



State Pushes for Dense Housing at Fernald

by Meg Muckenhoupt

As the state's June 2010 deadline to close the Fernald Center's facilities nears, Waltham residents are divided over the fate of the 196-acre site. According to Waltham mayor Jeannette McCarthy, Massachusetts officials have proposed placing 250 to 300 housing units and an additional 150 units of institutional care facilities on the property. That development would put more traffic on Waverley Oaks Road and Trapelo Road and more children in Waltham public schools. The site, which is owned by the state, is scheduled to be declared surplus land and opened to development after the Fernald School is closed this year.

What happens to Fernald is important to Waltham – and Belmont – because of its size and its location. Future development could affect traffic on Trapelo Road and Waverley Oaks Road, with the potential to clog streets for miles around. The site also sits on the Western Greenway, the ring of connected open space that runs through Belmont, Lexington, and Waltham. The city of Waltham's Fernald Reuse Committee has issued a draft report describing the site and has released maps showing potential uses, but it has delayed releasing a draft plan for the site due to conflicts with the state's housing proposal.

Fernald Center Is Vast, Costly

Social reformer Samuel Gridley Howe opened the Fernald School in 1848 as the Massachusetts School for Idiotic Children, a residential school for people with mental retardation. In 1925, the school was renamed the Walter E. Fernald State School for its first resident superintendent, Walter E. Fernald, who served the school from 1887 to 1924. It was later dubbed the Walter E. Fernald Developmental Center. Over the past 160 years, the campus has seen extensive

development. Today, 71 buildings and 14 other structures are spread over the site, totaling 1.2 million square feet. Those buildings include a power plant, a Tufts Dental School facility, a homeless shelter for adult women and children, and the Eunice Shriver Center, a University of Massachusetts medical facility for people with mental and developmental disabilities.

The buildings that have caused the most controversy are devoted to the long-term care of profoundly mentally retarded adults. In 1980, 2,000 people lived in the Fernald facilities. As of November 2009, just 131 residents remained at Fernald, most having lived at the center for decades. The state plans to move them to facilities in Wrentham, Chelmsford, Billerica, or Plainville next year, far from the current facility and distant from many of the residents' families.

The state aims to save money because, in addition to the cost of maintaining buildings, the Fernald Center employed more than 600 staff as of October 2008. According to a December 2008 Department of Mental Retardation press release, "The average cost of serving an individual in an institution is nearly double the cost serving them in the community (\$570/day to \$293/day)."

After the Fernald Center is closed, the state will keep a few selected facilities on the campus open. The Department of Mental Retardation (DMR) will operate four buildings known as "Malone Park" as homes for 24 residents, and the Marquardt building will remain open as a skilled nursing facility for people with intellectual disabilities and "intense medical needs." The Shriver Center will also remain open to provide services to people with disabilities, according to a facilities restructuring report published by the DMR in February 2009.

State to Choose Fernald's Fate

Governor Deval Patrick is watching the Fernald development closely, according to Waltham officials. "The governor has told us that we are required to come up with an economic component in order for this [Fernald plan] to move forward," said Thomas J. Curtin, President of the Waltham City Council, at a December 3, 2009, public hearing. That means that the city can't just preserve the Fernald campus for open space and recreation; the site needs to make money.

In November, Dana Harrell, real estate services director for the state Division of Capital Asset Management, told the Fernald Reuse Committee

that the state planned to build 250-300 units of mixed affordable and market-rate housing and 150 units of a health care or institutional facility on the land. At a Waltham City Council meeting that month, Curtin estimated that the proposal could net the state \$50 million.

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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.

In a mid-December meeting with Gatehouse Media reporters, Governor Patrick said that the state needs more affordable and work force housing near public transportation, and noted that the Fernald was close to public transit. Unfortunately, being close to public transportation does not mean being accessible to public transportation. The only bus line that reaches the campus, the 554, stops on Trapelo Road hourly from 7 a.m. to 7 p.m. and does not run on weekends. The next nearest bus lines stop at Waverley Square, a mile away.

Although the Fernald Reuse Committee issued a draft report listing proposed uses for the land in November, the *Waltham Daily News Tribune* reported in December that Mayor Jeannette McCarthy was unsure when a reuse plan would be completed. McCarthy said the city and state are "at a stalemate" on the issue of housing.

Two Groups Offer Reuse Plans

With a dwindling population and ongoing pressures to reduce the Massachusetts Department of Mental Retardation's budget, the Fernald School was clearly at risk for closure by

the early 2000s. The City of Waltham set up a Fernald Reuse Committee in 2004. At the same time, a coalition of Waltham organizations called the Fernald Working Group also started working on a plan for the property.

In November 2009 the Fernald Reuse Committee released a draft report on the site, and held a series of public meetings to get input about what to include in the eventual reuse plan. According to the report, the entire site is currently zoned Conservation/Recreation. “If we had our way, that is all that would happen

