League of Women Voters of the Bay Area Education Fund

BAY AREA MONITOR

October/November 2014 Volume 40, Number 2

40TH ANNIVERSARY YEAR
Reviewing Regional Issues Since 1974-75

A New Sensation

By Alec MacDonald

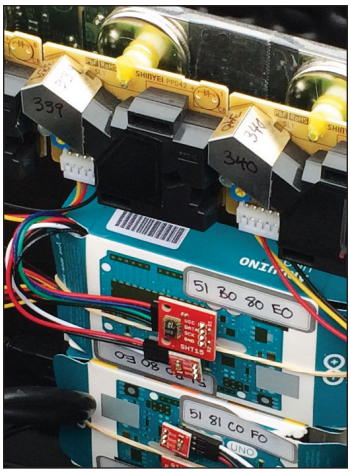
Are you careful about what you put in your body? Do you buy organic fruits and vegetables to avoid pesticide exposure? Do you own a reusable water bottle marketed on a claim it won't leach harmful chemicals?

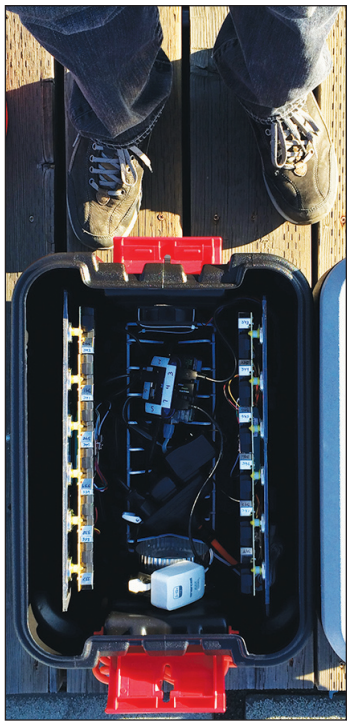
With food and drink, consulting a label may help you identify safer options, but the one substance you consume the most bears no handy list of ingredients. The air you inhale comes without reassuring tags or packaging to tell you what might be entering your lungs.

However, if you're feeling particularly vigilant — or just curious — you could try testing the air yourself. Sensor technology has progressed to the point where motivated individuals can assess the atmosphere around them, to a limited degree. Most readily obtainable instruments won't provide readings of the greatest accuracy, but sometimes they prove more trustworthy than the advertising attached to the other things we ingest.

Do-it-yourself air monitoring may sound fanciful, but the practice has begun to show real viability. Equipment options have proliferated thanks to the international emergence of the so-called maker movement, a groundswell of grassroots manufacturing generated by a motley collection of engineers, designers, hobbyists, and inventors. "There's this increasing circulation of expertise available, especially online, where you can now go and learn how to assemble and program, as well as purchase, the hardware that you need," attested David Holstius, a senior scientist at the Bay Area Air Quality Management District. "That sort of expertise was not available five or certainly ten years ago."

Taking advantage of this phenomenon himself, Holstius conducted research with low-cost sensors as a part of his recently completed doctorate in environmental health sciences at UC Berkeley. He and his colleagues measured fine particulate matter concentrations in West Oakland using custom devices made with $10 sensors and less than $200 worth of additional hardware. In results published last April by the international scientific journal *Atmospheric Measurement Techniques*, these devices gathered data that reasonably correlated with data from both official regulatory monitors as well as industrial-strength commercial equipment.





As a graduate student, David Holstius used low-cost sensor technology for measuring fine particulate matter in West Oakland, with intriguing results.

photos by David Holstius

"That's a finding that needs to be taken with a grain of salt, because all we did was show that it worked in one place, at one time," Holstius conceded. "But it does open up the question of, 'Where else would it work, and under what conditions, and what would that be useful in telling us?'"

For air quality regulators, inexpensive devices could fill gaps in between their more sophisticated monitoring stations, which boast vastly superior performance but cannot be deployed so extensively due to budgetary constraints. Integrating cheaper alternatives to create a denser monitoring network could yield a more comprehensive picture of air quality landscapes.

