



Belmont Citizens Forum

Methane is more toxic than CO₂

80 Natural Gas Leaks in Belmont

by John DiCocco

“If the fumes were purple, we’d have action a lot quicker. Because we can’t see them, we don’t realize they’re there.” So said Ania Camargo, a manager at Case Associates and a volunteer for Mothers Out Front, describing the plumes of methane gas leaking into the air all around Greater Boston, including 80 spots in Belmont.

“Gas companies began adding a ‘rotten egg’ smell decades ago, because methane is colorless

and odorless,” says Camargo. “But apparently even that bad smell isn’t enough to spur corrective action. This is far more serious than people realize.”

She was addressing an April 21 meeting of concerned citizens from Belmont and surrounding towns sponsored by Mothers Out Front (MOF), whose mission is “Mobilizing for a Livable Climate.” “We’re appalled and concerned



A map of Belmont from the nonprofit Home Energy Efficiency Team shows recent and current leaks of natural gas from rotting or damaged pipes or faulty connections. To see this in a color, interactive map, go to: <http://bit.ly/1X92hHi>

about what we're doing as a society and what we're leaving behind for our children," Camargo added.

But isn't gas good?

But natural gas is the *good* fuel, right?

One of the major goals of MOF, a group with chapters in Massachusetts (including Belmont), New York, and Virginia, is to change that perception.

Unburned natural gas is mostly methane. According to a 2013 International Panel on Climate Change report, methane, during its first

20 years in the atmosphere, is 86% more potent than CO₂ in trapping the heat that causes global warming. Yes, burning natural gas to cook or heat your home is better than burning oil or coal (it emits less CO₂), but the unburned, leaking methane is adding to a poisonous environment at an alarming rate. According to the natural gas industry itself, "a full 90% of all natural gas removed from the earth gets to the end user."

Where is the *other* 10%?

Thus: up to 10% is unaccounted for. While some of that is used to power compressor stations, the rest is leaking into the atmosphere and the soil. Dead or dying trees are one clue that gas pipes below may be leaking into the soil.

Leakage occurs at the source of extraction, along transmission pipes, and especially from aging underground pipes in urban and rural areas. National Grid, in a meeting with the Belmont Mothers Out Front chapter, stated that roughly half of Belmont's natural gas pipes are cast iron or unprotected steel and were therefore leak-prone. The utility also said that most leaks occur—or expand—during the winter when frost heaves damage the aging pipes.

If natural gas/methane leaked at only 3%, it would tie with coal in a race for atmospheric toxicity. At 10%, it wins the (tarnished) gold medal by a mile.

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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.

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**...not only are we paying
for their "lost" gas,
we're subsidizing our own
poisoning.**

Adding injury to injury.

It gets worse: we consumers pay for that lost methane. The gas companies charge for 100% of the amount they send by incorporating the unaccounted-for gas into customer rates. The recipients pay for that 100% but receive only 90%. So not only are we paying for their losses, we're subsidizing our own poisoning. Camargo said, "If utilities had to pay for the losses, they would be out repairing the top ten percent of the largest leaks immediately." MOF seeks to get the biggest leaks repaired promptly, change the 100%-for-90% billing practice, fight projects

such as the Keystone Pipelines and any new fracking and fossil fuel infrastructure, and to promote alternative energies.

Legislation on Beacon Hill.

Two bills currently in the Massachusetts State House address parts of the issue. House bill 2870 seeks to protect consumers from paying for lost and “unaccounted-for” gas and electricity. House bill 2871 (and a similar Senate bill, S1767) mandates that gas companies check for gas leaks when roads with gas pipes are dug up, and fix any leaks found within 12 months. (The bills are backed by 32 cities and towns, but Belmont has not yet signed on.)

State Senator for Massachusetts’s 2nd Suffolk and Middlesex District Will Brownsberger, a Belmont resident and former selectman, said, “Hopefully we’ll be able to make progress on gas leaks as part of the omnibus energy bill. Lots of Members are in favor of moving forward. We need to give the gas companies reasons—financial incentives—to act faster on repairing the leaks.”



Ania Camargo at Belmont Public Library.

(Home Energy Efficiency Team), a Cambridge-based nonprofit organization—so far.

The majority of leaks in Belmont may or may not pose an imminent danger of explosion—but all of them do, in fact, contribute to a significant reduction in air quality. And, although not caused by leaky pipes buried underground, Ohlin Bakery’s recent sudden gas-induced explosion serves as a reminder that natural gas disasters can and do happen in Belmont.

Why aren’t more gas leaks repaired?

“There’s not a sense of urgency,” said Camargo as she walked the group through the three Massachusetts classifications of leaks:

- Grade 1. A leak that represents an existing or probable hazard to persons or property. Such a leak requires repair and continuous action until the conditions are no longer hazardous.

- Grade 2. A leak that is recognized as nonhazardous to persons or property at the time of detection, but justifies scheduled repair based on probable future hazard. Such leaks shall be repaired or cleared within 1 calendar year but no later than 15 months.

- Grade 3. A leak that is recognized as nonhazardous at the time of detection and can be reasonably expected to remain nonhazardous. Such leaks shall be reevaluated during the next scheduled survey, or within 15 months of the date last evaluated, whichever occurs first, until the leak is eliminated or main replaced.

“Probable future hazard? . . .”

There is no mention of the size/volume difference between any grade of leak, location (such as “within 30 feet of a school”) or any definition of “immediate” repair in Grade 1. Grade 2 is a “probable future hazard,” but allows 12 to 15 months for repair. Grade 3 “is recognized as nonhazardous...” even though it’s methane, leaking into the air.

Stopping methane leaks around the nation would do more to slow global warming than almost anything else.

What’s the danger?

Boston University Professor of Earth and Environment Nathan Phillips has been studying such leaks around Greater Boston for several years. He estimates “there are about 3.9 leaks per mile throughout Greater Boston.” He and his team have mapped them. In Belmont, 80 unrepaired leaks have been identified by HEET

Town can't force action.

