities, 21E sites, and sites pertinent to the active TCE investigation of the Barnes Aquifer being conducted by DEP. In recent years, BAPAC has become increasingly aware of abandoned monitoring wells that are either not known to the current property owner or long since forgotten by them, yet not decommissioned. Abandoned wells that have not been decommissioned

are a direct conduit to the aquifer and serve as a potential avenue for contamination.

In each of the four Barnes Aquifer communities, as well as many statewide, there are no local regulations requiring the decommissioning of monitoring wells once they are no longer of use. Likewise, M.G.L. c. 21E also does not require monitoring wells to be decommissioned once a site is beyond the five year audit period. According to the Office of Water Resources at MA Department of Conservation and Recreation, statewide 10,000 wells (both productive and monitoring) were installed in 2005 and only 750 wells decommissioned.

Examples of this threat to the aquifer are as follows. Beavers dammed Pond Brook near Westfield municipal Well #8. The dammed water came within feet of covering a monitoring well installed during construction of Well #8. It is unknown if monitoring wells exist on other properties inundated by beaver activity. Also, at Westfield municipal Well #3 in 2008, bacteria counts at the well prompted an investigation of monitoring wells in the area which found one monitoring well where the lock had been broken off by vandals and the cap left off. Well #3 and the monitoring well were both disinfected and the monitoring well re-secured. Last, MEPA Environmental Impact Reports from the early 1990s for Summit Lock Industrial Park in Westfield, the site of C&S Wholesale, identify the installation of 17 monitoring wells on a 139 acre parcel and an additional 12 on an adjacent parcel. Under MEPA, these wells were to be monitored annually and data submitted to DEP and the Westfield Water Department. Records indicate that the last round of sampling occurred in 1999. After several recent attempts to communicate with C&S about the status of their wells, the operations manager acknowledged that their monitoring program had been discontinued and he wasn't even sure where the wells are located.

Road Salt Contamination of Domestic Wells

BAPAC and Smith College are involved in an on-going investigation of the impacts of road salt on domestic wells in an area of Southampton and Westfield along Routes 10 and 202. Route 10 is maintained by MassHighway; Route 202 is maintained by the City of Westfield. Approximately 35 private wells were sampled in three sampling rounds between December 2004, September 2005, and March 2006. More than 25 of these wells were determined to be salt impacted with sodium concentrations above the 20 mg/l limit set by the Massachusetts Office of Research Standards and Guidelines (ORSG) and chloride levels above the 250 mg/l Secondary Maximum Contaminant Level (SMCL).

In April 2008, 90 wells in Southamptton, Westfield and Holyoke were sampled for sodium, chloride, nitrate nitrogen, calcium, magnesium, potassium, lithium, sulfate, nitrate, dissolved silica, arsenic, lead, barium, and hardness. Of those samples, 38 were salt impacted from road salt and 17 other wells had naturally high sodium levels. Ten (10) wells, all in the Round Hill area had arsenic levels above 5 ppb which is considered high but not above the MCL. Also noteworthy, road salt is causing the groundwater to become hard by exchanging sodium for calcium and moving calcium into solution.

As a result of this study, two residential well owners have filed road salt contamination complaints with MassHighway. As a result of these filings, MassHighway has instituted monthly sampling of these wells as part of an investigation to determine if road salting on their behalf is the cause of the contamination. This investigation is currently on-going.

A fifth round of private well sampling was performed on June 3, 2009 at 16 residences and 1 business on Jaeger Drive, North Road, Southamptton Road, and Old Stage Road in Westfield. The sites were selected to gather further information about long term trending of sodium chloride levels in the aquifer.

Closure of the Northampton Landfill

The City of Northampton currently operates a regional landfill on Glendale Road in Northampton. The landfill is located within the Zone II of Easthampton's Maloney Well. The City of Northampton was planning to expand the operation to increase the lifetime of the facility and allow for the disposal of more municipal waste. Due to strong local opposition to the landfill expansion, The Board of Public Works voted in January 2010 not to seek a Special Permit for the landfill expansion without further guidance from the Mayor and City Council citing costs to prepare such a permit application without really knowing if the Council will approve it. The Northampton City Council also voted in the Spring of 2010 not to support the expansion. The City is currently preparing for closure of the landfill and development of an alternative waste disposal and transfer system.

