



Underground Tanks are Hidden Hazards

By Dan Lech

Many Belmont residents and the town itself have lost time and money to environmental spills from deteriorating underground storage tanks (USTs). Most of Belmont's environmental spills are releases of petroleum products caused by faulty pipes, leaking above-ground tanks, and errors during fuel delivery. USTs spills are less common and less obvious—hidden menaces that often are not discovered until it is too late.



U.S. ENVIRONMENTAL PROTECTION AGENCY

An underground storage tank being removed.

During the early to mid 20th century, heating oil and gasoline tanks were commonly buried underground. These tanks were made of metal, fiberglass, or a combination of the two and are susceptible to corrosion. If they are not unearthed they eventually leak and release petroleum into the soil. By law, any individual or corporation responsible for a spill is required to notify the state Department of Environmental Protection (DEP) and to hire an environmental contractor to clean it up. That can be time-consuming, messy, and expensive.

Approximately one million USTs lie buried in the United States, and an estimated 50 percent of those tanks are thought to be leaking. The state's files on toxic spills of all kinds are voluminous. Ninety-six Belmont spills have been reported to DEP since 1994. Of those, 38 were from buried fuel tanks.

Commercial USTs are registered with the Belmont Fire Department and the Office of the State Fire Marshal. They also require licenses and annual permits. The rules are about to get tighter. According to Capt. John Pizzi in the Belmont Fire Prevention Office, the Federal Energy Act of 2005 will require commercial and municipal USTs to be inspected every three years by an independent consultant, beginning no later than August 8, 2010, with reports to the fire department and the State Fire Marshal.

In contrast, residential USTs are subject to much less government oversight. Permits were needed when the tanks were installed, and fuel leaks that are discovered must be reported. But once installed, residential tanks can lie dormant for decades. Property owners may not even realize they have a buried fuel tank until a leak is found. In an e-mail interview, Belmont Fire Chief David Frizzell said many residential USTs "are ticking time bombs."

UST Cleanups Take Money, Time

One private homeowner on Hurd Road struggled with a UST in 2006. A 275-gallon heating oil tank that had not been used since 1973 was being removed by a contractor under the observation of the Belmont Fire Department when the soil in the tank's "grave" was found to be contaminated with oil. The homeowner contacted the DEP. An environmental service company called Clean Harbors tested the

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Selectman Candidate Answers BCF Questions

Every year, Belmont voters elect one member of the town's three-person Board of Selectmen. This year, incumbent Angelo Firenze is running unopposed. The Belmont Citizens Forum asked Firenze to respond to the following questions.

Q. What are you most proud of achieving in your first term, and what are your specific goals for your second term?

A. Here is a partial list of the things I have initiated, provided leadership for, helped to advance, or supported in my four and a half years as a selectman: everything I have done and will do ensures that the needs of all constituents are considered and addressed fairly.

- I have been a problem-solver identifying core issues, developing creative alternatives, and building consensus leading to solutions.
- Refining and analyzing the budget process and working through four budget cycles without having to ask for an operating override.

- An ongoing process to convert or arranging to convert unproductive town-owned assets into cash or other fixed assets while at the same time generating additional annual tax revenue. Examples include the Woodfall Road parcel, miscellaneous parcels on Lamoine and Sherman streets, and sale of the three fire stations.

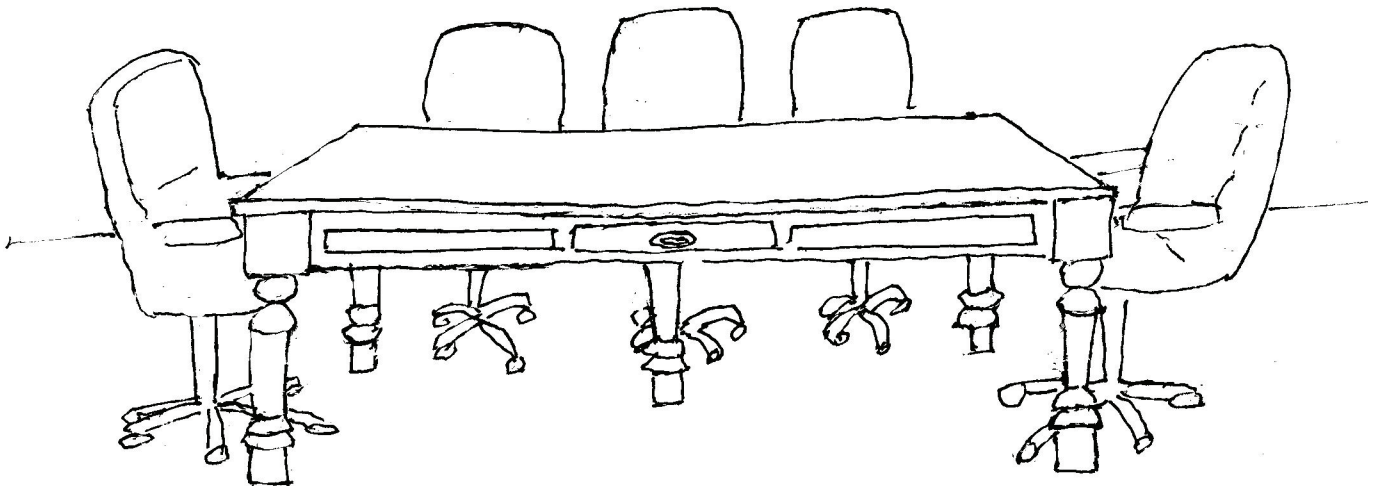
- Stimulate the creation of new retail business by effecting changes to town bylaws which now allow retail sales or on-site consumption of alcoholic beverages and encourage developers to consider Belmont for appropriate new development in underutilized commercial areas.

- Worked through the Planning Board to consider zoning changes and the use of the overlay districts to allow for smart growth and mixed-use developments like Cushing Square and the Our Lady's property.

- Instrumental in helping raise over one million dollars in private funding for the Senior Center.

- Developed alternative approaches to addressing road surfaces when residents voted not to spend more money on the problem.

- Hiring a Town Administrator, Assistant Administrator, Police Chief, Director of Planning and Assessing Administrator.



- Worked with abutter for an easement to allow for the construction of the bike path from Alewife to Brighton Street.
- Supported and arranging for the creation of a Master Plan for Belmont.