Dan Fitzgibbon, DPW Permit Coordinator for Belmont, said, "We don't get involved with the leaks directly. National Grid identifies and classifies them and if they're rated "1," they fix them immediately. We issue permits for road repairs and installations and underground repairs of pipes. In my six years here, we haven't lost a house to an explosion, but we certainly want the leaks all cleaned up as soon as they can." He said his office did not have the authority to override the gas companies' classifications of leaks or to prioritize their actions.

Clearly, there's work to be done.

According to Camargo, stopping methane leaks around the nation alone would do more to slow global warming than almost anything else.

The recent cancellation of the Kinder Morgan pipeline project in New Hampshire and western Massachusetts was due to stiff political and consumer opposition and poor customer support. The burning of all fossil fuels contributes to the degradation of the atmosphere and the trapping of greenhouse gases that accelerate climate change. There is no clean fossil fuel.

To learn more: H4222 <http://1.usa.gov/1UzUQ>
<https://malegislature.gov/Bills/189/House/H2870>
<https://malegislature.gov/Bills/189/House/H2871>

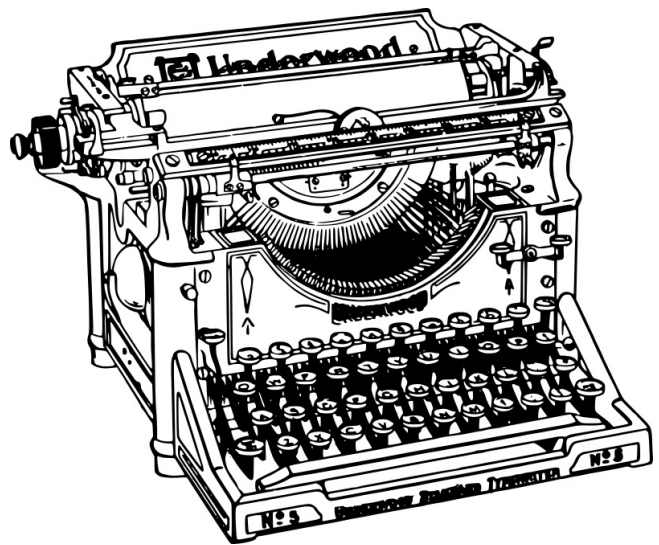
STARS OF THIS ISSUE.

Many thanks to this issue's contributing writers, copy editors, proofreaders, photographers, world-class mailing team, conjurers, curmudgeons, and learned skeptics, without whom this Newsletter would never exist:

Sue Bass, David Chase, Arline Davis, John Dieckmann, Radha Iyengar, Virginia Jordan, Anne-Marie Lambert, Taz Loomans, Jenny Marusiak, Evanthia Malliris, Scott Miller, My Mother, My Wife, Kim Slack, Ken Stalberg, Vince Stanton, and Roger Wrubel.

A special thank you to Editor Emerita Meg Muckenhoupt for all the support and guidance in our editorial transition. You all rock.

Thank you.—JDC



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Federal Tax Credit of 30% Available.

'Belmont Goes Solar' Sails Past Initial Goal. Campaign Extended Until June 30.

By John DiCocco

In our November-December 2015 issue, we ran a story by Roger Wrubel, "The Sun Rises for Belmont Solar Customers." (Wrubel is the director of Mass Audubon's Habitat Education Center and Wildlife Sanctuary, and lives in Belmont.) His story focused on the long-running issues that have hindered solar development in Belmont, including policies and objections raised by Belmont Light. He provided information on the benefits of solar and listed several vendors. He also introduced the Belmont Goes Solar campaign to our readers. This is an update.

Let the sun shine in.

Belmont Goes Solar (BGS), the volunteer group helping to implement the community solarization campaign launched last fall, has announced there are more than 172 solar panel installations on Belmont homes as of this writing. According to Roy Epstein, who chaired Belmont's Temporary Net Metering Working Advisory Group (WG), along with Henry D. Jacoby, Stephen Klionsky, and alternate members Tony Barnes and Robert Gallant, "this is one of the most successful programs in Massachusetts."

Speed and light.

It was a campaign that moved extremely fast. The Belmont Municipal Light Board (Light Board), which oversees Belmont Light Department, approved new rates for residential solar hosts in September 2015 and asked the Belmont Energy Committee to initiate the campaign. Several members of the Energy Committee, working with citizen volunteers, Belmont Light, and a consultant, designed a group purchase program where a vendor would bid to offer a discount in return for getting an expected block of business from Belmont property owners. The organizers knew similar programs were successful in several local towns including Arlington, Concord, Wellesley, and Woburn. Several vendors competed and Direct

Energy Solar (based in Hopkinton) won the installation contract.

The BGS campaign was launched in January 2016. Through many information sessions, including open houses by current users, and individual consultations, the installer worked directly with BGS to sign on customers.

"We needed three critical pieces," Epstein said. "A workable set of rates, a vendor who offered a good discount, and citizens who understood that the investment was economically advantageous and good for the environment. It all fell into place."

The federal investment tax credit
. . . reduces the cost of a solar
installation by up to 30%.

Another incentive to buyers is the federal investment tax credit that today reduces the cost of a solar installation by up to 30%. (This incentive is in place until 2021.)

Power to the people.

The program has been so successful that the Light Board had to waive the initial limit of 1,000 kW for total solar capacity recommended by the WG. (Belmont Light desired a lower cap on customer-generated solar.) The limit will be examined again by the Light Board but only after the current campaign ends. As of the beginning of May, sales through the BGS program resulted in more than one megawatt of rooftop solar capacity in the town. Residential installations in Belmont average about five kilowatts but they range from under two to more than ten kilowatts.

Belmont Light serves about 10,000 homes, buying and distributing power from outside sources. The lines into Belmont arrive via the electric substation behind the Alewife T station. Will solar put Belmont Light out of business?

Not anytime soon. Many homes don't have optimal configuration for panels; others don't want them or can't afford the upfront cost.

Solar does not (yet) take you off the grid. When your solar panels are generating electricity you can avoid purchasing some or all of your power from BL. But you still buy power from them when you are not generating enough electricity, for example, on a cloudy day, or at night when the array does not produce any electricity. Even with solar, homes will still need to be connected to the BL system until technology is developed that allows much more efficient and cost-effective storage of surplus power for use during the evening and cloudy days.