Meetings

BAPAC met monthly from September 2010 to June 2011. Following is a brief summary of BAPAC meeting dates and key agenda items. Full minutes from BAPAC meetings are contained in Appendix A.

Monthly Meeting Summary

DATE	KEY AGENDA ITEMS
September 7, 2010	2 DRIs; Aquifer BMP Factsheets; Annual Report; annual dues; open meeting law; Westfield monitoring well bacteria contamination; Groundwater Awareness Day
October 5, 2010	1 DRI; Southampton dues request; Water Infrastructure Finance Commission Hearing; other business
November 9, 2010	2 DRIs; aquifer contamination complaint 261 Lower Sandy Hill Road; road salt study inquiry; Water Infrastructure Finance Commission Hearing
December 7, 2010	2 DRIs; Easthampton Transfer of Development Rights Ordinance; aquifer land conservation program; status of MA DOT road salt investigation; water service to salt contaminated wells.
January 4, 2011	Municipal water service to salt impacted wells study; aquifer land conservation program
February 1, 2011	1 DRI; Municipal water service to salt impacted wells study; aquifer land conservation program; changes to previous DRI submittal; Southampton 40R District presentation
March 3, 2011	No meeting due to snow storm
April 5, 2011	2 DRIs; Municipal water service to salt impacted wells study; aquifer land conservation program
May 5, 2011	4 DRIs; Municipal water service to salt impacted wells study; aquifer land conservation program
June 7, 2011	1 DRI; USGS aquifer study maps digitized and geo-referenced; FY12 work plan

BAPAC ACCOMPLISHMENTS JULY 2010 TO JUNE 2011

The following section summarizes the key issues BAPAC addressed and the accomplishments during Fiscal Year 2011.

Providing Municipal Water to Road Salt Impacted Domestic Wells

There are approximately 12 homes on private wells on Route 10 within the vicinity of Swanson Corners in Southamptton to the intersection of Route 202 in Westfield. Several of these well owners participated in the road salt study conducted by BAPAC between 2006-2009. Several of the participating wells were found to be highly impacted by road salt contamination. Along Route 10, there are 4 homes in Southamptton and 4 in Westfield that participated in our salt study and were identified as salt impacted. There may be more wells affected but they did not participate in the study and have not been identified. For people on medically prescribed sodium restricted diets, the high sodium levels in these wells could pose a significant health risk. Therefore, BAPAC continued to investigate options for providing municipal water to this area.

In 2009, Mass DOT initiated a road salt impact study on two private wells at 407 College Highway (Route 10) in Southamptton. The study was the result of a complaint filed by the property owner stating their well had been contaminated by road salt applied by MassDOT. According to MassDOT, the study was discontinued after one round of sampling found both wells to test positive for bacteria. The property owner was provided instruction on how to sterilize the well. Once completed and free of bacteria, MassDOT would resume the study. According to MassDOT, the property owner was non-responsive and thus the study discontinued. MassDOT is willing to resume the study and work with the property owner if the well is disinfected.

The City of Westfield will be extending municipal water service along Route 202 to a proposed Assisted Living facility and up to the Purple Onion Restaurant/bar at the intersection of Route 10. One salt impacted well in this area will be provided municipal service via this extension. Due to elevation and head pressure, it is not feasible for the City of Westfield to extend its water line to the Southamptton border. However, the Westfield Board of Water Commission voted to support extension of Southamptton's municipal water service into Westfield to service private wells impacted by road salt that the City of Westfield is unable to reach. The Southamptton Water Department is willing to service the homes in Southamptton and Westfield that are affected, but would need funding assistance to implement such a public works project.

The Southamptton Water Department provided a cost estimate totaling \$128,700 to install 3,900' of pipeline (\$33/foot installed) with all hydrants services and valves (utilizing Highway/Water Department labor rates).