As I move into my next term I will be focusing on helping to identify and implementing changes in Belmont's structure and operations to control costs while minimizing any negative impact on services provided.

Q. April's ballot is likely to contain one or more overrides; yet the last one, for road repairs, failed largely because voters lacked confidence in town government. What can Belmont officials do to rebuild trust in town government? What are the biggest factors that have diminished that trust?

A. First I don't believe this diminished trust applies just to Belmont government.

Some residents believe that we have not been good stewards of their tax dollars in recent years and feel that we could have been more prudent in how we spent money on the Town Hall Complex, the fire stations, and the Senior Center among other things.

When combined with inaccurate assumptions or partial information and rumor it is easy to conclude that money is being wasted.

There is no question that there is room for improvement in many areas, but on the whole this diminished trust is not justified. Town employees, the Warrant Committee and the Board of Selectmen are addressing, to the extent possible, every opportunity for savings.

Q. Are there opportunities for more cost savings at the town level, through consolidation or regionalization, for example? If so, what are they?

A. There are countless opportunities for substantial cost savings through both consolidation and regionalization. There are, however, significant obstacles which need to be overcome in every case. In addition, there are trade-offs between cost savings and loss of control in which need to be reconciled in the case of

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Newsletter

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Belmont Citizens Forum Inc. is a not-for-profit organization that strives to maintain the small-town atmosphere of Belmont, Massachusetts, by preserving its natural and historical resources, limiting traffic growth, and enhancing pedestrian safety. We do this by keeping residents informed about planning and zoning issues, by participating actively in public hearings, and by organizing forums. Our newsletter is published six times a year, in January, March, May, July, September, and November. Published material represents the views of the authors and not necessarily those of the Belmont Citizens Forum. Letters to the editor may be sent to P. O. Box 609, Belmont MA 02478 or to info@belmontcitizensforum.org

regionalization and decreased delivery of service with regards to consolidations. Outsourcing of services is a third area that presents long-term cost savings potential.

Q. Do you support the new bike path from Belmont Center to Brighton Street?

A. I support a safe path that is acceptable to the community overall and that addresses the concerns of surrounding neighbors. It is also my perception that the path as presently conceived has a major egress issue in Belmont Center which needs to be addressed and substantial safety hurdles which need to be overcome to satisfy the MBTA.

Q. Do you support Sustainable Belmont's Climate Action Plan and the goal of 80 percent reduction in greenhouse gases by 2020?

A. Obviously, I support prudent and careful use all resources. I am not up to speed on all aspects of the Action Plan and still need to understand if there are any potentially negative effects if it were to be implemented.

Q. Belmont sidewalks are frequently uncleared and hazardous following snowstorms. Do you support the \$80,000 sidewalk plow that the Highway Department is requesting in the capital budget?

A. I am not sure that the \$80,000 sidewalk plow is the answer, but I do know what we are currently doing is totally unsatisfactory. Unfortunately, the more I dig into the issue of clearing sidewalks, the more complicated it becomes, particularly from a legal perspective where there still many unanswered questions.

Belmont Bike Path

Add Your Voice of Support

Belmont residents are responding very positively to the idea of an off-road path connecting the town center to the Alewife MBTA station.

To find out more about this project, and to learn how you can help to make it a reality, please contact John and Teresa Howe, co-chairs of the Friends of the Belmont Bike Path at belmontbikepath@gmail.com.

Please respond with your name, street address, your indication of support, and any questions, comments or concerns you have. Thank you!

Q. What is your vision for new development in Belmont's three major business centers? How dense should Waverley Square, Cushing Square, and Belmont Center be? For example, what should the maximum building height be?

A. I am comfortable with the overlay zoning as it was developed for Cushing Square and find it suitable for all three business districts as long as the permitting process is accompanied by thorough site-plan review resulting in buildings of various heights and design. This review must be done in the context for all of the surrounding properties. I am absolutely opposed to monolithic four-story development.

Q. The Conservation Commission has praised the Silver Maple Forest at the Belmont Uplands for its open space and flood-storage capacity. If a reasonable offer is accepted, would you support Belmont's contributing to purchase the property?

A. It would be nice if it could be kept as open space, although I am attracted by new tax revenue that could be generated by a reasonably sized commercial project. The question, however, is academic since the amount of revenue that the town would have to come up with to acquire the land is well beyond anything we could generate.

Q. When will cleaning of the historic stone bridge in Belmont Center start?

A. Hopefully, this spring. Everything is in place to do the work, but I have not been able to focus on generating the private funding necessary to pay for the project.

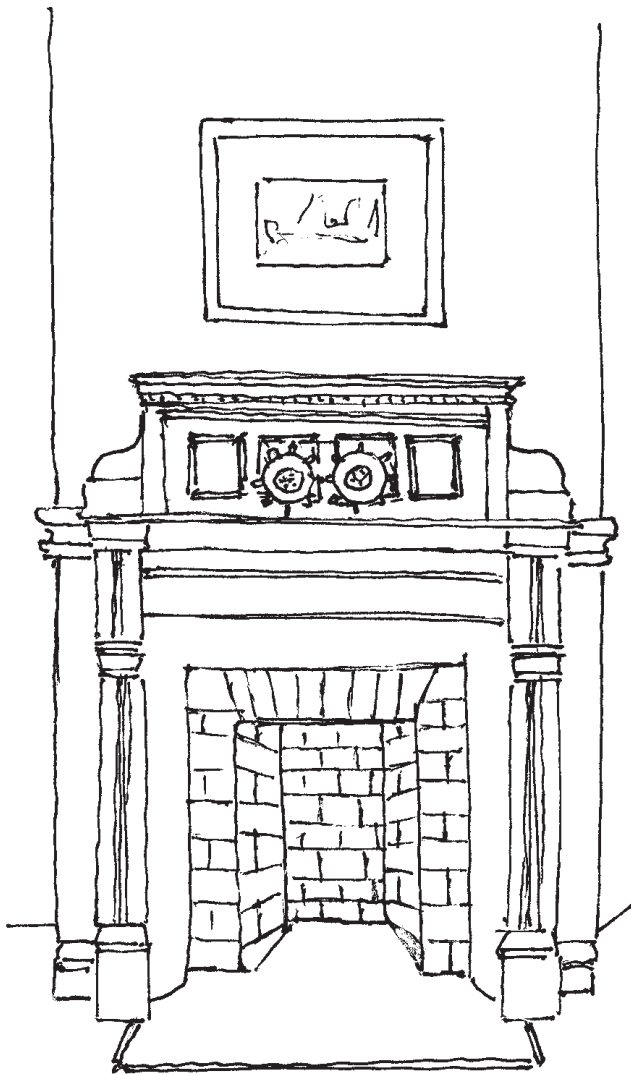
Q. Have you worked to enable a land transfer among town agencies to allow the library to be built on recreation land? Do you feel that the project will be successful?