Solar does not (yet) take you off the grid.

At some point, with the storage problem solved and a large enough solar array, consumers may be able to use their own electricity 24/7, disconnecting from the power grid, so they can power an electric car overnight, watch a 96-inch TV guilt-free, and cook, heat, and air condition

their home all for free (after paying for all of the necessary equipment). But not quite yet.

Show us the money.

As Wrubel's November article pointed out, the decrease in your electric bill with solar "depends on the proportion of solar energy your home consumes in real time, as it is generated.

Thus most customers are selling more energy to BL than they are generating and using...

The percentage will vary from household to household, depending on factors such as the size of the solar array and daily timing of a household's electricity demand. In general, however, a typical single family home uses about 35% to 40% of a typical installed array in real time, with the remainder flowing out to the grid."

Thus most customers are selling more energy to BL than they are generating and using immediately onsite. The retail rate paid by Belmont consumers is now about 19 cents per



JOHN DICOCO

Just one of the many recent solar installations around Belmont.

kilowatt-hour. Currently, consumers sell surplus generation from their solar arrays back to BL at 11 cents/kW (the buy-back rate). The difference pays for use of the distribution system (the wires within Belmont maintained by Belmont Light). On December 31, 2017, the buy-back rate will be adjusted by the Light Board based on changes in the generation cost of energy.

State money too.

Another financial incentive to install solar is “Solar Renewable Energy Credits (SRECs). A solar host receives one SREC for every megawatt-hour (1000 kWh) of electricity their solar system produces. The credits are then sold to the profit-making utilities, such as Eversource and National Grid. The financial benefit of SRECs to the solar host is substantial and makes the payback time for a typical Belmont solar array from five to eight years. After that, your sun power is not only free, it’s generating a profit for you.

A typical Belmont home today uses about 650 kWh per month, for a cost of about \$113 per month.

According to the US Energy Information Administration, in 2014, the average annual electricity consumption for a US residential utility customer was 10,932 kWh, an average of 911 kWh per month. The 2014 average in Massachusetts was 615 kWh per month at 17.39 cents per kWh (an average monthly bill of \$106.94). A typical Belmont home today uses about 650 kWh per month, or about \$113 per month.

14-17% return on investment.

The WG report estimated that the rate of return to a host on a solar investment in Belmont should be in the range of about 14% to 17%. This reflects the 11-cent buyback price, the SRECs, and the federal and state tax credits for installing a solar array.

Bruce Wohl, writing in the February 25, 2016, issue of *Commonwealth* magazine (“Listen to what’s not said about solar”), along with many other excellent points, listed some of the larger economic benefits of solar for the nation:

“Solar installations reduce the need for new power plants, avoid the emissions from the

plants, and often provide energy at peak demand periods. It’s not easy to calculate the economic value of these benefits, but the Acadia Center, an environmental group, took a stab last year. The group estimated that the economic value of solar to the region’s power grid ranges from 22 cents a kWh to 26 cents a kWh, and the environmental benefit is worth 6.7 cents a kWh.”

Is your home a good candidate?

The output of a solar array is affected by numerous factors including the available roof area, orientation of the home, and shade from trees and neighboring structures. A south-, southeast-, or southwest-facing roof is best for a solar installation (to maximize sun exposure on your roof).



JOHN DICOCO

How to sign up (and help the town).

The campaign was slated to end on April 30, but Belmont Goes Solar has extended it until June 30. The installer, Direct Energy Solar, has added a new incentive. If Belmont reaches a total of 200 contracts signed by June 30, the company will cover a three-year lease for an electric-powered vehicle for the town government, one more step in the greening of Belmont. The town has expressed an interest in obtaining an electric van for its Department of Public Works. Belmont Light would match that grant by providing an electric charging station that can be used not only by the town’s new vehicle, but by community members as well.

Learn more at BelmontGoesSolar.org

Intergenerational Walking Path gets \$228,350

Clay Pit Pond Walking Path Gets Funded

By Jim Roth, Mary Trudeau, and Margaret Velie

On May 2, the Belmont Community Preservation Committee (CPC) approved the application by the Belmont Conservation Commission for \$228,350 for the construction of the Intergenerational Walking Path and its entrances. Town Meeting approved the funds on May 4.

Golf is often described as “a good walk spoiled.” Those traversing the often muddy path around Clay Pit Pond in front of Belmont High School echo a similar sentiment.

Recreational walkers, joggers, dog walkers, cross-country skiers, and the high school cross-country teams all use the well-worn earthen trail, even though it is often impassible due to poor drainage or flooding from Clay Pit Pond.

In 2013, the town Conservation Commission initiated a plan to change that experience with a proposal for the Intergenerational Walking Path at Clay Pit Pond. The commission applied for and received a \$20,000 grant from the Belmont Community Preservation Act (BCPA) to hire landscape architect BETA Group to create a master plan to design a safe and fully handicap-accessible path system through Clay Pit Park.

The mission.

According to the commission, “The improved drainage and footing of the path is an environmentally sensitive improvement, designed to reduce sediment loading into the pond, improving the condition of the water body.” Loring Underwood, a Belmont resident and noted landscape architect of the early 20th century, designed the original park. The commission sought to restore Loring’s vision, enhance Belmont’s recreational opportunities, and vastly improve a deteriorating natural asset. The rehabilitation of the park, and development of the fully accessible path system, will provide a setting for both the veterans’ memorials and intergenerational educational opportunities. The myriad of associated projects have the potential to develop a uniquely Belmont landmark, in a visually important location.”

Citizen input.

BETA Group and the commission solicited input from various stakeholders about the values and important features associated with this park. In the spring of 2014, BETA held an on-site public design meeting to gather community preferences.