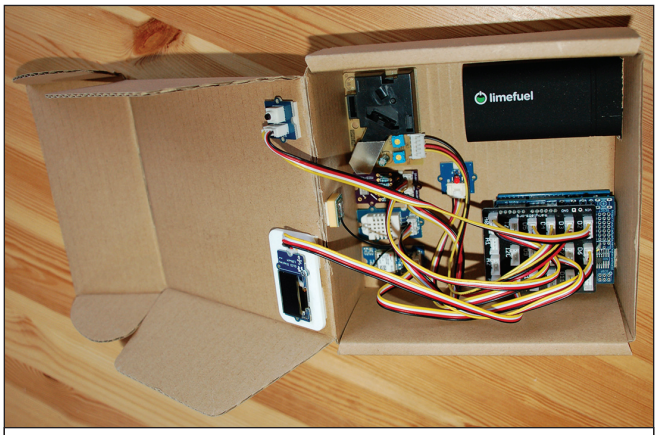
As Holstius emphasized, though, this possibility remains

continued on page 2

Contents

A New Sensation (from page 1)

highly theoretical and full of pitfalls. Low-cost sensors have plenty of shortcomings to take into account. For example, those that measure particulate matter concentrations have no way to gauge toxicity, meaning they can't tell the difference between microscopic sea spray droplets and carcinogenic diesel soot. And obviously, durability represents significant concerns with respect to such bargain-priced electronics. Gathering data that correlates with conventional monitoring methods, however, continues to loom as the biggest stumbling block for regulatory authorities. To this point, Barry Wallerstein, executive officer of the South Coast Air Quality Management District in Southern California, cautioned his board in a July 11 memo that "poor quality data obtained from unreliable sensors, especially that in conflict with data obtained from traditional, more sophisticated monitoring networks, may not only lead to confusion but may also jeopardize the successful evolution of the 'low-cost' sensor technology."



Manylabs supplied Richmond High School students with air quality monitors like this one.

photo by Alec MacDonald

To introduce some authoritative scrutiny over this nascent field, Wallerstein's board subsequently approved $852,000 to establish a testing center for evaluating such technology at the district's headquarters in Diamond Bar. Coincidentally, the board's allocation came just days after the Environmental Protection Agency unveiled a national grant program to fund research on "empowering communities and individuals to take action to avoid air pollution exposure using low-cost portable air pollution sensors," according to an official announcement. In the next several months, the agency intends to award a cumulative $4.5 million to some half dozen organizations with the best proposals. Holstius said the EPA initiative should cultivate some exciting collaborations between professionals in the field of air quality monitoring, participants in the maker movement, and average folks seeking to better understand the world around them.

With the aim of sparking one of these collaborations here in the Bay Area, engineer Peter Sand hopes to procure a share of the EPA funding for Manylabs, an educational nonprofit he founded in San Francisco's Mission District. "We're mostly focused on awareness of the process of scientific inquiry," Sand explained about the organization's purpose. "The idea is that by giving people tools and experience with collecting their own data, analyzing that data, then they can go off and work on the environmental and political issues that they want to, using those tools."

Manylabs has an impressive toolshed, so to speak; it supplies teachers and tinkerers with a range of kits and components for experimentation in biology, chemistry, physics, math, and computation. As well as featuring sensors for measuring air quality, the organization offers ones to evaluate things like water, light, and electricity. In application to the EPA grant program, Sand is proposing to monitor particulate matter and carbon monoxide around Oakland, recruiting local groups to operate portable devices that Manylabs has under development.

A precursor to these devices has already seen duty in the East Bay, as teenagers at Richmond High School had the chance last April to try out equipment furnished by Manylabs. Students in biomedical sciences and chemistry courses took air quality readings in and around their school with the

Published six times a year by the League of Women Voters of the Bay Area Education Fund, the *Bay Area Monitor* covers transportation, air quality, water quality, open space, and land use issues in the nine-county San Francisco Bay Area. The publication is distributed to League members, elected and appointed officials, government employees, libraries, media outlets, nonprofit organizations, business leaders, and engaged residents. Every edition is also posted online at www.bayareamonitor.org.