A. Yes, I have. I believe across the street is a better location for a new library for many reasons and that recreation land issues can be addressed. However, I am skeptical that we will be in a position to move ahead on that project

without substantial private support given everything else we currently have to deal with.

Q. The new Alewife-to-Brighton Street community path will be complete by next fall. What do you see as the main challenge to providing safe pedestrian/bike passage from that path to Belmont Center?

A. I believe it is going to be finding a safe path to the center from Brighton Street that is acceptable to the community overall and which addresses the concerns of the surrounding neighbors.



ANN COIT SIFNEOS

Patrick Signs Paulsen Bike Bill

On January 15, Governor Deval Patrick signed the Bicyclist Safety Bill, which clarifies rules for bicyclists, motorists, police, and bicycle rental businesses. The bill was first introduced in 2001 by Belmont's Representative Anne Paulsen, who worked with the Massachusetts Bicycle Association to draft it. Paulsen retired in 2006, but State Senator Pamela Resor of Acton saw the bill through to the final version signed by the governor.

The law's provisions include:

- Bicyclists can now ride two abreast, instead of riding single file at all times. Single riders are entitled to ride to the right of traffic on a road's shoulder.
- Motorists are now liable for offenses including "dooring" bicyclists by opening doors into the path of traffic, cutting off bicyclists after passing, and making abrupt right turns immediately after passing bicyclists.
- Police recruits must receive training on bicycle-related laws, dangerous behavior by bicyclists, and motor vehicles' maneuvers that cause bicycle crashes. Police may also use the same procedure for writing traffic tickets for bicyclists as for motorists; in the past, each municipality had to create its own procedure for ticketing bicyclists.
- Bicycle rental shops must provide a helmet to any renter who wants one.

Paulsen commented, "It took eight years and one veto by Gov. Romney but at last the Bicycle Safety Bill has been signed into law ... Education will be the key to making the bill work well. I thank Will Brownsberger for continuing to work on the legislation."

Toxic UST Spills continued from page 1

contaminated soil. Clean Harbors recommended the removal of 5 cubic yards of contaminated soil, leaving a 10-by-8 foot hole 7 feet deep. The company also drilled 11 test wells elsewhere on the property to see whether the spill had spread. Fortunately, these tests revealed no groundwater contamination, but an additional 13 cubic yards of soil had to be removed and replaced, creating a second hole 8 by 12 feet wide and 11 feet deep. Besides having craters in their backyard for two months, the owners faced a large bill. According to the DEP's homeowners' guide, a cleanup of this nature—one that takes less than four months and does not affect groundwater—can cost more than \$20,000.

Other property owners were even more unlucky. At the former Knights of Columbus function hall on Trapelo Road, a 45-year-old UST removed in the summer of 2007 was found to have leaked. Traces of petroleum had contaminated the groundwater, which had to be pumped out. The tank had been located in a narrow passageway abutting a neighboring property. The remediation plan required access to the second

property, triggering what one DEP document termed a “lengthy negotiating process” involving attorneys. The problem has now been resolved, according to Tino Azzone of the real estate firm C. Brendan Noonan & Co., which is trying to find a tenant. The cost of this cleanup is likely to exceed \$100,000, according to DEP estimates. Yet the owner is guilty of nothing except for trying to remove a storage tank properly (and perhaps waiting too long to do so).

Cleanup Required for Town Fire HQ

Belmont encountered significant UST issues during the construction of the Fire Department headquarters on Trapelo road. The property had been home to various businesses over the past 80 or more years, including the Belmont Battery Station, Carmichael Motors, and Foreign Cars of Belmont. These auto-related businesses made the property a likely site for undocumented USTs and other contamination. The town hired GEI Consultants Inc. to assess the property. GEI's subcontractors used ground-penetrating radar (GPR) to find USTs and installed 10 wells to test for groundwater contamination. Despite these precautions, the town got unwelcome surprises during the cleanup and construction.

In March 2004, two USTs identified by the GPR were removed, and one of them was found to be leaking. Four months later, after the removal of what a DEP document called “a dumpster, a pile of tires, and miscellaneous debris,” two previously unknown wells were discovered. They had been created to monitor groundwater from a 1998 UST reportable release. The groundwater was now found to contain petroleum. In January 2005, two more previously “unknown or unconfirmed” USTs were unearthed while removing the foundation of a former building on the property.

The fire headquarters cleanup required removing more than 155 tons of gasoline-contaminated soil, 118 tons of oily soil and 256 tons of debris-containing soil; 63.84 tons of the soil had to be sent to a hazardous waste landfill, and 193.05 tons were sent to a regular landfill. This cost Belmont \$400,000 more than the original environmental cleanup budget. Even after these efforts, the property never achieved what the DEP calls “background levels”

What is groundwater?

Water is present beneath the surface of the ground around your home. If you dig into the ground, you will eventually encounter water. This is groundwater, which is water from rain that has soaked down into the ground. The depth to groundwater in Massachusetts ranges from less than 2 feet to more than 100 feet.

Groundwater flows slowly underground in spaces between soil particles and/or in cracks in bedrock and usually flows in the same direction as the slope of the land. Some groundwater stays underground, and some emerges as springs to feed lakes, streams, and rivers. Groundwater is often used for drinking water and irrigation.

- From the DEP's “Homeowner Oil Spill Cleanup Guide.”

of contamination. In other words, the soil still contains measurable amounts of contamination but at levels below what the agency considers harmful.

UST issues in Belmont reflect a national problem. The U.S. Environmental Protection Agency's Office of Underground Storage Tanks oversaw 13,862 clean ups in 2007 alone at a cost of \$100 million. Belmont's Fire Prevention Bureau has compiled a list of all commercial USTs in the town and has notified their owners of their licensing and maintenance responsibilities. It's up to individual homeowners to take necessary action for privately owned USTs before a "ticking time bomb" becomes a cleanup nightmare.