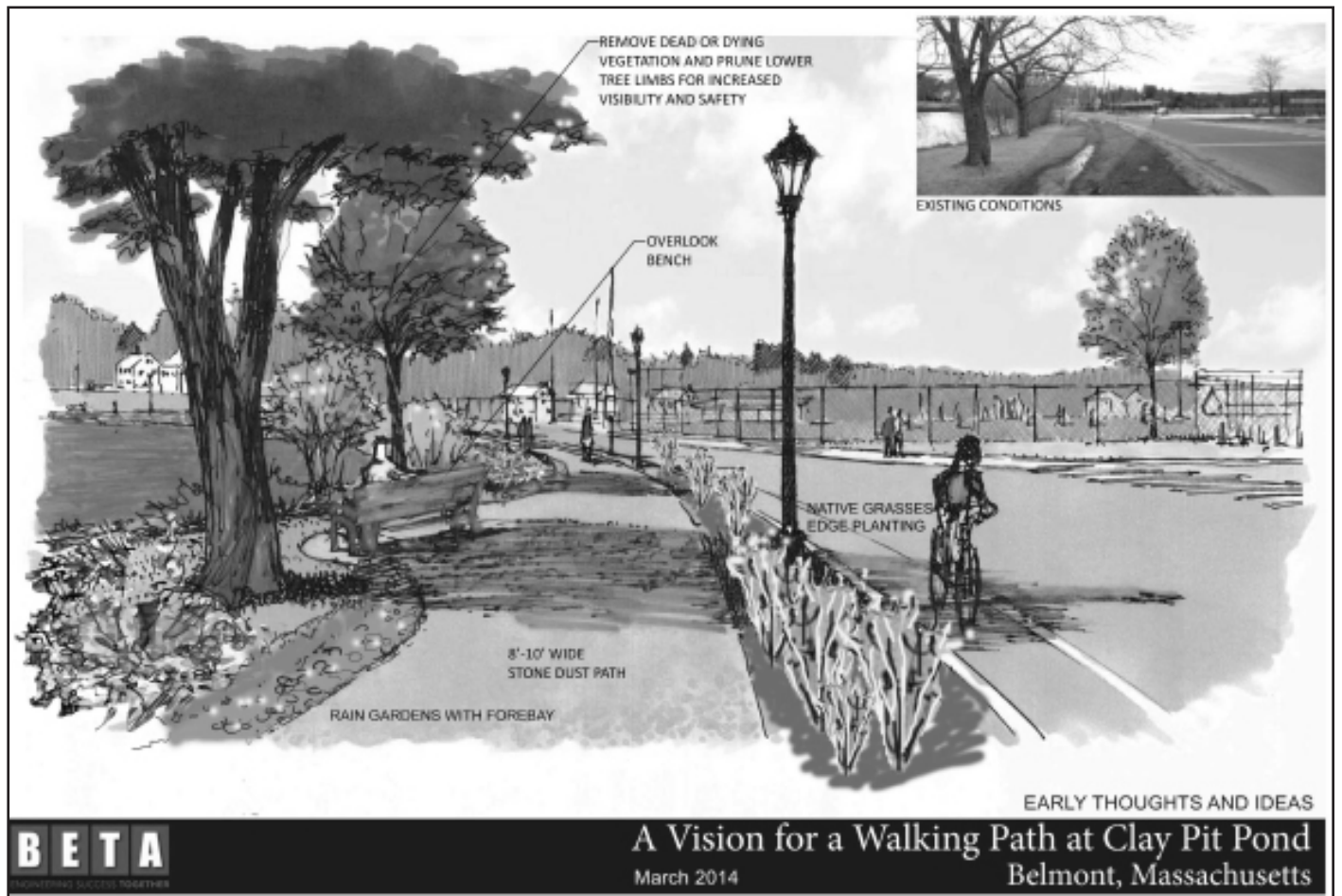
The community preferences included a formalized path, paved with permeable material and drainage; benches and seating along the path; an enhanced veterans memorial area including locations for new memorials, a gathering circle, and plaques; vegetation clusters to deter geese; kiosks; selective clearing to create access and views to the pond from Common Street; and an outdoor classroom area. The vision for the paths expressed by the community included: making them handicap accessible; permeable; runnable by high school teams; and in keeping with the historic, natural character of the park. Another goal was to open up views of the high school from Concord Avenue by clearing away much of the existing vegetation. BETA Group presented conceptual designs at a community meeting in the fall of 2014, and presented the draft master plan at a community meeting in June, 2015. The finished master plan design was delivered later that summer.

The final master plan breaks the project into more than a dozen discrete projects. . .

The master plan.

Clay Pit Pond occupies 13.5 acres, bounded by Belmont High School to the north, Hittinger Street to the east, and acres of parkland on the south and west.

The final master plan breaks the project into more than a dozen discrete projects that can be undertaken separately. Some will require the town or outside contractors to construct, but others could be undertaken by volunteer groups,



Artist's conception of the Intergenerational Walking Path looking toward Concord Avenue with the high school baseball field on the right.

veterans, and scout troops.

Projects include: the public zone and school zone of the path; the veterans memorial area; the arboretum and Ruth Ippen Tree Walk; benches, bike racks, picnic tables, and trash cans; shore-line restoration; vista clearing; control of non-native and invasive vegetation; and replanting of historically appropriate vegetation within defined planting areas. For each project, BETA describes the community intent and existing conditions; provides a layout of the proposed design, including materials and specifications; and often provides a cost estimate.

Public Zone funded for \$228,350.

The underpinning of the design is the Intergenerational Walking Path. In 2015, the commission submitted an application for \$228,350 to the Belmont CPA to fund the construction of the entire Intergenerational Walking Path and its entrances.

One goal for the intergenerational walking path was to open up views of BHS from Concord Avenue by clearing away much of the existing vegetation. Another concern would be that building construction work on the BHS side of the pond could delay construction of the path, or damage it (if already constructed). Thus the scope of the path project was revised to include only the public zone of the path—approximately 2500 linear feet running along the south side of the pond between Hittinger Street and the western school driveway exit at Concord Avenue, as well as the eastern pedestrian entrance paths to the park.

The grant will allow for the construction of a well-drained permeable path, with full handicap accessibility along the outer perimeter of the pond between Hittinger Street and the school egress drive. While the path as currently proposed does not fully circumnavigate the pond, it is likely that the high school portion

of the pathway will be constructed. The commission believes that the future work could be funded through a second CPA grant, or included in the budget for the high school.

History of the clay pit.