Community Development Block Grant (CDBG) has been identified as a possible source of funding. The issues that remain outstanding relative to CDBG are:

- Which CDBG National Objective is addressed?
- What were the demographics of the homes being serviced (are they CDBG eligible)? An income survey would be needed.
- Could you use Westfield CDBG funds in Southampton and servicing Southampton homes? Southampton is an entitlement community; Westfield is not.
- Possibility of Southampton applying for MA CDBG Small City's funds for their portion
- Unlikelihood of meeting Westfield's FY11-12 CDBG Program deadline (proposals are due in January)
- Westfield only receives around \$440,000/yr in CDBG funds, of which about half goes to paying back a bunch of bad Section 108 Loans. The Mayor and City Council would need to decide if this was a priority.
- PVPC is administering a FY2010 CDBG program for Southampton. The Town may be eligible to apply for FY2012 in December but there are a number of milestones relative to progress on their current project that need to be accomplished before determining if they would be eligible to apply.

Other next steps include:

- Contacting MassDOT about resuming the road salt study;
- Contacting affected well owners to determine if they would connect to municipal service if available; and,
- Explore alternative funding sources to extend water service.

Developments of Regional Impact (DRI)

DRIs are defined as any development project which requires: a) state approval under the MEPA process, or b) local approval for a Special Permit, Site Plan Approval, Subdivision Approval, zoning amendment, or withdrawal of property from M.G.L. Chapters 61, 61A, or 61B. In its reviews, BAPAC assesses the potential for water pollution or other adverse impacts to the aquifer from the proposed project and recommends mitigating measures to prevent such impacts.

Municipal representatives in member communities are obligated to submit DRIs to BAPAC for review. This obligation is defined in the Memorandum of Agreement for Barnes Aquifer Protection signed by the chief elected official in each member community. During Fiscal Year 2011, BAPAC reviewed and commented on six DRIs: Westfield, 4; Easthampton, 1; Holyoke, 1. Appendix B contains copies of submitted DRI comment letters.

Aquifer Land Conservation Program

In 2011, BAPAC resumed programming to prioritize open space within the Zone II for permanent protection. Although the protection of important aquifer recharge land has always been a goal of the committee, BAPAC believes it should be more proactive in seeking its protection. To this end, the committee developed a list of criteria to begin mapping and identifying parcels to protect.

Criteria:

- Undeveloped land
- Land within the Zone I of any well that is not owned by the municipality and permanently protected as watershed land.
- Parcels within the Zone II with no lacustrine clay layer and the aquifer is recharged through exposed glaciofluvial deposits.
- Land abutting upgradient flowing surface waters in the Zone II contributing to groundwater flow or close to where streams are entering aquifer system. Priority streams include Moose Brook and Manhan River in Southampton; Broad Brook in Easthampton and Holyoke; and, Pond Brook in Westfield.
- All land within a 400' radius of future possible wells already owned by a municipality or otherwise permanently protected.

Other considerations:

- Level of protection – some municipal land could be converted to other uses if not permanently dedicated to the conservation of open space for water supply protection.

- Creation of large contiguous blocks of protected open space
- Ecological value – higher value land, higher priority

In FY2012, BAPAC will outreach to the municipal Conservation Commissions, Community Preservation Act Committees, and Agricultural Commissions, and local land trusts, state and federal agencies to share our priorities and identify opportunities for partnering on land with shared values.