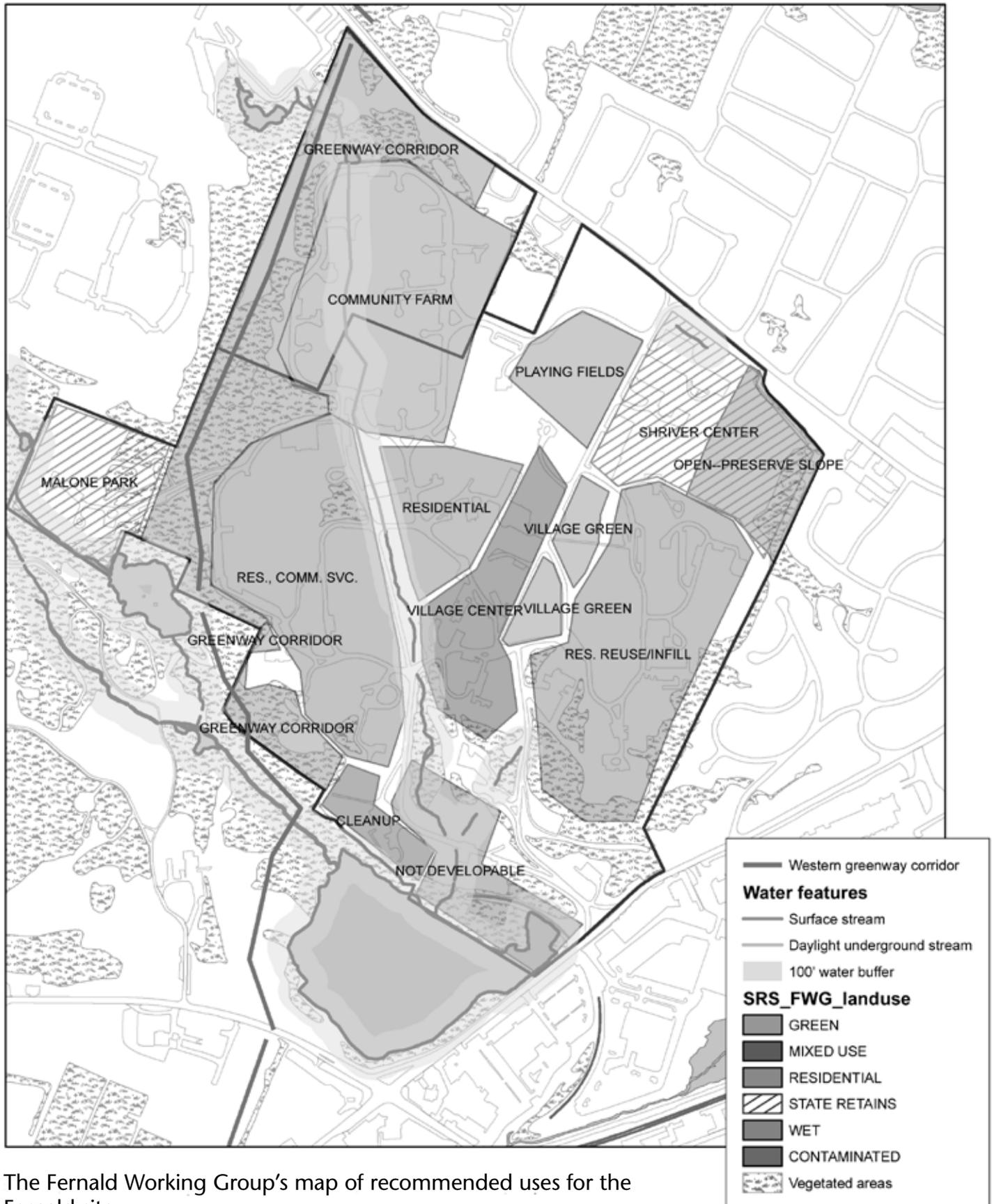
there,” said Curtin. “Turn out the lights, nice knowing you, we’re going to plant some more trees.” By right, the landowner can use the land for purposes including churches, schools, farms, public water supplies, and conservation land. With special permits, the land could be used for clubs or outdoor recreational facilities.

The Reuse Committee’s map features selective rezoning. On the map, most of the land bordering Waverley Oaks Road is zoned for residential buildings, and a small portion of that land is zoned for limited commercial use. Two



FERNALD WORKING GROUP

A satellite photo of the Fernald site (lightened area). The white line shows the portion of the Fernald border is the border controlled by the Shriver Center.



The Fernald Working Group's map of recommended uses for the Fernald site.

parcels in the site's interior are zoned for institutional use. It is not clear when any rezoning will actually take place.

Environment, History Key to Future

Although the Fernald Reuse Committee has not released a final plan for the site, it has produced several maps available at www.city.waltham.ma.us/fernald/index.htm. One of the Committee's maps shows structures by age and use. DCAM plans to demolish several buildings, but many others will be retained and could be reused.

The maps also show a 150-foot vegetated buffer around the entire Fernald campus to maintain homeowners' pleasant views, 100-foot buffers around waterways, and a daylighted stream. Unfortunately, the Fernald Reuse Committee can't control whether or not the state will choose to put these buffers in place.

The Shriver Center has already been turned over to the University of Massachusetts, removing land from roughly the intersection of Trapelo Road and Oakledge Road over to Shirley Road from the city's control. "If we are not able to control that 150 buffer [on the Shriver site] . . . then we cannot mitigate any flooding that continues to be a problem here on Shirley Road, any flooding that continues down here on Trapelo Road . . .," said Curtin. The city is negotiating with the University of Massachusetts over the issue.

At the December 3 hearing, Curtin discussed the Reuse Committee's recommendations. "Any construction that happens on the site must have a green element to it," Curtin said, adding that solar panels would be used wherever possible. The Committee recommends creating cemetery space as well as areas for passive and active recreation, fields, trails, and picnic areas.

Repurposed buildings should have a medical use, Curtin said. "We provide an area that, we hope, provides medical use or reuse that allows us to provide that economic component without saying we've got to have this big housing component to it . . . diagnostic centers, blood centers, any of those smaller medical [businesses]."

Curtin also said that a small long-term care center would be acceptable, as opposed to the

state's recommendation of a 150-bed facility. "Neighborhood small businesses," Curtin said. "We're not looking to drop a Walgreens in the Fernald Center."

Any new use that draws people to the Fernald site will increase traffic... Hallock cited a report by Conley Associates stating that Trapelo Road is already at 125 percent of capacity, adding "The intersections along Trapelo Road are congested, and movement of people into, within, and out of Waltham is a major problem . . ."

Fernald Attracts Clashing Plans

At the December 3 hearing, 12 speakers presented contrasting views of the Fernald's future. Several speakers argued that the entire site should be used as a residential therapeutic campus for people with autism or mental retardation; another speaker suggested housing for homeless elderly people and veterans, particularly women veterans.

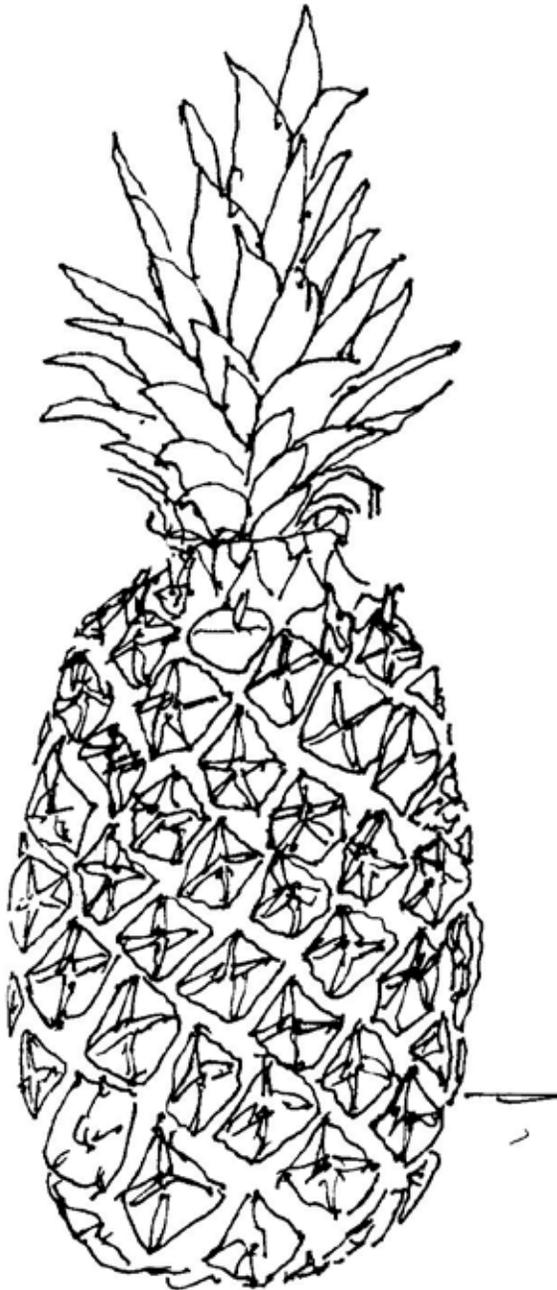
Any new use that draws people to the Fernald site will increase traffic. Georgie Hallock, a representative of the League of Women Voters of Waltham and a member of the Fernald Working Group, said bluntly, "The Reuse Committee has not yet discussed the issue of traffic." Hallock cited a report by Conley Associates stating that Trapelo Road is already at 125 percent of capacity, adding "The intersections along Trapelo Road are congested, and movement of people into, within, and out of Waltham is a major problem. . . ." Public transportation must be part of any reuse plan, Hallock said.