Although Clay Pit Park is not managed by the Belmont Conservation Commission, the commission remains actively involved with its protection and preservation. Under the Massachusetts Wetlands Protection Act, the commission is charged with regulating all activity that occurs within 100 feet of the pond. The commission has also sponsored and participated in volunteer cleanups, shoreline restoration (including a major restoration after the oil spill at Burbank), tree planting, and removal of invasive species. The commission has often heard from residents and neighbors about the worn and muddy condition of the path around the pond.

The parklands surrounding Clay Pit Pond represent the historical past of Belmont. A former brickyard of local renown, the town has owned the property since the late 1920s when the clay was exhausted at the site and the brickyard closed. The town realized early on the value of the land as an important parkland in Belmont. Landscape architect Loring Underwood, of the Underwood and Caldwell firm, created a plan for the development of the (then) thirty-eight acre parcel. The pond of today was created when Underwood diverted Wellington Brook into the pit that remained from the extraction of the clay. By filling a portion of the pit and reshaping the water body, he resolved the changes in grade between the pond and Concord Avenue, creating the gently graded parkland that remains today. His original plan included a pathway around the perimeter of the pond, as well as a variety of gardens and architectural features.

A child of the Depression.

Much of the grading work on Underwood's plan was done in the late 1930s as a Works Progress Administration project, but the park was not completed until the early 1960s. Until the late 1950s, portions of the site were used for dumping municipal debris. A local rumor persists that a steam shovel remains at the bottom of the pond.

The high school was built on the site in 1971.

The plan for the path follows the existing path and Underwood's design except for areas near Hittinger and Underwood Streets that have required relocation due to drainage and flooding, and is routed slightly further from the pond, outside of the flood zone.

Path dimensions.

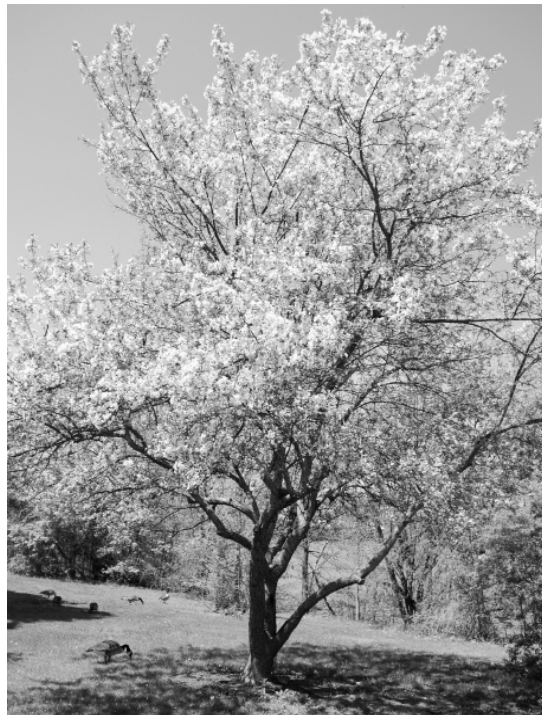
The proposed path is 6-feet to 8-feet wide and is composed of 3-inch deep aggregate over 6 inches of coarser aggregate. To resolve issues with poor drainage, the path surface slopes slightly away from the pond, and portions of the path have subdrains installed along the edge of the path.

Possible future projects contemplated in the design plans include small rain gardens where puddles accumulate now.

The path will include a subtle tribute to the brick-making history of the property. BETA Design overlaid the original dimensions of the clay pit on the site, and at every location where the proposed walking path intersects the edge of the

original clay pit, a band of brick pavers will be inlaid into the crushed-stone bedding of the path. This will create a visual reminder of the historic use of the site.

Jim Roth is chair, Belmont Conservation Commission, and Peg Velie is a member of the commission. Mary Trudeau is conservation agent for Belmont.



Spring finally blossomed at the pond.

Electric Vehicles: What You Need To Know

by Kim Slack

At a recent meeting of Sustainable Belmont, Kim Slack was part of a panel discussing the benefits of electric vehicles (EVs). The following is his summary of that discussion.



STOCK IMAGE

Of the many reasons to consider an all-electric car, two key factors are low operating costs and the health of the planet.

Low operating costs.

Electric vehicles (EVs) are more energy-efficient than gas-powered automobiles. Electric cars can travel up to 115 miles on the energy contained in a gallon of gas, according to the Environmental Protection Agency (EPA) miles-per-gallon-equivalent measure (MPGe), which is the average distance traveled per unit of energy consumed.

I did a recent personal study. Driving my Nissan Leaf electric vehicle for 1,000 miles saved me more than \$30 over driving our 30 mpg gas-powered Honda Fit. This was based on gas priced at \$1.90/gallon, and electricity at \$0.19/kilowatt-hour (kWh), and the cost of gas and oil changes during that 1,000-mile test period. Unless gas prices dip below \$1.14 and stay there for months, the electric vehicle is more economical than a gas car. This comparison also includes gas and oil changes, but omits longer-

term maintenance costs associated with gas cars such as timing belts, valve adjustments, transmission fluid, spark plugs, air filters, and muffler and exhaust pipes. Insurance costs are comparable.

Emissions.

Comparing the manufacture, operation, and disposal of electric cars, the Union of Concerned Scientists estimates that EVs on average produce 50% less greenhouse gases than similarly sized gas-powered vehicles, over a lifespan of 162,000 miles. This assumes that, as is the case in New England, most electricity used to charge the battery is not produced with coal. Charging directly with rooftop solar reduces emissions even more.

Health of the planet.

Burning fossil fuels such as gasoline contributes to global warming. Unfortunately, the carbon dioxide that is released from our tailpipes stays in our atmosphere for hundreds of

years—so our grandchildren and their children will have to adapt to a significantly different climate, one that scientists believe will have scarcer food and more extreme weather.

The US Department of Energy estimates the transportation sector generates 40% of atmospheric greenhouse gases. Electric vehicles offer a way to reduce that and are readily available on the market. Meanwhile, government and industry are making investments to encourage more EVs, from tax credits and charging station infrastructure to automotive innovation.

Not all electric vehicles are all-electric.