Subscriptions are free, but reader donations are appreciated and help sustain the *Monitor*. Donations are tax-deductible, as the League of Women Voters of the Bay Area Education Fund is a nonprofit 501(c)3 organization. The *Monitor* is also supported by the Alameda-Contra Costa Transit District, the Bay Area Air Quality Management District, the East Bay Regional Park District, the Metropolitan Transportation Commission, the Peninsula Corridor Joint Powers Board and the San Mateo County Transit District, and the San Francisco Bay Area Water Emergency Transportation Authority. For more information, call (510) 839-1608 or e-mail editor@bayareamonitor.org.

guidance of EarthTeam, a Berkeley-based nonprofit that encourages youth to embrace sustainability and environmental stewardship. In a series of class visits, the organization covered investigative methodology and results interpretation, but in an especially pertinent way. Describing the project, EarthTeam Program Manager Doug Streblow said, "It takes the textbook chapter about air quality … and turns it into real-life, tangible, multisensory exploration." He pointed out that students worked with "data that affects them on a daily basis … particularly in Richmond, where they're in a community that's very affected by Chevron, by the oil refinery."

Even in places without enormously conspicuous pollution sources nearby, however, inquisitive individuals still have good reason to take inventory of their surroundings. Air quality monitoring can reveal a wealth of valuable information. Like Sand observed, "As we're walking down the sidewalk, we're walking through a whole bunch of data. And normally that's invisible, but sensors let you make that visible, they let you turn all of those hidden numbers into real numbers you can see." Bringing data to light, depending on what you discover, could unnerve you a little, but at least you'll have a notion of what you might be breathing — and that's a key first step toward addressing a potential risk. As Sand noted, "By measuring those numbers, you can start to make models with the numbers, and you can start to learn about how you might solve problems in your community."

Alec MacDonald is the editor of the Bay Area Monitor.

New Sensor Technologies Conferences

The California Air Pollution Control Officers Association (CAPCOA), the group that represents local air districts in California, in collaboration with state and federal regulators, will be hosting conferences in both Southern and Northern California for regulators, community groups, and academics to discuss the opportunities and issues surrounding new sensor technologies. Visit www.capcoa.org for further details as they become available.

Bay Area Monitor History, Part I: Dawn of the Clean Air Era

By Leslie Stewart

A new federal mandate, with penalties for non-compliance within a short time frame, requiring major changes in how states, local jurisdictions and the public behaved — in 1970, this was the Clean Air Act. Unpopular in car-loving California, it needed ambassadors to explain it to audiences ranging from uninformed to hostile. The League of Women Voters took on this issue in the Bay Area; 40 years later, the focus is still central to the *Bay Area Monitor*.

The 1970 Clean Air Act, replacing a limited and weaker version from 1967, authorized the newly created Environmental Protection Agency to penalize states which did not meet the new stronger standards within five years. It mandated changes in car emissions and industry practices, but what dismayed local jurisdictions most was a line which was put into the legislation at the last minute, requiring "land use and transportation controls" in state air quality plans if necessary to meet the federal criteria.

In a 1971 press release from the EPA, Administrator William D. Ruckelshaus warned, "If we are to meet the legal deadline for carbon monoxide, then, some cities may have to require drastic changes in their commuting habits." Because auto emission controls would not have an immediate impact, many areas would not achieve compliance until the 1980s, he predicted.

Looking back from a world in which most cars have catalytic converters, industry emissions are heavily controlled, and an extensive network

continued on page 4

Bay Area Monitor History, Part I (from page 3)

of mass transit serves the region, it is difficult to remember what an upset the new air quality legislation created. In the Congressional Record, Senator Ed Muskie, a major sponsor of the Clean Air Act, acknowledged the extent of the changes that would be required: "[T]he whole complex of residential patterns, employment patterns, and transportation patterns – the way in which people move about, go to their work, and live … must be modified if the objective of clean air is to be achieved." Muskie went so far as to suggest that "the use of motor vehicles may have to be restricted." California's love affair with the car was under attack.