Fiscal Year 2011 DRI Reviews				
DRI / Date	Location of Project	Owner/ Developer	Project Representative	Issues / Requested Info / Actions
WESTFIELD				
September 7, 2010; May 3, 2011	845 Airport Industrial Road	DAS Alarm Systems, Inc.	Sharon Schenna	Seeking to convert 1 bedroom residential house to commercial office and storage space for alarm company.
September 7, 2010; October 5, 2010; November 9, 2010; December 7, 2010	Westfield-Barnes Airport, Westfield	104 th Fighter Wing Ma Air National Guard	James Richardson, 104 FW ANG; Brian Barnes, Barnes Airport	Draft Environmental Assessment for construction that would increase impervious coverage by 16.5 acres. BAPAC did not agree with the EA finding of No Significant Impact.; leaching catchbasins must be registered as Class V Injection wells with MA DEP UIC Program; defer to Ma DEP about appropriate treatment systems for pollutants generated at ANG.
November 9, 2010	Cabot Road			Proposed industrial park but not within the delineated Zone II.
December 7, 2010	Root Road, Parcel D	Utz Quality Foods	Sage Engineering	Construction of 10,623 sq.f.t storage facility and 18,417 sq.ft parking lot. Recommended treatment and infiltration systems.
EASTHAMPTON				
April 5, 2011	The Meadows			Seeking to replace proposed dry wells with stone drip edge for roof runoff.
HOLYOKE				
April 5, 2011; May 3, 2011; June 7, 2011	91 Mueller Road	Holyoke Gas and Electric	Apex Companies LLC	Proposed installation of 3.8 MW solar panel array. Recommended stormwater treatment and infiltration systems.

RECOMMENDATIONS FOR FISCAL YEAR 2012

1. Public Outreach and Education

Task	Strategy
Educate developers about appropriate BMPs for aquifer protection	Distribute Aquifer BMP Toolkit to local developers and DRI proponents.
Maintain an updated BAPAC Website	Post current meeting minutes, press releases, and BMP information
Issue press releases about issues concerning the Barnes Aquifer	Continue to use the local newspapers as a means to inform the public about issues concerning the Barnes Aquifer and actions they can take to ensure its protection.

2. Identification and Reduction of Threats to the Aquifer

Task	Strategy
Continue to conduct reviews of Developments of Regional Impact (DRIs)	Seek timely DRI submittals from local communities for BAPAC review and comment.
Implement updates to local Water Supply Bylaws/Ordinances	Work with local Planning Boards to implement 2006 bylaw update recommendations.
Protect critical aquifer recharge land	Identify critical parcels of unprotected aquifer recharge land and identify partnerships to seek funding and ownership for long-term protection.
Reduce threat of road salt contamination to domestic wells along Route 10 and North Road	Work with Local Boards of Health and Highway Departments and MassDOT to develop funding options to extend municipal service to salt impacted wells.
Identify all private wells within the TCE contaminated area and work with municipal officials to provide public water to these areas.	Work with local officials and MA DEP to ensure all private well users in TCE contaminated areas have safe potable water sources.

3. Establish Additional Funding Sources

Task	Strategy
Seek corporate sponsorship for BAPAC initiatives	Identify and contact businesses in the Barnes Aquifer region about sponsoring projects.
Seek grant funding for projects identified in goals	Utilize known state and federal grant programs. Use PVPC 501(c)(3) status to apply to foundations for funding. Seek EPA support based on the aquifer's Sole Source designation.

BAPAC Long-Term Work Plan

- Sponsor public educational forums or presentations regarding aquifer protection.
- Identify, prioritize, and map key recharge parcels in the Zone II of the Barnes Aquifer.
- Continue to support Smith College's effort to develop and maintain a GIS database with groundwater well locations and associated analytical data.
- Update and strengthen all municipal aquifer protection zoning
- Support the City of Westfield's long-term aquifer monitoring program.
- Research and collect scientific data in support of Developments of Regional Impact (DRIs) comments.
- Determine the long-term capacity and yield of the aquifer.
- Continually update and improve the BAPAC website and library.
- Perform a second round of surface water monitoring and analysis.

PROPOSED BUDGET FOR FY 2012

	Hours	Cost*	% Total
Task 1 Administration/Report			
1a. Advisory Committee Facilitation (10 meetings)	40	2,640	
1b. Annual Report	4	264	
1c. Postage, copies, travel, printing		300	
<i>Subtotal</i>	<i>44</i>	<i>3,204</i>	<i>40%</i>
Task 2 Public Education and Outreach	24	1,584	20%
Task 3 Water Quality Assessment and ID of Threats to the Aquifer (including DRIs)	40	2,632	20%
Task 4 Establish Additional Funding Sources	40	2,632	20%
TOTAL	148	\$10,052	100%

*Cost estimates based on PVPC rate of \$66/hour (includes fringe and overhead at 118%)

APPENDICES