Some electric cars rely on gas engines for backup, some don't. All-electric cars (like the Nissan Leaf and Tesla) use a large battery pack, typically 24 kWh-plus capacity. They have a range of 65 to 75 miles before recharging, depending on driving conditions. Batteries recharge in 12 hours or more on a 110-volt outlet, or about half that time on a 240-volt outlet. For daily commutes within the range of the battery, or other predictable driving routines, these cars can work well as second cars. Or the EV can be your only car if you turn to car-sharing services and rentals for longer trips.

Plug-in hybrids (like the Chevy Volt) use a combination of battery and gas power, first running on electricity until the battery is depleted, then switching to gas backup. The larger the battery capacity, the more emission-free driving time. For instance, the Volt has an 18.4 kWh capacity battery, about three-quarters the size of all-electric vehicles. On the other hand, the 4.4 kWh plug-in Toyota Prius can go 15 to 20 miles on battery alone before switching to its gas engine. These cars are good where driving patterns are unpredictable, or for accommodating the occasional long drive.

Other hybrids.

Non-plug-in hybrids (including other models of the Prius) use electric and gas motors in tandem to reduce gas consumption. The primary motor is gas, but it idles on electric power. Battery capacity for the regular Prius is 1.3 kWh. Such cars reduce emissions less than all-electric or plug-in vehicles do, but at highway speeds of 50 mph are better than most gas-only vehicles.

Suffering from range anxiety?

Because battery size and charging times limit the distance the car can travel, adjusting to these constraints takes a bit of effort. One way to manage the transition prior to purchase is to record your daily routine distances and add an extra 30% buffer. Then match your normal range to the vehicle options. Most EVs warn drivers when the battery is low, and will show nearby charging stations in their navigation systems. Belmont citizens on average drive 20 miles a day. An electric vehicle would not disrupt most of our driving habits, especially as a second vehicle.

Charging.

Scott Miller, a Belmont resident and one of the panelists at the Sustainable Belmont event, is eastern region vice president of sales of ChargePoint, a national firm that installs and manages charging stations.

According to Miller, charging times vary depending on the car and the type of connection. Many cars today can charge in less than 6 hours, and on some connections in as little as 30 minutes. Ordinary household 110-volt outlets can charge a car in 12 to 16 hours. Adding a faster 240-volt home charging station may cost \$1,000 to \$2,000, depending on the distance from your garage or parking spot to your electrical panel.

Purchase price.

Retail prices for new EVs cover a large span, depending on the model. The small Mitsubishi i-MiEV lists for about \$24,000, and a BMW i3 for \$44,000. The Tesla S goes for over \$70,000, but cheaper models are on the drawing boards. Tax credits for buying a new EV in 2016 are a \$7,500 federal credit (for batteries with 5 kWh capacity or more) and \$2,500 Massachusetts credit (on most EV models). Check with the IRS and Massachusetts Department of Revenue about specific conditions before buying.

Because gas prices are currently low, the demand for efficient models is less, depressing the cost of electric vehicles and presenting bargains for consumers, especially on low-mileage used vehicles. At this writing, three-year-old Leafs with 20,000 miles or less list for \$10,000-\$12,000. Other models to check are the Ford Focus EV, Ford C-Max (plug-in), and Chevy Volt.



JOHN DICOCO

Kim Slack lives in Belmont and is a member of Sustainable Belmont. In addition to driving an EV, he commutes on his bicycle. He recently installed solar panels to further reduce his reliance on the grid.

EV charging stations at the Alewife T station garage accommodate multiple cars.

How long do batteries last?

Nissan warrants their batteries for seven years, typical for other vehicles as well. New Leaf batteries cost about \$4,000. Discarded batteries are re-used in less intense environments and can ultimately be recycled, recovering most of their elements for other uses.

Business benefits.

ChargePoint’s Miller noted that strategically placed charging stations could help attract drivers to business districts. The batteries charge while the drivers shop or dine. Individual charging units can be free or accept payments, and may have set time limits. Lexington Center has a few; so does the Watertown Arsenal Mall. Across the region, some employers provide charging stations, as do some MBTA parking garages, including Alewife Station. Miller said hundreds of charging stations are becoming available in eastern Massachusetts. He added that the state currently covers half the cost of the station, to encourage both private and municipal providers.

The future is electric.

Electric vehicles represent the immediate future in personal transportation. They reduce emissions, have low operating costs, and are fun to drive. They’re perfect for the distances most Belmontonians drive. Kick gas, and go electric.

Lone Tree Hill Volunteer Day

On May 14, volunteers gave up a Saturday to help in the annual clean-up of the Lone Tree Hill property, sponsored by Belmont Citizens Forum.

Lone Tree Hill is a parcel of Belmont’s conservation land that spans close to 100 acres. The site is bounded by Concord Avenue, Pleasant Street, and Mill Street. This land is open to all and is stewarded through a public/private partnership by the town, the Land Management Committee, and the Judith K. Record Memorial Conservation Fund.

There were two worksites. One team spread wood chips along the Pine Allee, and a second cleaned the trash along South Pleasant Street, in the area across from Star Market and Artefact Home and Garden. (Star Market generously gave permission for volunteers to park at the Pleasant Street end of their lot.)

High school and middle school students earned community service credits for volunteering.

See photos at the website below.

Visit belmontcitizensforum.org

Real estate, business, personal health gains.

Seven Community Benefits of Bikeways

By Taz Loomans

The Metropolitan Area Planning Council passed along this article to our office recently. It was written in 2014 by Taz Loomans, addressing congestion in her native Phoenix. Points of it apply to Belmont and our surrounding communities as well. We have edited it considerably; but you may read the full article at BloomingRock.com.

1. Bikeways make places more valuable.

A 2006 study found that in Minneapolis, median home values rose \$510 for every quarter-mile they were located closer to an off-street bikeway. In Washington DC,, 85% of nearby residents say the 15th Street bike lane is a valuable community asset. By mapping real estate transactions, researchers have been able to show that bike facilities can have positive, statistically significant impacts on home values. Given two identical houses in Indianapolis, with the same number of square feet, bathrooms, bedrooms, and comparable garages and porches—one within a half mile of the Monon Trail and another further away—the home closer to the trail would sell for an average of 11% more.