Of all the speakers at the December 3 hearing, the Fernald Working Group's plan was the most comprehensive. The Working Group has drawn up an alternative map to the Reuse Group's vision of the space, including a community farm, a "village center" with "village green" spaces, small businesses, and residences. The Working Group's plan emphasizes transportation to

regional MBTA hubs (Alewife, Waverley Square, downtown Waltham) and housing that would suit Waltham's current population; a majority of Waltham residents are renters, and almost half of households qualify for low-to-moderate income housing.

The Fernald Reuse Committee plans to continue meeting in January.

Meg Muckenhoupt is Editor of the Belmont Citizens Forum *Newsletter*.



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Chapter 7 Surplus Land

In July or August 2010, the state will likely declare that the Fernald site is surplus land. The state will follow a process established by Chapter 7 of the Massachusetts General Laws and overseen by the state Division of Capital Asset Management and Maintenance (DCAM).

The procedure is not complicated. First, the DCAM commissioner polls other state agencies to see if they need the property. If the answer is yes, DCAM asks the legislature to transfer the land to that agency. If no public agency wants it, DCAM declares the property available and may create an advisory committee.

After a public hearing in the community where the land is located, DCAM sends a report to the legislature and asks the legislature to approve a land transfer. Proceeds from sales go into the state's general fund—and towns and cities with surplus land have to pay fair market value for the land depending on the site's intended use. Communities that plan to use surplus land for open space pay less than towns that intend to build.

That said, the fair market value of the land depends on the intended use of the land. DCAM does not allow communities to buy land on speculation and sell it to developers. Communities that plan to use surplus land for open space pay less than towns that intend to build. Towns and cities have to have plans in place for the property before DCAM will allow them to purchase a site..

DCR, Wrubel Detail Beaver Brook North Plans

By Dan Lech

The Massachusetts Department of Conservation and Recreation (DCR) outlined its Expanded Resource Management Plan for the Beaver Brook North Reservation (BBN) at a meeting at Habitat on November 17. Beaver Brook North is a 254-acre property which sits at the intersection of Belmont, Waltham, and Lexington. The DCR acquired the land, located on the grounds of the former Metropolitan State Hospital, after the hospital closed in 1992. In July 2008, the DCR also gained control of an additional 47.5 acres on the adjoining Middlesex Hospital site, a property known as “Lot 1.” The Reservation features diverse natural habitats including red maple, swamp oak, hickory forest, and upland meadow.

I spoke with Roger Wrubel, the director of Habitat and a founding member of Friends of the Western Greenway (FOWG), about the meeting and the current status of BBN and the Western Greenway.

Lech: Do you feel the meeting went as well as expected? Was there anything surprising or disappointing?

Wrubel: I was happy with the meeting. The resource management plan DCR put together is very good. However, we know that they lack the resources to implement it immediately. So we are happy they are interested in the property and that they are willing to work with us over the long haul to improve BBN.

Lech: Ideas that were proposed by night’s end included establishing a suitable “main entrance” to BBN with a parking lot, improving signage (both trail-marking and informational), managing natural resources and policing unwanted use (such as recreational motorized vehicles). Do you think that the ideas put forward represent attainable goals that DCR will act on or fund?

Wrubel: I think we can move forward in making BBN more accessible and known to the public. But we are realistic as to the ability of DCR

to supply personnel and other resources. Our immediate goals are modest—some official signage and figuring out a way to discourage the use of motorized vehicles (dirt bikes and ATVs.) I believe DCR will be able to help in both those areas. When the Friends of BBN meet in January or February we will likely come up with some specific actions we would like DCR to help with. I believe they will be willing partners.

Lech: What is the status of Lot 1? From the Walnut Street side, it seems a bit rugged with an abandoned road leading to an empty cul-de-sac. Are there established trails on the property?

Wrubel: Lot 1 has an established trail system. The clear-cut area directly across from where the Western Greenway trail comes out to Walnut Street is owned by a developer who was intending to build 19 single family homes. The land has been standing empty for some time, two to three years? Not sure what his plan is.

Our plan for next summer is to extend the Western Greenway trail across Walnut Street a short distance to the north of the cleared area (the orange fencing is the border between the private property and the DCR land). That trail will connect with the trail system that already exists in Lot 1.

Lech: Is the plan of the Friends of the Western Greenway to make improvements to the Greenway in measured geographic steps: finish Beaver Brook North, then start focusing on Lot 1, then the Chester Brook Corridor, and so forth; or to make improvements to any portion as resources allow?