Dan Lech is a 10-year Belmont resident, wine professional, and musician who is attempting to think globally and act locally.

UST Information on the Web

www.mass.gov/dep/cleanup/homework.htm

The Massachusetts DEP's Homeowner Oil Spill Cleanup Guide.

www.epa.gov/oust

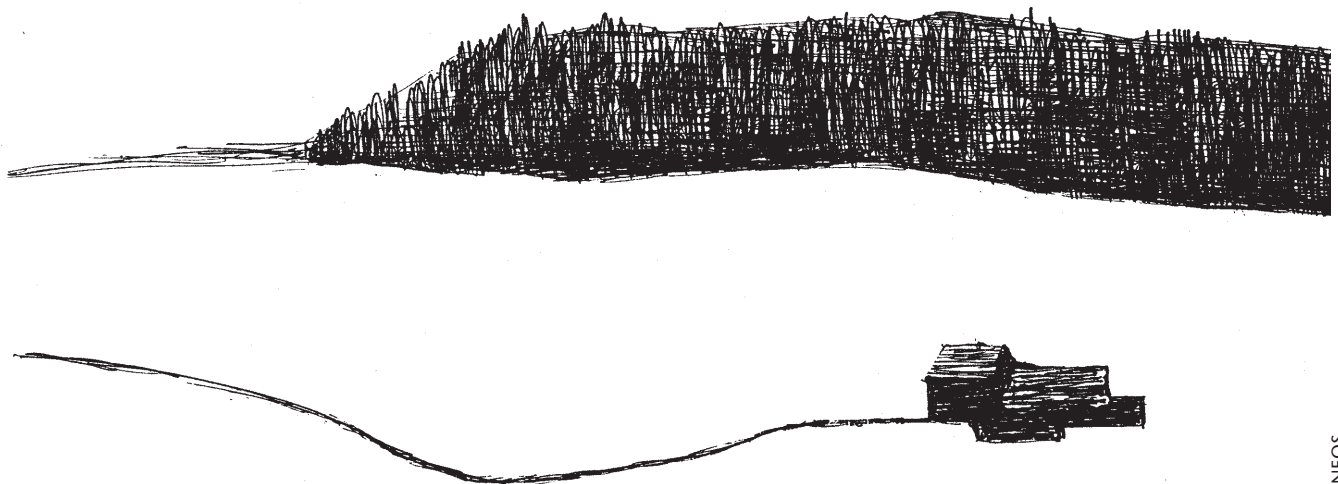
The U.S. EPA's Office of Underground Storage Tanks website.

Heating Oil Hazards

While it may not have the same stigma as cyanide or mercury, number 2 heating oil, the kind used in home furnaces, has significant health risks.

As the Massachusetts Department of Environmental Protection (DEP) explains in its Homeowner Oil Spill Cleanup Guide, "Although heating oil is less toxic than other types of petroleum products, exposure to heating oil can cause some short- or long-term health effects if the volume or concentration of heating oil is great enough. Common symptoms associated with acute (short-term) exposure to heating oil are: eye irritation, headache, nausea, dizziness, drowsiness, euphoria, loss of coordination and disorientation. Prolonged or widespread contact with the skin may cause severe irritation, redness and swelling. Chronic (long-term) exposure to heating oil may produce serious health impacts."

Drinking water contaminated by heating oil increases the risk of cancer, kidney damage and nervous system disorders. Just one gallon of oil can contaminate one million gallons of water.



NORTH CONCORD

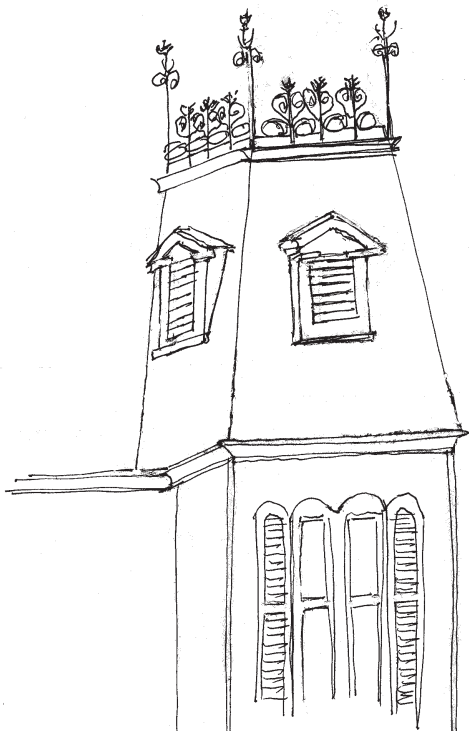
Waverley Square Could Get a New Look

By Meg Muckenhoupt

The look of Waverley Square, from pavement to skyline, could change in the next few years. Belmont's Planning Board is working with a Boston consulting firm, the Cecil Group, on a proposal for taller buildings with step-backs, more pedestrian-friendly street crossings, and more shared parking areas. The Planning Board will hold two public hearings on the proposal in March and may bring a zoning overlay proposal to allow the changes to April Town Meeting.

The new zoning proposal is part of the town's Waverley Square Revitalization and Rezoning initiative, which was spurred by discussions in 2004 about building in the air rights over the Waverley Square commuter rail station. The 2004 proposal was abandoned because of local opposition when a five-story retail and housing complex was recommended as the most economically feasible development.

Many agree that some change would be desirable for Waverley Square, but the town has not yet settled on a plan. "What change would we like to see?" asked Jennifer Fallon, who chairs Belmont's Planning Board, at a January 21 meeting on Waverley Square.



Waverley Square itself is hard to define. How far does it stretch along Pleasant Street, for example? The new proposal concerns the area along Trapelo Road roughly between White Street and Pleasant Street, including the Shaw's plaza — but even that small area contains homes and small and large businesses.

The residential neighborhood around Waverley Square is densely populated, with more than 13,000 people per square mile — and yet one of the most distinctive visual features of the square is the view of wooded Wellington Hill on the McLean Hospital campus.

“We have too many curb cuts [in Waverley Square]. You can’t walk anywhere and feel like you’re on a real sidewalk,” Fallon said.