2. Bikeways help companies attract talent.

Several recent studies have shown that younger people are increasingly disenchanted with driving. The percentage of people age 16 to 24 with drivers' licenses is lower than at any point since 1963. And among the wider 16 to 34 cohort, bike trips have increased 24%.

3. Bike commuters are healthier and more productive. According to a 2003 study by the US Department of Health and Human Services, "workplace physical activity programs can reduce short-term sick leave by 6 to 32%, reduce health care costs by 20 to 55%, and increase productivity by 2 to 52%." While we

don't know how much of those effects are due to biking, the benefits of integrating physical activity into daily routines are indisputable. A study of 30,604 people in Copenhagen showed that people who commuted to work by bike had 40% lower risk of dying over the course of the study period than those who didn't.

4. Bike facilities increase retail stores' visibility and sales. Among several studies, a San Francisco State University researcher found 66% of shops on San Francisco's Valencia Street reported business improved after the city reduced the road width, widened sidewalks, and added cycling infrastructure.



Enjoying the Minuteman Bike Trail in Arlington.

5. Bicycling saves a city money. Researcher Todd Litman of the Victoria Transport Policy Institute looked at the benefits of congestion reduction, roadway cost savings, vehicle cost savings, parking cost savings, air pollution reduction, energy conservation, and traffic safety improvements. Litman estimated that replacing a car trip with a bike trip saves individuals and society \$2.73 per mile. Bicycles also cause less wear on the pavement,

reducing the need for repairs.

6. Bikes reduce congestion and therefore reduce the need for more freeways. According to the Texas Transportation Institute, "Gridlock costs the average peak-period traveler almost 40 hours a year in travel delay, and costs the United States more than \$78 billion each year. . . [T]raffic jams are wasting 2.9 billion gallons of gas every year." In urban areas, where cars and bicyclists travel

JOHN DICOCO

at similar speeds, bike lanes can accommodate 7 to 12 times as many people per meter of lane per hour than car lanes.

7. Bicycling saves in health-related costs. There are many different ways to estimate the health cost savings of bicycling. The values vary depending on study design, medical conditions attributed to inactivity, cost data availability, and other variables, but all studies show positive outcomes. The health savings resulting from physical activity, measured in 10 different studies, range up to \$1,175 per person, per year.

Taz Loomans is an urbanist, writer, and licensed architect in the Phoenix area.

Update on the Belmont Community Path

by John Dieckmann

As reported previously, the town of Belmont has set aside \$100,000 from its capital budget, and the state of Massachusetts has also allocated \$100,000 for an in-depth engineering feasibility study of the routes outlined in the report from the Community Path Advisory Committee (CPAC). This is a key step in construction of a bicycle and pedestrian path through Belmont, from Brighton Street to Waltham, as part of the Mass Central Rail Trail from Boston to Northampton.

In essence there are two primary route alternatives, one on each side of the commuter rail tracks. On the south side of the tracks, there two East Belmont variants, one close to the tracks, one closer to Concord Avenue.

Last autumn and this winter the Community Path Implementation Advisory Committee (CPIAC), working with Senior Planner Jeffrey Wheeler, with input from the Board of Selectmen, developed a Request for Proposals (RFP) for the feasibility study. The RFP was released to potential bidders on March 23. Twelve firms attended the preliminary meeting for potential bidders, held on March 30. Proposals were due on April 22 and six engineering firms responded. (Actually, one proposal was from a single firm; the other five were from teams of two or three firms). Four of

the six teams have been interviewed as of the publication date of the Newsletter. Final interviews will be held soon with two finalists, with selection of the winning bidder shortly thereafter. The overall goal is to have a contract in place for the feasibility study before the end of May. The state funding was authorized for the current state fiscal year, which ends on June 30, so it will be necessary to have the contract in place and the funds obligated before then.

For more detail, consult the Community Path Feasibility Study web page on the town web site, where the RFP and the proposals are posted, along with other relevant information: <http://www.belmont-ma.gov/community-path-implementation-advisory-committee/pages/belmont-community-path-feasibility-study-rfp>

John Dieckmann is a director of Belmont Citizens Forum and a town resident.

Corrections

We made mistakes in the March-April 2016 issue and we herewith seek to right our wrongs.

In our cover article, "Globe Critique Spurs Town Sewerage Review," we wrote, "An outfall is the discharge point of a waste stream into a body of water." It should have said: "An outfall is the discharge point of a stormwater pipe into a body of water."

In our article, "Selectman Candidates Answer BCF Questions," we misattributed a callout quote in the middle of page 5 to Mark Paolillo ["I appreciate all the work of the CPIAC..."], when it should have been attributed to Alexandra Ruban.

In the article, "Drought-Resistant Gardens Are Within Reach" on page 9, the first caption read "The Fairley backyard in early spring," implying 2015. Actually it was several years earlier.

Please accept our humble apologies.
—John DiCocco, Editor

Going strong for over a decade.

Belmont Farmers' Market Opens June 9

The farmers' market is coming. It must be Spring.

The Belmont Farmers' Market opens on Thursday, June 9, 2-6:30 pm, in the Belmont Center municipal parking lot, rain or shine. Now celebrating its 11th year, the Market offers a variety of organic and conventionally grown and produced food in a range of prices. You'll find old favorites like Kimball Fruit Farms, Mamadou's Artisan Bakery, and Stillman's Quality Meats, along with newcomers like Belmont's own Vintage Tea and Cakes, Warren Farm and Sugarhouse, and Julia Cooks. Find everything you need for a healthful and satisfying dinner, including wine from Massachusetts vintners.

Something new each week

For weekly Market news during the season, including performances, tastings, Storytime, guest vendors, and seasonal recipes, sign up for our weekly e-Newsletter at www.belmontfarmersmarket.org. We are an all-volunteer organization, so if you'd like to join our team as a market manager, sign adopter, performance organizer, photographer, newsletter writer, or have an idea about organizing a food/farm-related class, e-mail belmontfarmersmarket@gmail.com.

Food assistance programs

The Market accepts SNAP benefits (food stamps) and matches up to \$25 for each SNAP shopper each week, thanks to generous donations to the Market. Benefits are processed quickly and easily at the blue Market tent. Please let your friends and neighbors know about this service so that we can better serve the community.