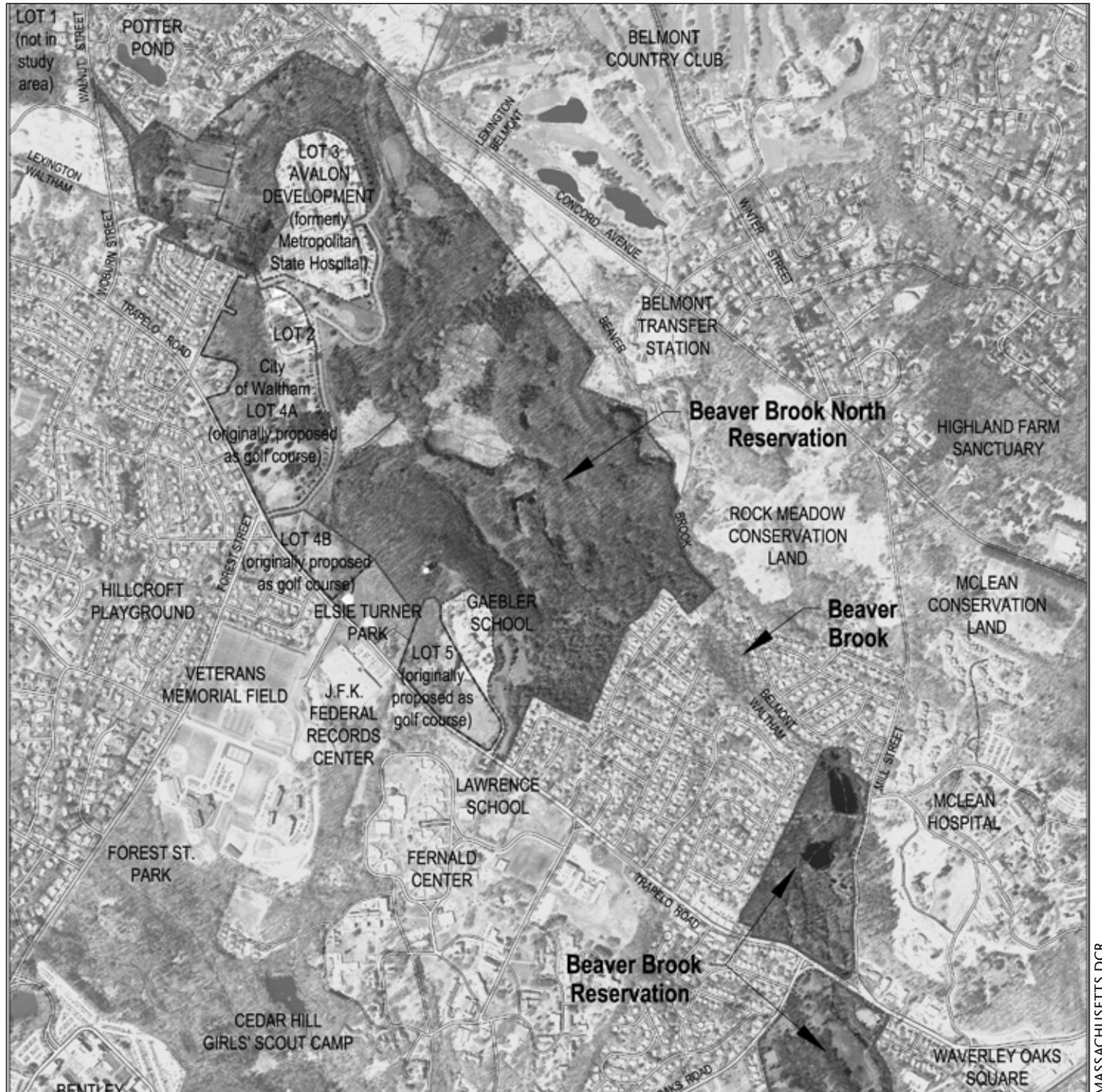
Wrubel: We are doing both. In 2008 we built a new trail from the Waltham High School to the Waltham YMCA. There is now a “Western Greenway” marked trail from the parking lot at the Paine Estate to the Waltham Y, about 1.5 miles. Last summer we completed the link from the Metropolitan Parkway to Walnut Street. In addition, we built a segment of the Chester

Brook Corridor trail in Waltham near Shady's Pond.

Next summer we will join the trail now ending at Walnut Street to Lot 1. Simultaneously, we will continue to build the Chester Brook Corridor trail toward Trapelo Road to connect across Trapelo into Lot 1. Soon it will be possible to walk from Habitat to the Paine Estate on the Western Greenway trail, probably over 6 miles.

See the Friends of Beaver Brook Reservation web site, www.fobbr.org, for more information on upcoming meetings and trail work.

Dan Lech is an 11-year Belmont resident, wine professional, and musician who is attempting to think globally and act locally.



The Beaver Brook North Reservation and environs.

Belmont Develops New Plan for Town Zoning

Two More Public Workshops Planned for January

By John Dieckmann

For the first time in 46 years, the town of Belmont is developing a new long-range Comprehensive Plan—a vision to guide the town for the next 20 years when considering changes in zoning, land use, economic development, transportation, and public facilities. Two more public workshops on the Comprehensive Plan are scheduled for January: a workshop on Trapelo corridor villages and south Pleasant Street on January 14, and a workshop on Belmont Center, Brighton Street, and Concord Avenue business districts on January 26. (See the town web site for updated details on time and location.) A public workshop was held on December 17 to discuss Belmont's neighborhoods and housing, open space, and connections.

After the last workshop, the Planning Board, Planning Department, and the consultants will develop the comprehensive plan to present to the Board of Selectmen in early spring. If the Selectmen endorse the plan, it will go to Spring Town Meeting for a nonbinding resolution of support.

Comprehensive Plan to Guide Zoning

The Comprehensive Plan will guide future changes to the zoning bylaws. Zoning bylaws may be changed for many reasons, including:

- encouraging economic development
- preserving neighborhood character
- managing and protecting open space
- improving public facilities
- improving roads and parking

The Comprehensive Plan will also address town issues that cannot be zoned, including:

- town finances and resources
- transportation planning
- housing needs
- public-private partnerships

The current comprehensive planning process began when the Fall 2008 Town Meeting appropriated funds to hire a consulting team to support the town's work. A consultant

team headed by Larry Koff & Associates was retained in January 2009. The first phase was an assessment of the current state of the town. Phase 2, the actual plan, began in September 2009 with gathering input from a cross-section of Belmont on issues important to the town. Working groups have been meeting through the fall to create statements of values, goals, strategies, and recommendations in six areas:

- Transportation and Energy
- Open Space, Greenways, and Pathways
- Housing
- Historic Preservation
- Commercial Development
- Public Facilities and Finance

To get the broadest range of input in each area, the Planning Board identified and invited the participation of town departments and boards and interest groups whose charter and/or work is relevant to each of the topics. To ensure the process was as open as possible, anyone who wanted to participate in a working group was welcomed, whether a member of an identified organization or not.

All Phase 1 and Phase 2 reports are available at the consultants' web site, www.lkoffassociates.com/Belmont.html.

BCF Joins Transport, Open Space Groups

The Belmont Citizens Forum was invited to participate in two working groups—Transportation and Energy and Open Space, Greenways and Pathways.

Both groups identified the need to provide much better walking and bicycling connections within town and regionally, both for recreation and for transportation. Both working groups recommended that Belmont "[e]stablish a rail trail through Belmont that will link with the Mass Central Rail Trail in Waltham to the west and the Alewife Reservation Trail in Cambridge to the east." Both groups also noted that the town needs more safe pedestrian crossings at the commuter rail tracks, especially at the high school and at Waverley Square, using the right of

way where White Street used to cross the railroad tracks.

The Open Space working group identified the opportunity to link the large open spaces on the west side of town (Rock Meadow, McLean, Habitat) with the open spaces on the east side of town (Clay Pit Pond, Alewife Reservation) via an urban trail across Belmont. The group

also recommended improving accessibility and connections through connecting trails and good signage.

John Dieckmann is a Director of the Belmont Citizens Forum.

Letter to the Editor

To the Editor:

I am a frequent recreational bike rider and often use the area's bikeways. I have been reading lately about bikeway improvement plans including one to pave the multi-use path between Alewife station and Brighton Street and to construct a new bridge over Alewife Brook. I think this is a terrible plan and, if executed, would result in the loss of one of our community's gems.