The triangle of Trapelo Road, Lexington Street, and Church Street has small businesses, but the streets directly behind them are lined with homes. The Shaw's Market and Wheelworks both function as “big box” stores; their customers tend to drive or bike to the store, do their business, and leave again without visiting other stores in the area. Apart from Shaw's, the square is divided into four zoning districts which allow different levels of commercial and residential development; Shaw's has yet another zoning designation.

Traffic ties all of Waverley Square's neighborhoods and niches together. As one local resident commented at the January meeting, “It's insane to get out or into Moraine Street at any time of day.” Streets are clogged with cars, land is

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devoured by parking lots, and sidewalks are sliced by driveways.

“We have too many curb cuts [in Waverley Square]. You can't walk anywhere and feel like you're on a real sidewalk,” Fallon said. The irony here is that Waverley Square has excellent access to public transportation via train, trolleys, and buses.

Plan Calls for Smarter Building, Parking

The Planning Board is designing a new zoning overlay district for Waverley Square. An overlay district allows extra privileges to developers who accept a new level of requirements. The Cushing Square overlay district, for example, would allow the owner of the former S.S. Pierce building and nearby properties to build higher and to provide housing— not permitted under current zoning— in return for following design guidelines. An

overlay district does not ordinarily repeal the current zoning. Instead, it offers an alternative.

The goals of the Waverley overlay district are to protect residential neighborhoods, to manage traffic and parking, to improve street-level spaces so they're used more, and to define building envelopes and standards for the square. The Planning Board is considering four strategies: zoning, parking, street infrastructure, and design guidelines.

Zoning

The Cecil Group recommends mixed-use buildings in Waverley Square with active businesses and retail at street level and residences on higher floors. The buildings should have different roof levels and enough architectural detail that they don't look like a series of flat-faced cubes. The consultants have suggested new, higher height limits on buildings that



are set back at least 50 feet from Trapelo Road with stepped elevations, or roofs that have their highest point in the rear and stories descending in steps to the front of the building.

Parking

The town may encourage businesses to share parking and to create more off-street parking. At the January planning board meeting, the Cecil Group discussed encouraging a parking structure in one of several areas: on the Shaw's plaza, over the neighboring railroad right of way, in the Waverley Square triangle, or over the right of way beyond Lexington Street. A resident sticker program for nearby streets could keep out-of-towners from parking on those streets.

Streets

To mitigate the effect of new traffic from new development, the Cecil Group foresees creating more pedestrian-friendly sidewalks and street crossings and encouraging more workers to take public transit.

Design Guidelines

Buildings should have varied fronts and roofs. New construction should be defined by clear bases, middles, and rooflines, just as the historic buildings in the Square have distinct well-defined designs. Building details could include projections, recesses, parapets, cornices, atria, cupolas, and gabled roofs. Setbacks on upper stories can help ensure that Wellington

Hill remains visible, while glass windows for storefronts will help pedestrians feel as if they're walking past open shops, not closed walls.

The draft overlay district will continue to be revised through March in response to public comment. For the Planning Board's meeting times, check the calendar on the town web site, www.town.belmont.ma.us.

No Action on Cushing Square

Up the street, Cushing Square's redevelopment is currently in limbo. Last year, Chris Starr proposed a \$50 million Cushing Village project to be built on two blocks bounded by Trapelo Road, Common Street, Belmont Street, and Williston Road. The two-acre site was supposed to include a grocery store, 150 housing units, 230 underground parking spaces and a 1,000-square-foot public atrium (see "Town Centers on Cusp of Major Redesign," Belmont Citizens Forum *Newsletter* March 2008.)

Despite positive reactions to the idea of Cushing Village at public meetings last year, Starr has not yet submitted a formal proposal to the town for development. According to Szklut, Starr is now working with Oaktree Development LLC to create a new proposal for Cushing Square. Oaktree is responsible for several local projects including Lexington Place, the new mixed-use condominium complex being built in Lexington Center on the former site of the Battle Green Inn.



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Consultant Starts Comprehensive Plan

Meanwhile, the town has hired another consulting firm, Larry Koff Associates, to develop the first phase of a Comprehensive Plan for Belmont. The Koff firm is beginning by examining the area around Concord Avenue and Bright Road by the long-vacant Murray Sandler Skate Shop (see "Neighborhoods, Non-Profits Make Plans for Local Lots," Belmont Citizens Forum *Newsletter*, November 2006).

Belmont's last Master Plan was issued in 1963 through 1966. Since then, residents' lifestyles have changed. Households have fewer children and more bathrooms. Small houses have been torn down and replaced with lot-filling buildings.

At the most basic level, Belmont's Comprehensive Plan, also known as a Master Plan, would be a statement of what the town would like to see built where. A well-designed Comprehensive Plan makes it easier for developers, business owners, state agencies, and grant funders to see what kinds of projects the community will support. The plan could include the town's economic viability, likely capital projects, the town's infrastructure, proposals for development, affordable housing, and the future of the town's business districts in Belmont Center, Waverley Square, and Cushing Square.

The Comprehensive Plan is also expected to include town-wide zoning recommendations.

Belmont's last Master Plan was issued in 1963 through 1966. Since then, residents' lifestyles have changed. Households have fewer children and more bathrooms. Small houses have been torn down and replaced with lot-filling buildings. More Belmontians own more cars than ever before. New development at McLean Hospital and planned rezoning in Cambridge along Belmont's border are likely to produce even more traffic.

The town's current budget included \$50,000 to hire consultants to work on the town's Comprehensive Plan from July 1, 2008 through June 30, 2009. Town Meeting has not yet voted to extend funding, so the consultants are approaching the Comprehensive Plan piece by piece, starting with the Concord Avenue/Bright Road area.

Currently, the entire intersection is zoned for commercial use. There's evidence that the community would support more retail businesses at the intersection. Local residents were excited by a 2007 proposal for Quebrada bakery to launch a new shop on the Sandler lot, but the project has stalled.

Meg Muckenhoupt is Editor of the Belmont Citizens Forum Newsletter



Minuteman Path Makes Winter Safer for Bikes

By David Chase

Last winter, Arlington decided to plow snow on their segment of the Minuteman Bikeway as an experiment. The town budgeted \$2,500 for the winter and used a truck with a plow to remove the snow. The path was only plowed, not salted. That money was sufficient for the entire winter, and the plowing was judged to be enough of a success to repeat it this winter.