Visit www.belmontfarmersmarket.org for this season's vendors and updates.

See you at the Market.

The Belmont Farmers' Market is a project of the Belmont Food Collaborative, Inc., a 501(c)(3) nonprofit organization.



DAVID CHASE

The Belmont Citizens Forum's three editors, from left, John DiCocco, Meg Muckenhoupt, and Sharon Vanderslice, shown at a goodbye party for Meg at Sue and Henry Bass's home.

Hello. Goodbye. And Thank You.

by Sue Bass

With this issue, the Belmont Citizens Forum *Newsletter* welcomes its third editor (in 16½ years of publication), John DiCocco. Though now a resident of West Medford, John and his wife, Connie, lived in Belmont for more than 30 years and sent three children through the Belmont school system. He is a graduate of Union College and the Boston University College of Communication, and he was for nearly 20 years the publications manager and chief editor for BU's School of Management. John has read the *Newsletter* for many years, since his wife was added to the mailing list after she was elected to Belmont Town Meeting in 2003.

Thank you, Meg.

John replaces Meg Muckenhoupt, who became editor in January 2004, shortly before her twin boys were born, and is taking on full-time work now that they are almost teenagers. In

her more than 12 years as editor, Meg has researched topics including solar pricing and finance, Cambridge Plating pollution, flooding at the Belmont Uplands and elsewhere in town, mosquito control, the science of recycling, the reconstruction of Belmont's business districts and the Trapelo Road corridor, traffic and parking challenges, the Fernald property in Waltham, dredging at Blair Pond, daylighting streams, and the North Cambridge housing boom that crowds the Alewife Reservation. She has also corralled scores of volunteers to write, edit, and illustrate the *Newsletter*. We will miss her.

Thank you, Sharon.

This is also a time to salute Sharon Vanderslice, who decided in the fall of 1999 that the Belmont Citizens Forum needed a newsletter and created it, beginning with the January 2000 issue. For four years, she set a standard for a serious approach to town controversies, accurate science, graceful writing, and design.

Sue Bass is director emerita of the Belmont Citizens Forum and a town resident.

Environmental Events

Gardeners on the Esplanade

May 3-June 21, 10:00 AM-Noon

The Esplanade Association will begin its Gardener Assistant Program, which is an 8-week program to get volunteers out during the months of May and June to help the Esplanade Association's Horticulture staff. Tasks will include weeding, mulching, dead-heading, and more.

The association will hold in-person interviews to gauge volunteer commitment. Prior gardening experience is preferred. If you are interested please reach out to Kyle Richard, the volunteer and program manager, at krichard@esplanadeassociation.org or call 617-227-0365 for more details. *Boston Esplanade*

Nature Poetry Walk

Sunday, May 22 1:30-3:30 PM

Anne-Marie Lambert is a Belmont Citizens Forum board member who has been leading local nature walks and writing articles about Belmont history and storm water. This is her fourth guided nature walk to explore the seasons at Lone Tree Hill. She will be joined by Douglas Holder, local poet, journalist, and a counselor at McLean Hospital.

Highland Meadow Cemetery, 700 Concord Avenue, Belmont.

Transform Your Roof into a Garden

Sunday, May 22, Noon-1:00 PM

Author Annie Novak of New York Botanical Garden will share a slideshow of farms and gardens featured in her new book, and how you, too, can get growing. Admission is free, but pre-registration is required at www.towerhillbg.org. *Tower Hill Botanic Garden, 11 French Drive, Boylston.*

Sustainable Belmont Meeting

Wednesday, June 1, 7:00-8:30 PM

Come to Sustainable Belmont's regular monthly meeting to learn about their work. Info: www.sustainablebelmont.net. *Assembly Room, Belmont Public Library, 336 Concord Avenue, Belmont.*

Fresh Pond Day

Saturday, June 11

Celebrate the land, water, wildlife, and people that make Fresh Pond Reservation a vital part of Cambridge. Fresh Pond Reservation is an urban wild that protects Cambridge's in-city drinking water reservoir.

Fresh Pond Day is the Cambridge Water Department's annual tribute to this vital natural resource, invaluable sanctuary for wildlife, and a beloved recreational escape in the city. Events include live wildlife presentations, a wildlife and bike parade, live music, facepainting, truck climb-boards, tours, and more. Free admission. To learn more or get involved, please contact Martine at (617) 349-6489, mwong@cambridgema.gov.

Water Purification Facility at Fresh Pond Reservation, 250 Fresh Pond Parkway, Cambridge

Sustainable Belmont Meeting

Wednesday, July 6, 7:00-8:30 PM

A regular monthly meeting open to all. www.sustainablebelmont.net *Assembly Room, Belmont Public Library, 336 Concord Avenue, Belmont.*

Showcase of Innovation at Boston GreenFest

Friday-Sunday, August 19-21

Boston GreenFest is the region's largest multicultural environmental music festival, and a celebration of life and possibility, providing you with ideas and experiences that can shape your life and the life of

your community. Its goal is to inform everyone about the many ways green living can help our world, city, neighborhoods, and ourselves. The three days of festivities and displays by organizations and green businesses have something of value for everyone. Have fun, meet people, learn, and be inspired. www.boston-greenfest.org info@www.bostongreenfest.org. *Boston City Hall Plaza.*

Looking for more BCF?

Visit the Belmont Citizens Forum website to see more events in our calendar and occasional updates to the stories in this printed *Newsletter*. You can also visit our online archive to see past issues.

www.belmontcitizensforum.org

Thank you for your continued support.

Your contribution makes a difference!

Each *Newsletter* issue costs about \$4,000 to publish. Thank you for your support.

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Make your donation go farther with matching funds.

Does your employer have a matching gift program?

Yes, my employer matches charitable giving. Please contact me for details.

BCF depends on volunteers.

Join us in helping to maintain Belmont's small-town atmosphere.

- Writing or editing for the Newsletter
- Community path work
- Newsletter mailings
- Event organizing

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visit: belmontcitizensforum.org/newsletter

May/June 2016

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EVANTHIA MALLIRIS

Anne-Marie Lambert at the Belmont Citizens Forum table, which co-sponsored a recent showing of the documentary, *Merchants of Doubt*.