This has been a particularly beautiful autumn season and anyone who has walked or ridden on this lovely path couldn't help but reflect on the wonders of nature and be grateful that a relatively "wild" place is still at our disposal and so convenient ... Sure, commercial development has scarred the path in sections and masking that would be a good thing. Paving the path, however, would diminish its beauty. This section will also be impacted by the eventual Uplands development. Why make matters worse? Do we have to pave over everything?

I fully support developing a path from Brighton Street to Belmont Center since there is no safe off-road way to make that journey. However, I think it is unnecessary and tragic to pave (and otherwise "improve") the section between Alewife and Brighton Street. Can't we save a little of our "wild" area and use the money in a better way?

I call on the Belmont Citizens Forum to mount an effort to stop this project or at least reduce its scope to eliminate the paving and widening but include some beautification to mask the commercial areas.

Karl Laubscher
Lincoln Circle, Belmont

I appreciate your concern for the beauty of the current path and the adjoining Alewife Reservation. Unfortunately, in its current condition, many people can't enjoy that view. The dirt path is not accessible to people in wheelchairs or parents using strollers for their children, gets muddy when it rains, and cannot be plowed in the winter – as the Minuteman Bikeway is plowed from Alewife Station to Lexington's border with Bedford. Hundreds of people are using that path for running, walking dogs, and even bicycling daily this winter.

More importantly, if the Alewife-to-Brighton path is not improved, there will not be a path from Brighton Street to Belmont Center. One of the major reasons to create off-street community paths is to create more transportation options. An all-season community path that runs from Belmont Center to Alewife could be used by commuters who wish to travel from Belmont to Cambridge, Boston, and beyond year-round. An all-season path that runs from Belmont Center to Brighton Street only serves people who want to go to Belmont Center or Brighton Street – a much smaller number.

The current Alewife-Brighton Street path is inaccessible to some people in good weather, barred to almost all people following rain and snow, and runs a few yards from commercial buildings and railroad tracks for half of its ¾-mile route. Covering an existing packed dirt path with a stable surface seems like a small sacrifice to make the Alewife Reservation and Alewife Station much more accessible to people traveling without cars.

In any case, the horse is already out of the barn. Mass Highway has been holding public hearings and planning this path since 2004. A contract was awarded to J.J. Phelan & Son Co. Inc. on December 2, 2009, and construction is expected to begin in the spring of 2010.

—Editor

Cut Energy Bills Without Freezing in the Dark

Home Energy Audits Help Save Money, Fuel

By Meg Muckenhoupt

In the bleak midwinter, homeowners begin to wonder what they could do to make their homes less drafty and more comfortable—or at least reduce the expense of their cold, drafty houses. Fortunately, plenty of experts are ready to tell you how to make your home more efficient and less chilly. Depending on how much money and time you care to spend and how you heat your home, Belmont residents can choose among three types of energy audits. They're performed by different firms and emphasize different aspects of energy use—from what kind of light bulbs fit your fixtures to how much energy you'd like to be using in 2050.

That particular year is important because Belmont's Climate Action Plan – as endorsed by Belmont Town Meeting in November – calls for an 80 percent reduction in greenhouse gas emissions in town by 2050. According to that Plan, Belmont homes produce 78 percent of town carbon dioxide emissions. Reducing home energy use isn't just good for the pocketbook; it's good for the planet. Below are the sources to

contact when you're ready to live more lightly on the earth.

Belmont Municipal Light Department

Belmont Municipal Light Department (BMLD) customers can request free energy audits by calling Energy New England (ENE) at 888-772-4242. Energy New England has performed more than 340 energy audits for BMLD customers since January 2006. An ENE Energy Advisor will come to your home and spend about an hour and a half using Energy Aide software to evaluate the energy efficiency of the home's insulation, heating system, windows and doors, hot water system, and lighting. Customers receive an energy audit report as well as information on BMLD rebates and lists of web sites that discuss tax credits.

As of October, ENE began offering blower-door tests with its energy audits to detect household air leaks. The blower reduces the air pressure inside a house until it is lower than the air pressure outside. Then, air from outside blows in through cracks and holes in the house. Energy auditors can feel the air leaks, or may use a smoke pencil to make air drafts visible. BMLD customers can also request infrared scans, otherwise known as thermography. Infrared scanning equipment translates temperature measurements into pictures of where surfaces are hotter and colder. These scans reveal air leaks, poor insulation, and other locations of heat loss.

MassSave Audits

If you heat with natural gas, you are eligible for a MassSave home energy assessment, which is funded by surcharges on electric and gas bills. National Grid and NStar participate in the program, but the Belmont Municipal Light Department does not. Therefore, in Belmont owners of oil-heated homes are out of luck. MassSave employs the Conservation Services Group (<http://www.csgrp.com/>) to perform the audits.

When you call for a home energy assessment, the intake worker will ask what results you would like—Are you uncomfortable? Are you concerned

Energy Contacts

MassSAVE: 1-866-527-7283
www.masssave.com

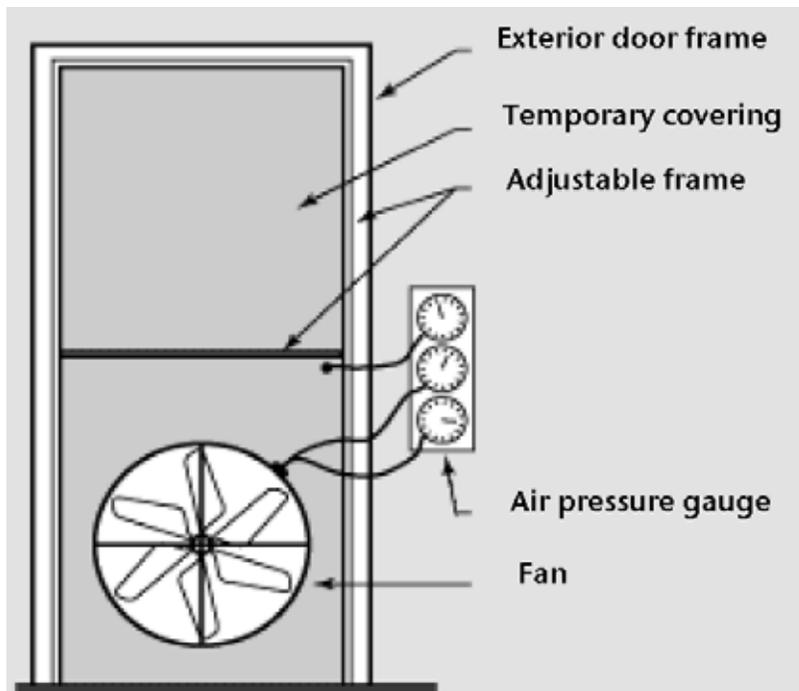
HEAT loans: www.masssave.com/about/heat_loan.php

Massachusetts Department of Energy Resources: www.mass.gov

Energy Star appliance programs: www.energystar.gov

Federal energy efficiency tax credits: www.energy.gov/taxbreaks.htm

How They Work



A blower door is a powerful fan that mounts into the frame of an exterior door. The fan pulls air out of the house, lowering the air pressure inside. The higher outside air pressure then flows in through all unsealed cracks and openings. The auditors may use a smoke pencil to detect air leaks. These tests determine the air infiltration rate of a building.