DAVID CHASE

Skid on the Minuteman Bikeway

The asphalt path, 12 feet wide, is only cleared for the width of a snowplow blade, which leaves room at the edges for cross-country skiing. The thin layer of snow left by the plow burns off in a few days, so that most of the path is dry pavement, and the path is used through the winter by cyclists, joggers, pedestrians, and dog-walkers. Ice does form in some shaded places and on bridges.

Some regular bike commuters use studded tires, while others walk the icy spots. For commuters, whether on bike or on foot, it is very helpful to have this segment of the Minuteman Bikeway cleared because it bypasses a busy section of Massachusetts Avenue, and provides much safer access to Alewife and Fresh Pond shopping than Route 2 or Route 16.

Lexington planned to clear their section of the bikeway this year, but used a sidewalk plow, and only plowed after the plow had been used to clear regular sidewalks. This attempt was not entirely successful and was abandoned in January. It seems that either the sidewalk plow must be used before the snow hardens, or else a truck must be used.

David Chase is a Director of the Belmont Citizens Forum.



DAVID CHASE

Bikeway pedestrian, Arlington Heights, February 2009



DAVID CHASE

Bikeable snow in Arlington heights, February 2009

State Seeks to Change Vernal Pool Rules

By Sue Bass

Big puddles are among nature's most valuable resources. Not puddles on asphalt, where the water gets contaminated by oil and grease from cars and carries that contamination into nearby streams. A puddle in a meadow or in the woods—a vernal pool that is wet in spring and summer but dries up in the fall—is essential for amphibians like wood frogs and mole salamanders and many other species. Wood frogs begin life as eggs laid in the water, hatch into tadpoles, and grow up to become air-breathing terrestrial animals. They cannot survive without access to vernal pools because in year-round pools, fish would devour their eggs.

Those puddles are controversial, though, because Massachusetts law protects them from development if they are certified as vernal pools. That's why it's important for environmentalists to get those big puddles certified. Mass Audubon's Habitat Sanctuary has scheduled a program on how to do that for Saturday, April 4 from 9 a.m.-1 p.m. The program is for adults and older children, and registration and a fee are required. Call 617-489-5050 for more information.

Meanwhile, a state agency is trying to make certifying vernal pools harder. In January,

the state's Natural Heritage and Endangered Species Program—an agency that gets much of its support from citizens who make voluntary donations when they pay their income taxes—proposed revisions to its guidelines for the certification of vernal pools, arguing that the revisions were necessary “to provide an even more defensible basis for certifications.” The *Newsletter* asked Catherine Williams, assistant press secretary for the Executive Office of Energy and Environmental Affairs, to get clarification from NHESP officials but was refused.

“Instead of providing a reasonable means of determining vernal pool habitat using the dry pool method, the certification revisions will simply allow a rather large loophole for applicants to avoid the vernal pool season in order to alter vernal pool habitat.”



U.S. FISH AND WILDLIFE SERVICE

A wood frog, a typical vernal pool species.

The proposed revisions would eliminate the methods used to identify vernal pools for the three-quarters of the year when the pools are dry or mostly so—when it's too late or too early to find and photograph batches of wood frog eggs. As Jennifer Carlino, conservation agent for the town of Norton, commented, “Instead of providing a reasonable means of determining vernal pool habitat using the dry pool method,

the certification revisions will simply allow a rather large loophole for applicants to avoid the vernal pool season in order to alter vernal pool habitat.”

Another change questioned by many is the increase in the number of frog egg masses that must be photographed from two to five. “No rationale for that particular number was given, but volunteers have to get pictures showing all five,” commented Jane Winn, executive director of the Berkshire Environmental Action Team. “Now sometimes that is easy. But other times the masses are in much deeper water, or surrounded by shrubs and very hard to reach. It is not good enough that you give field notes that you saw all five masses—clear photographs are required. That is not fair to ask of volunteers.”

The proposal has been criticized by numerous environmental organizations. Mass Audubon, which helped write the current vernal pool certification guidelines in the late 1980s and has trained hundreds of volunteers in their use, objected to many of the changes. So did the Massachusetts Association of Conservation Commissions and several conservation commissions. A group letter prepared by Advocates for Wetlands and Watersheds and signed by the Citizens Forum along with 16 other organizations, commented, “AWW sees the revisions as another example of the government backsliding on environmental protection and discouraging citizen involvement.”

It appears that state environmental agencies may be yielding to pressure from the Home Builders Association of Massachusetts (HBAM) and the state chapter of the National Association of Industrial and Office Properties (NAIOP). A posting in December on the HBAM web site (hbama.com/archives/166) by Linda Donato, executive officer of HBAM, crowed, “Endangered Species Act Being Reviewed.

“With the Spotted Turtle no longer standing in the way of homebuilders creating new developments (it was de-listed from the Endangered Species list last year), the HBAM is working to keep the momentum going by participating in a Department of Fisheries and Wildlife review of the Endangered Species/Natural Heritage program. Joined by representatives from NAIOP, HBAM members Greg Spier and Curt Young,



MASS DEPT. OF FISHERIES AND WILDLIFE

Blue Spotted Salamander

together with HBAM Legislative Counsel Ben Fierro, Esq., represented the association at a recent meeting with state officials to discuss the real estate development’s concerns about the program.”

Sue Bass is a Director of the Belmont Citizens Forum.

Corrections

The article “Sustainable Belmont Preps Climate Action Plan” (January 2009) contained two errors.

The following sentences were mistakenly attributed to Sustainable Belmont: “If the Greenland ice cap melts, most of Precinct 8 will be under water. The high school will be at sea level. If the Antarctic ice cap melts, some of Precinct 2 will be all that is left of Belmont....” In fact, they were said by the authors.

The article also stated that a ballot question Belmont residents approved last November advocated a 20 percent reduction in greenhouse gases by 2020. The ballot question actually called for reducing greenhouse gas emissions in Massachusetts by 80 percent by 2020.

The Belmont Citizens Forum apologizes for these errors.

Local Store, Residents Try Alternative Energy

By Sumner Brown

If you would like to reduce your carbon footprint without taking short, cool showers, consider alternative energy. Local residents, schools, and businesses are exploring geoheating, wind turbines, solar hot water, and solar panels.

Geoheating

To learn about geoheating, visit Vintages in Belmont Center, the new wine store, and talk to Carolyn Kemp, the owner. Vintages has geoheating, and Carolyn loves it. It works great and the cost of heating and cooling the Belmont Vintages store is far lower than the other Vintages store in Concord.