Blower doors consist of a frame and flexible panel that fit in a doorway, a variable-speed fan, a pressure gauge to measure the pressure differences inside and outside the home, and an airflow manometer and hoses for measuring airflow.

BELMONT MUNICIPAL LIGHT DEPARTMENT

about air leaks?—and ask how old your home is. “For a brand-new home, an energy audit doesn’t make much sense,” said Jerry Hanna, MassSave program manager. “For a home that’s 15 years or older, it makes all kind of sense.” Typical waiting times for winter MassSave appointments are two to three weeks; summer appointments are easier to schedule, as few people think about improving their heating systems during air-conditioning weather. The home energy assessment takes about two hours and covers insulation, air leaks, and heating and hot water systems.

At the end of the assessment, the assessor will give the homeowner a list of weatherization projects to make the house more air-tight—typically by sealing air leaks around windows and pipes. MassSave gas customers will receive a reimbursement for 75 percent of the cost of this weatherization up to \$2,000; this program is not available to homeowners with oil heat. “The average cost is \$2,000 to \$2,500,” said Hanna. After the weatherization is done, a Conservation Services Group inspector will return to make sure that the work is satisfactory. The process takes two to four weeks, depending on demand.

For more expensive weatherization or heat or hot water replacements, MassSave offers the

HEAT loan program. Participants can get zero percent loans for up to \$15,000 for up to seven-year terms to improve their home’s energy efficiency. Many other loans and rebate programs are described on the MassSave web site. However, it’s up to the homeowner to research these programs. “Our auditors are not accountants,” said Hanna, who recommended consumers check www.MassSave.com for up-to-date rebate and loan information.

Private Audits

BMLD and MassSave audits are good, but to reduce energy use substantially over the long term, it’s best to get a private audit, says Paul Eldrenkamp, owner of Byggmeister Design/Build (www.byggmeister.com), whose firm does such audits. Eldrenkamp has served on the board of the New England Sustainable Energy Association, serves on the board of the Green Decade Coalition/Newton and the Newton Historical Society, and chaired the residential working group of the Governor’s Task Force on Zero Net Energy Buildings in 2008-9.

“For the most part homeowners are flying blind,” said Eldrenkamp. “They have no idea how much energy they’re using, or how much their neighbors are using. . . [the audit] gives

you a huge amount of information on three levels: what you can do tomorrow, what you can do in a year or so, and what you can do as you do major upgrades of systems.”

“For the most part homeowners are flying blind,” said Eldrenkamp. “They have no idea how much energy they’re using, or how much their neighbors are using...”

Eldrenkamp’s company has analyzed the energy use of more than 125 houses in New England. They found that those homes’ total energy usage—electricity and heating—averages 75,000 to 80,000 BTUs per square foot per year of energy. “You want to get down to 35,000 to 40,000 BTUs per square foot per year to meet the 2050 goals [of reducing greenhouse gas emissions by 80 percent],” said Eldrenkamp. “You can make a huge dent without freezing in the dark.”

Homeowners need to make sure that current improvements don’t prevent future improvements, Eldrenkamp said. For example, if you are installing new siding, don’t just make sure that wall cavities get filled; take the extra step of installing rigid foam insulation to increase the R-value from about R13 to R40. “If you do work to current standards, you’ll have regrets,” said Eldrenkamp.

When Byggmeister performs a home energy audit, the energy staff uses both a blower door test and an infrared camera to detect leaks. Thermography tests alone can be deceptive, Eldrenkamp said, because upper floors of a house are frequently warmed by air escaping through leaks; instead of having drafts and cold walls where cold air comes in, there’s high enough air pressure on upper floors that the house is losing energy by pushing heated air outdoors. You can’t find the leaks by taking a picture of cold air coming in. Some older houses are so leaky that “a blower door test is a waste of time,” Eldrenkamp said. Instead, a walk-through with an infrared camera can reveal places where insulation has been installed incorrectly – or not

installed at all in the upper half of the wall in some cases.

Byggmeister energy staff also look at where the thermal boundaries of a house are: the border between to where you heat and cool air and outside air. If your boiler is in the basement, and you insulate your basement ceiling but not the walls or floor, you are effectively putting the boiler outside the house—and heated air that leaks from the ducts will be lost.

To make the house truly efficient, homeowners need both to insulate and to seal air leaks.

“There’s penetration between every pipe, wire, duct, wall, chimney, plumbing, skylights—everything,” said Eldrenkamp. “In a leaky old house, the make-up air (that replaces air lost through leaky walls and attics) often comes from the basement, which may not be very healthy air.”

The result is a report with infrared images and recommendations of what to improve and how much those improvements will cost. Byggmeister makes recommendations based on five areas:

- The quality of the building envelope—how well the house is air-sealed and insulated
- Efficiency of heating and cooling equipment
- Appliance loads—how much energy is the old refrigerator in the basement using? Dehumidifiers can also be energy hogs
- Occupant behavior—are residents getting the right feedback about how their actions affect energy use?
- Adding renewables—installing home solar hot water or photovoltaic systems

It’s important to look at these issues in the right sequence, Eldrenkamp said. “If you buy a new boiler first, that can be short-sighted. You can get a boiler that is too big” for the house’s needs after air-sealing and insulation improvements.

A typical Byggmeister energy audit costs \$400 to \$500. The same MassSave rebates apply to improvements private auditors suggest as to MassSave’s recommendations.

Meg Muckenhoupt is Editor of the Belmont Citizens Forum *Newsletter*.

When Did Belmont Start Inspecting Sewers?

by Sumner Brown

I live upstream from the sanitary sewer overflows in the Winn Brook neighborhood (like most people in Belmont), so I wonder where my foundation drains go. I also know that it cost Belmont an average \$10,000 per house to remove 100 sump pumps from sanitary sewers in 2004-2005. That figure makes me worry. If I could find out what the Belmont building codes were in 1935, and if the codes were being enforced, I would have a clue about whether my neighbors and I are contributing to sewage horrors downstream.

1820s: Cambridge begins building combined sewers

Progressive Cambridge started building sewers in the 1820s, two decades ahead of major U.S. cities. Since the germ theory of disease was not generally believed or known at the time, I assume that the wooden sewer pipes laid in the vicinity of Harvard Square were installed because the inhabitants found sewage in the streets disgusting.

Unfortunately, like many other cities, Cambridge built combined sewers which carry both sewage and storm water by design. In combined sewers, used domestic water from buildings, storm water from storm drains on streets, and sometimes water from rain downspouts, foundation drains, and sump pumps all go into the same sewer pipes.