Geoheating is not the same as geothermal heating, the system famous in Iceland, where quirks of geology bring heat close to the earth's surface. Geoheating uses ordinary earth temperatures, about 55 degrees Fahrenheit in Belmont.



A floral solar collector.

Under the Vintages building are pipes that form a “heat exchanger” with the earth: when air is blown in one end of the heat exchanger, 55-degree air comes out the other end. An electric heat pump uses the air from the heat exchanger to chill or warm the wines stored in Vintages’ wine cellar, or to heat or cool the retail space.

Heat pumps use energy to pump heat from something colder to something warmer. It sounds paradoxical, but it’s how refrigerators and air conditioners work, pushing heat out of a space that gets colder and colder. It can take much less energy to pump heat than to burn fuel or run an electric heater. This energy advantage is large if the temperature of the cold thing supplying heat is close to the target temperature. At Vintages, the 55-degree ground beneath the store provides heat for the retail space. The energy advantage results in low operating costs and low carbon footprint.

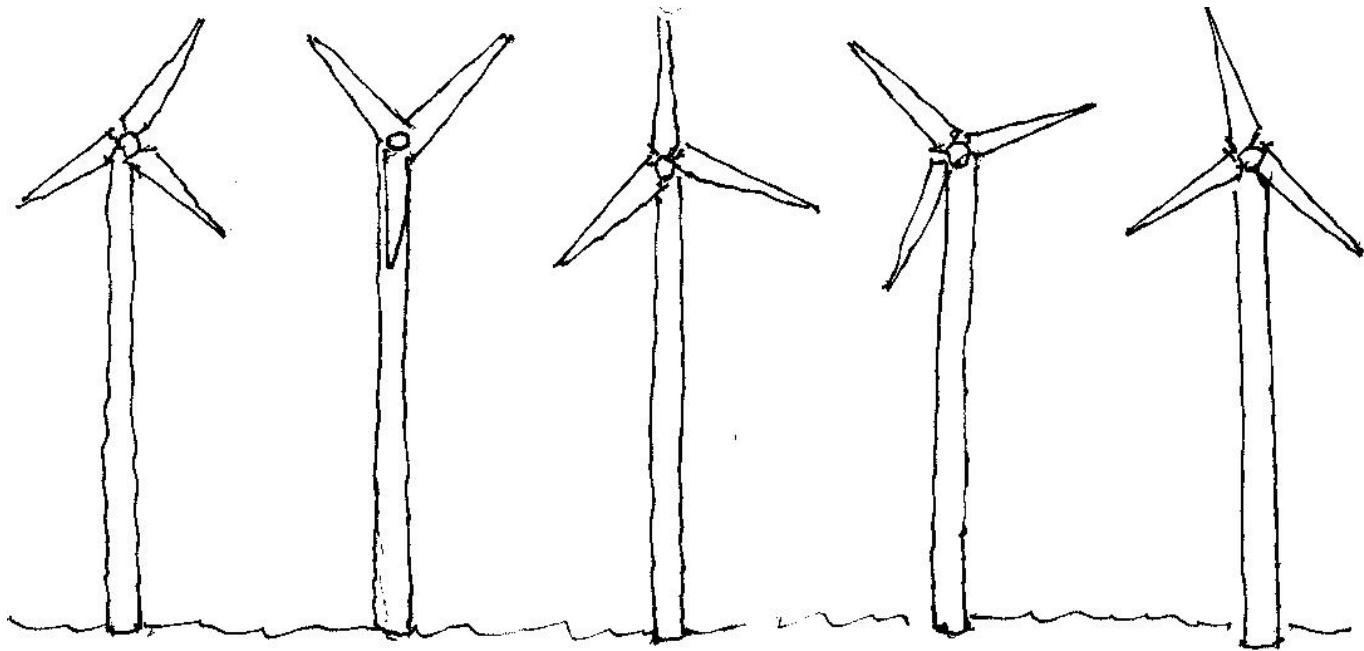
If you are interested in geoheating and cooling, talk with an architect. Placing pipes in the ground is best done before a house is built.

Wind Turbines

A Belmont family is investigating a community wind turbine for a retirement home in Maine. They have found, based on design guidelines available from the Massachusetts Technology Collaborative Renewable Energy Trust, that a single 1.2 megawatt turbine could be economically viable for their site, but permitting issues are difficult to resolve. Such a turbine would have a blade diameter of about 70 meters and a tower height of perhaps 60 meters. This is big. It would cost over \$3 million. If this turbine is installed at a windy location, and if the typical household uses 300 kilowatt hours per month, this single turbine could generate the average electric power for 800 families. However, the turbine’s success depends strongly on the wind at the site and the future cost of electricity and capital.

Conceivably, Belmont as a community could build a practical turbine on Wellington Hill. Or Habitat could erect a turbine. The feasibility of such a project may depend on how many people

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find wind turbines attractive, as I do, and how many people judge them to be ugly.

If you would like your own wind turbine, be aware that small turbines are less likely to be financially practical, your home is probably not in a location with good wind, and permit issues can be frustrating. No one has yet applied for a wind turbine permit in Belmont. To find out if your site has enough wind to make a turbine practical, see the Massachusetts Executive Office of Environmental Affairs' wind speed map at maps.massgis.state.ma.us/wind/.

Solar Hot Water

Sunlight carries energy, about one kilowatt per square meter. If you take a box that is open on the top, insulate the five closed sides, paint the inside black, put glass on the open side, and place the box where sunlight shines through the glass, it will get hot inside. This, except for plumbing, is how solar hot water heaters work.

How much is one kilowatt per square meter? A lot. One kilowatt will raise the temperature of a gallon of water from 55 degrees Fahrenheit to boiling in about 22 minutes. Why 55 degrees? As noted above, that is the average temperature a few feet below the surface in Belmont. A four-square-meter solar collector aimed right at the sun can heat enough water for a shower—15 gallons at 110 degrees Fahrenheit—in about half an hour.

Solar hot water is practical, but before you buy, look critically at warranties. Two friends tried solar hot water but found the equipment was not durable. One had his system drained while he was away on sabbatical. When he came back, the system leaked. Possibly the collector got so hot that solder melted. The other friend had to replace almost every part of his solar hot-water system to keep it going. He also noticed that prices rose and fell as tax rebates came and went.

Photovoltaics

Tim Richardson, head of Belmont's Municipal Light Department, knows of only one Belmont photoelectric installation, where sunlight generates electricity by shining on a large array of solar cells mounted on a roof. He should know, because if you have a photovoltaic system, you would have it attached to the power grid. That way, when your system produces more electricity than you use, you could automatically sell electric power to the town. The fact that Belmont has only one photovoltaic system is surprising, since without research I've noticed a system in Arlington, and I have a friend in Bolton who has a large part of his roof covered with photovoltaics.

My friend in Bolton, Bob Zak, is an electrical engineer. His system is reliable but cannot compete financially with conventional electric generation, which is allowed to emit greenhouse gases at no charge. Zak estimates that the cost

of photovoltaics needs to drop from about \$6 to \$8 per watt to \$1 per watt to compete with coal. This might happen: from 1998 to 2007, the average installed costs of photovoltaics fell from \$10.50 to \$7.60 per watt.

The price of solar panels has already dropped because of the recession. Last year, producers could not make panels fast enough; now, they cannot sell what they can make. The price of panels is down by about 25 percent so far and still falling. However, installation is a large part of the total cost, and that cost may not fall so fast. On the other hand, while there are limitations on photovoltaic efficiency, there are no inherent limitations on human ingenuity.

Cogeneration

Cogeneration uses fossil fuel to generate electricity and simultaneously heat a house, with potential fuel efficiency gains. Richardson knows of three cogeneration units in Belmont.

The gains come from a fundamental problem with electric generation. The pesky laws of physics substantially limit how efficiently fossil

fuels can be converted to electricity. About half the energy in fossil fuels gets turned to heat, which is usually wasted. If you have a small electric generator in your basement, the heat that is left over after you generate electricity can be used to heat your house. This is cogeneration. Because it makes use of energy that would otherwise be wasted, it reduces your carbon footprint.

Green Air Conditioning

I have green air conditioning. My house is shaded by deciduous trees, so I am comfortable in the summer and have full sun in the winter. But trees require leaf raking and gutter cleaning, they do not last forever, they take years to grow, they may increase home maintenance, and they preclude solar hot water and photovoltaics.

I asked Zak about removing trees that shade my house in summer in order to go solar. His advice: "Don't."

Sumner Brown is a Director of the Belmont Citizens Forum.

Environmental Events

Habitat Sugaring Celebration

Saturday, March 14, 10 a.m.-noon or 1-3 p.m. The whole family will learn how maple syrup is made from sugar maple trees, hear stories, and visit tapped sugar trees at Habitat. Registration required. \$8 for Mass Audubon members, \$10 for nonmembers. Sponsored by Habitat. 617-489-5050, habitat@massaudubon.org, www.massaudubon.org. *Habitat Sanctuary, 10 Juniper Road, Belmont.*

LEED for Neighborhood Development

Tuesday, March 24, 6-7 p.m. Leadership in Energy and Environmental Design (LEED) standards are designed to make buildings more energy efficient and environmentally friendly. Learn about LEED for Neighborhood Development (LEED-ND), which combines smart energy and smart-growth principles to improve our communities. Free. Registration required by 3/22: contact aaron@greenroundtable.org with "Boston LEED Users Group" in the subject. Sponsored by The Green

Roundtable Inc. 617-374-3740 x127, www.nexus-boston.com/space/events/leed-10.html. NEXUS, 38 Chauncy St., 7th Floor, Boston.

Rock Meadow Timberdoodle Treks

Tuesday, March 24, 6:30-8:15 p.m. or Thursday, March 26, 6:30-8:15 p.m.

Witness the courtship ritual of the male woodcock, or "timberdoodle," as it soars and twitters in the twilight. Registration required. \$8 for Mass Audubon members, \$10 for nonmembers. Sponsored by Habitat. 617-489-5050, habitat@massaudubon.org, www.massaudubon.org. *Meet at the Rock Meadow parking area off Mill St. in Belmont.*

Ecofest

Saturday, March 28, 9 a.m.-1 p.m. Share environmentally friendly ideas for lawn care and gardening, meet sustainable landscapers, learn about new products and ideas from "green" vendors, and talk with Arlington environmental groups. Free. Co-sponsored by Arlington Garden Club, Arlington Public Works Department,

Conservation Commission, and Vision 2020. 781-858-8629, ecofest@town.arlington.ma.us. *Town Hall Auditorium, 730 Massachusetts Avenue, Arlington.*

Certifying Vernal Pools

Saturday, April 4, 9 a.m.-1 p.m. What is a vernal pool? What does it mean to certify a vernal pool? Why should we certify them? Come learn about these important wetlands. After a discussion at the Habitat visitor center, we'll drive to potential pool locations to search for wood frog eggs, fairy shrimp, salamander larva, and other evidence of vernal pools. Suitable for adults and children over 10. Registration required. \$15 for Mass Audubon members, \$19 for nonmembers. Sponsored by Habitat. 617-489-5050, habitat@massaudubon.org, www.massaudubon.org. *Habitat Sanctuary, 10 Juniper Road, Belmont.*

27th Run of the Charles Canoe/Kayak Race Sunday, April 26. Race your canoe or kayak on the Charles River, volunteer, or watch the fun. Free for spectators; race entry \$50. Sponsored by the Charles River Watershed Association. 508-698-6810, www.crwa.org/rotc/rotc.html. *Various locations along the Charles from Cambridge to Dedham.*

Annual Mystic Herring Run and Paddle Sunday, May 17, 9 a.m. Race along a USATF-certified 5-kilometer course on the Mystic River bike path, past thousands of herring returning from the ocean, or paddle up the river in a canoe or kayak. Registration required. www.active.com/event_detail.cfm?event_id=1696364. Sponsored by the Mystic River Watershed Association. 781-316-3438, mysticriver.org. *Blessing of the Bay Boathouse, 32 Shore Drive, Somerville.*

We need you.

If you can volunteer even a few hours a month, you can make a difference. You do not need to be an expert—just a person who cares about our town.

I can devote time to:

- Archaeology & Historic Preservation
- Environmental Protection
- Planning & Zoning
- Community Path
- Walking in Belmont
- Mailings
- Newsletter

I can help pay for this newsletter:

It costs about \$4000 to publish each issue of our newsletter. Please donate for this purpose:

\$25 \$50 \$100 \$250

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Thank you.

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