Cambridge is still paying the consequences of being an early adopter. During heavy rains, Cambridge has Combined Sewer Overflows (CSOs), when combined sewers spill untreated sewage into waterways -- Alewife Brook and the Charles River in this case. About half of Cambridge has separate sewers now, and Cambridge has ongoing public work to get rid of more combined sewers. The Massachusetts Water Resource Authority (MWRA) will soon approve another program of storm and sanitary sewer separations for Cambridge that will cost around \$60 million. Since Belmont is a member of the MWRA, when combined sewers in Cambridge,

Somerville, and Boston take MWRA money, the repairs cost us money too.

1849: New York City begins building sanitary sewers

1852: Paris begins building sanitary sewers

1854: London cholera epidemic stopped when a pump handle was removed

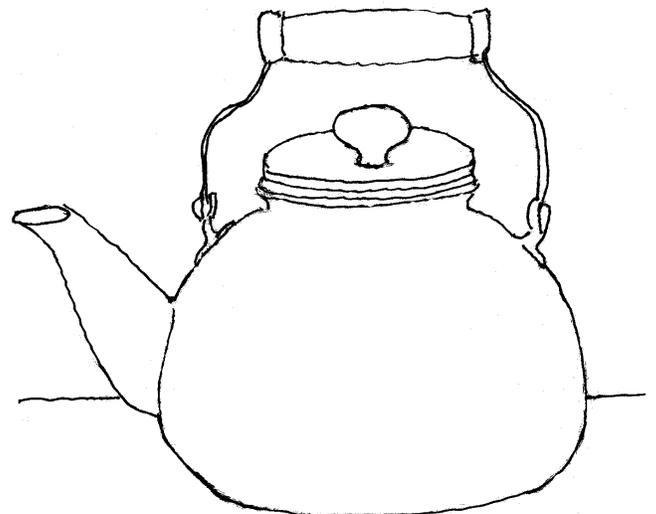
1858: London begins building sanitary sewers

1863: Pasteur's experiment shows microbes beget microbes

The germ theory of disease has been around since antiquity, but these two led to a new understanding of the importance of clean water. In London in 1854, almost 700 people died in two weeks in a small Soho neighborhood. A physician named John Snow noticed that the deaths were centered around a public water pump on Broad Street. He argued that the pump was spreading the disease. Almost no one believed him, but the terror of the epidemic was such that authorities were willing to try removing the handle from the Broad Street pump. The epidemic stopped.

Henceforth sewage was known to be a health hazard and sanitary sewer construction was considered a public health measure.

The Londoners who drank water from the Broad Street pump had no clue that they were drinking a bit of sewage. The Broad Street well



had a reputation for yielding excellent quality water free from sensory defects.

The Paris situation was different. Before 1852, the Seine River served as both Paris's source of drinking water and its sewer. The government of France at this time was a dictatorship, headed by a nephew of Napoleon who embraced public works with vigor. Paris built sanitary sewers that were grand works of art, and clean water was brought to Paris from a distance of over a hundred miles from the Champagne district. Some citizens protested that the new water was inferior, lacking the "character" of the Seine River water.

1865: Boston cholera outbreak leads to demands for sewage management

1870: Boston physicians criticize harbor conditions, recommend sewer work

1877-1884: Boston builds combined sewers to discharge at Moon Island on outgoing tides

1889: Metropolitan Sewerage System formed

1895: Belmont begins building sanitary sewers

Boston was noticeably slower to build sanitary sewers than some other large cities, a failure that has been linked to discord between the Yankees and Irish.



SUMNER BROWN

The Metropolitan Sewerage System manhole cover at Blair Pond.

Once Boston started building sanitary sewers, the Boston system spread rapidly to Belmont, among other towns. From the start in 1895, Belmont's sanitary sewers connected to the Metropolitan Sewerage System.

Our Office of Community Development has detailed engineering records of what lies beneath Belmont's streets. These records show where the pipes and manholes are and the elevations of the top and bottom of each manhole to within a hundredth of a foot.

The route up Hittinger Street to Concord Avenue and down Concord to near the town center is remarkable because the pipes had to go continuously uphill the whole way. The trench had to be over 28 feet deep at the top of Hittinger Street.

Belmont's sewers of 1895 connected to the Metropolitan Sewerage System at the Cambridge line just south of the railroad tracks, where the present connection is made to the MWRA system. This spot is just north of Blair Pond and east of Crate Escape, the dog day care business. If you poke around there you can find a manhole cover identified as "Met S." The Metropolitan Sewerage System became the Metropolitan District Commission, which became the Division of Conservation and Recreation in 2007. The MWRA, established in 1984, got the sewers and water supply.

The 1895 sewer ran west on Hittinger Street, then up Trowbridge street to Concord Avenue, then to the center of town on Concord Avenue. It ran parallel to and south of the railroad tracks to C Street, Grant Avenue, Waverley Street, Trapelo Road, White Street, Moraine Street, and Agassiz Avenue and to Mill Street past McLean Hospital.

The route up Hittinger Street to Concord Avenue and down Concord Avenue to near the town center is remarkable because the pipes had to go continuously uphill the whole way. The trench had to be over 28 feet deep at the top of

Hittinger Street. A trench that deep is difficult and dangerous to build. Alternate routes were not available or were unattractive; Clay Pit Pond was the active Boston Brick Company, and Channing Road and the Winn Brook neighborhood were uninhabited swamp and farmland.

From 1895 onwards, building Belmont's sanitary sewers continued without pause. Fortunately, Belmont never built combined sewers.

1920s: Cambridge starts building separate storm and sanitary sewers

1968: Deer Island begins primary sewage treatment

1972: National Clean Water Act passed

Primary sewage treatment uses mechanical means to separate components of sewage that are solid and large enough to be caught in a screen, or which float or sink. The sewage components that are not caught by these simple separations get discharged into the receiving waters unless there is secondary treatment. The Clean Water Act requires that all sewage discharged to oceans be given secondary treatment. Secondary treatment which uses biological digesters to make sewage less dangerous.

1972: Belmont inspects sewers going through Winn Brook for infiltration using a TV camera

The TV inspection on sections of Dean Street, Channing Road, and Brighton Street was an attempt to find the problem that caused sewer overflows in Winn Brook basements during heavy rains. The hope was that the inspections would find damaged pipes. Of course, the inspections did not solve the problem. Most of Belmont's sewage flows through this section of town, and inflow and infiltration anywhere upstream contributes to the problem. Hoping to find the root cause of the problem here was incredibly optimistic.

1978: Massachusetts Title 5—outhouses not permitted

ca. 1983: Belmont begins using plastic pipe for sanitary sewers

1984: Court ruling mandates Boston Harbor sewage cleanup

1989: Deer Island stops discharging scum (floating pollutants)

1995: New, better primary treatment at Deer Island

1997: Secondary treatment begins at Deer Island

1999: Belmont ordered to protect streams from leaking sewage

2000: Deer Island outfall tunnel carries effluent 10 miles east

One summer day in the 1970s I sailed on a small boat from Quincy to Marblehead. The water had floating on it an unrelenting, disgusting surface of dirt that looked something like greasy sawdust. Everyone knew it was sewage. The water in Boston Harbor is no longer covered with sewage scum, and the sewage charges on our water bills are much higher.

2008: Town Meeting authorizes \$11.6 million for sewer work

2009: Juniper Road residents go from private septic to public sewer

But was Belmont inspecting sewers in 1935? I learned from Glenn Clancy, head of community development, that the current ordinance dates from 1981. Inspections predated that ordinance, as far as Glenn knows, and there is no grandfathering.

I also talked to Dick Betts, who was town engineer from 1973 to 1987. He believes that Belmont prohibited placing water other than used domestic water in sanitary sewers from the start, and this prohibition was enforced with inspection. This is reassuring, and talking to Dick Betts is about as close as you can get to an original source.

Over time, the town has found and corrected illegal rain gutter downspout connections. Downspout connections can be found with a smoke test; foundation drain problems are not so easily identified. Sewer problems are difficult and expensive to solve.

Sumner Brown is a Director of the Belmont Citizens Forum.

Environmental Events

"Powering the Future" film & discussion **Friday, January 22, 7 p.m., and Friday, February 5, 7 p.m.**

This two-part series on energy use features the film "Powering the Future" Friday, January 22, and a panel discussion on February 5. Listen to speakers and engage in discussion about tomorrow's energy. Sponsored by the League of Women Voters of Concord-Carlisle, Concord Climate Action Network, Carlisle Climate Action and Concord-Carlisle Adult & Community Education. Information: Green_Initiatives@lwvcc.com, 978-369-3842. *January 22 film at Alcott School 93 Laurel Street, Concord; February 5 panel discussion at Harvey Wheeler Community Center, 1276 Main Street, West Concord.*

Sustainable Belmont Potluck **Sunday, January 24, 2-7 p.m.**

Come skate at the Belmont Hill School rink from 2-3:30 p.m., then bring your families and friends for a potluck supper from 4-7 p.m. Please RSVP for location to sustainablebelmont@gmail.com or www.sustainablebelmont.net. *Belmont Hill School, Prospect Street, Belmont.*

Arlington Land Trust 10th Anniversary Annual Meeting

Tuesday, January 26, 7-9 p.m.

Keynote speaker Carol Kowalski, Arlington's director of Planning and Community Development, will give a talk titled "Looking Back and Looking Forward: The 10th Anniversary of the Arlington Land Trust and A New Era of Town Planning and

Belmont Citizens Forum 10th Anniversary Celebration

Sunday, January 31

Look for your invitation in the mail or e-mail info@belmontcitizensforum.org if you'd like to attend.

Development." Information: www.arlingtonland-trust.org. *Senior Center, 27 Maple Street, Arlington.*

Winter Investigations in Lusitania Wet Meadow

Sunday, January 31, 1-3 p.m.

Did you ever wonder what the frogs, birds, chipmunks, beetles, field mice, wasps, and trees are doing as you look out the window this season? Join the Friends of Fresh Pond Reservation for this activity-based outdoor program to discover how living things are taking care of their need for food, water, shelter and safety during these winter months. Children ages 8 and up are welcome in the company of an adult. Registration required; see friendsoffreshpond.org, 617-349-6489, friendsoffreshpond@yahoo.com. *Meeting place provided at registration.*

Sustainable Belmont Meeting

Wednesday, February 3, 7-9 p.m.

Sustainable Belmont invites all interested residents to the group's monthly meeting. Information: sustainablebelmont@gmail.com, www.sustainablebelmont.net. *Assembly Room at the Belmont Public Library, 330 Concord Avenue, Belmont.*

Design an Edible Native Garden

Thursday, February 11, 9:30-11:30 a.m.

Most of our daily foods are non-native introductions produced in mass quantities using fertilizers and pesticides. What are our native edibles and how can we utilize them in the garden? Horticulturist Kristin DeSouza illustrates the design and installation process of the new edible native plant garden at Garden in the Woods. Kristin weaves together historical plant uses, design approaches, horticultural techniques, and culinary applications. Fee \$20 New England Wild Flower Society members, \$25 others. Information: www.NEWFs.org 508-877-7630. *Garden in the Woods, 180 Hemenway Road, Framingham, MA.*

Small-Scale Agriculture - The Winter Months

Tuesday, February 23, 7-9 p.m.

Winter is the best time to plan your growing season. This session will cover garden locations, space needed, what to grow, varieties to plant, and

other issues to ensure the best outcome for your efforts. Discuss seed and plant catalogs, learn all the tricks of the trade for seed starting and growing, and get ideas for general vegetable garden planning. Fee \$15 Mass Audubon members, \$20 nonmembers Register at drumlinfarm@massaudubon.org or 781-259-2200. Concord-Carlisle High School, 500 Walden Street, Concord.

Audubon members, \$12 nonmembers. Register at drumlinfarm@massaudubon.org or 781-259-2200. Directions will be sent to registrants.

**Living More Sustainably: Food & Shelter
Saturday, Feb 27, noon-2 p.m.**

Learn about living more sustainably by growing your own food and reducing your winter heating use. This program is an on-site visit to an attached heat-storing greenhouse with an automatic gray-water irrigation system in Concord, MA. The instructor will also cover ways to improve a building's thermal effectiveness through the use of movable insulating shutters, airlock entryways, and passive and hybrid solar architecture. Fee \$10 Mass



ANN COIT SIFNEOS

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 \$4,000 to publish each issue of our newsletter. Please donate for this purpose:

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

Name _____

Address _____

Phone/E-mail _____

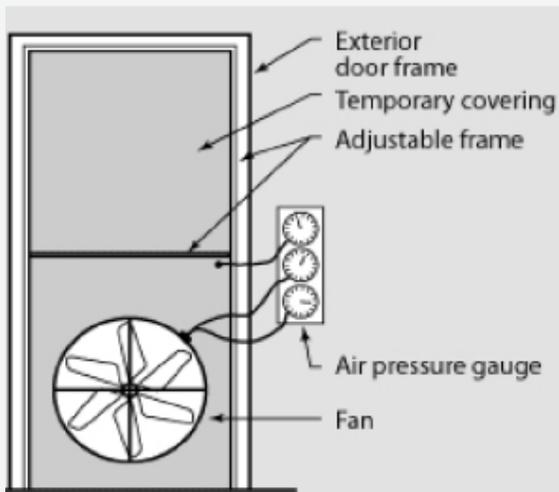
If you have questions, please call (617) 484-1844. The Belmont Citizens Forum is a nonprofit 501(c)(3) organization. Your donation is deductible from federal taxes to the full extent provided by law.

Make checks payable to **Belmont Citizens Forum** and mail to Belmont Citizens Forum, P.O. Box 609, Belmont MA 02478.

Thank you.

January/February 2010

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