It's also hard to remember how a group like the League of Women Voters had to structure an educational outreach program in a world without social media — in fact, without much local broadcast media. Approached by EPA Region 9 Administrator Paul DeFalco to run a grant-funded information effort in the Bay Area, the League initially developed a filmstrip presentation for community groups. Content focused on the link between transportation and air quality, a new concept for many at the time, and on some of the ways in which communities could change, such as adding mass transit.

After the passage of the 1970 Clean Air Act, the League was asked to conduct related outreach by EPA Region 9 Administrator Paul DeFalco, pictured here with his wife Ernestine. She later became editor of the *Bay Area Monitor* in 1985.

photo courtesy of Leslie Stewart

Adelia Sabiston, former longtime air quality director for the LWVBA, remembered that "the format was obsolete so quickly that when we wanted to use the film on KQED a few years later, none of their equipment would run it." The League rapidly moved on to a more traditional presentation with slides and trained speakers.

EPA's next grant to the League funded a "Transportation Alternatives Project," structured to take advantage of the "observer corps" that most local Leagues already had in place to monitor local elected bodies such as city councils. Reports from these observers, together with information acquired by the project manager, Holly Hollingsworth, contributed to a series of reports tracking transportation and land use decisions around the region that could affect the progress toward meeting the clean air standards. The project found a temporary home in the offices of Berkeley's Claremont Hotel, where the newly-formed Metropolitan Transportation Commission shared space with the Association of Bay Area Governments.

By 1975 — the original deadline for compliance with 1970 Clean Air Act standards — so many officials, planners, and activists were focusing on the air quality impacts of transportation and land use that it became clear the League's reports had a growing audience. The League of Women Voters of the Bay Area decided to hire Hollingsworth as the editor of a new publication to track these issues. Called the *Bay Area Monitor*, it was "aimed at motivating the public to reduce motor vehicle pollution emissions in order to achieve better air quality and improve the quality of life within the affected community," according to a letter of introduction signed by Geri Stewart, the League's president at the time. The first issue, still funded by the EPA, appeared in May 1975.

Leslie Stewart is the most recent former editor of the Bay Area Monitor.

Park District Celebrates 80 Years

This year marks the 80th anniversary of the East Bay Regional Park District, approved by voters on November 6, 1934. In appreciation of the public's ongoing support, the Park District has been waiving fees every third Friday of each month since April. Three more of these days remain (October 17, November 21, and December 19) when park visitors won't have to pay for parking and other fees, as well as entry to Ardenwood Historic Farm. Visit www.ebparks.org for more information.


Natural Lake in Proposed New Park

REGIONAL PARK ON NOVEMBER 6 BALLOT;
WILL PUT MANY MEN TO WORK IF PASSED

Weighing the Water Bond: A Study of 2014's Proposition 1

By Robin Meadows

It's hard to believe that people still power-wash sidewalks three years into California's worst drought on record. But it's even harder to believe that state lawmakers have hardly been better about solving our water problems. They've been working on a water bond for five years and barely managed to squeak one with a chance of passing onto the November 4, 2014 ballot.

A water bond seems like a no-brainer. California is parched, with much of our groundwater already at historic lows in April and with many reservoirs at levels far below historic averages in September, according to the state Department of Water Resources. And the $7.5 billion water bond — Proposition 1 — has widespread support that includes a good showing of environmentalists. But not everyone is convinced that this bond delivers what we need, or even that bonds are the best way to finance our water system.

Proposition 1 replaced Proposition 43, an $11.1 billion water bond put together in 2009 and placed on the 2010 ballot. But then lawmakers dithered, amending and delaying the water bond first to 2012 and again to 2014. The final blow came this summer, when polling showed tepid support for Proposition 43's hefty price tag. Cutting the bond's cost, however, would boost likely voter support from about half to nearly 60 percent, according to a late July survey by the Public Policy Institute of California (PPIC). State bond measures must exceed 50 percent voter approval to pass.

With only weeks until the mid-August deadline for printing state ballot materials, lawmakers scrambled to negotiate a cheaper water bond. Replacing Proposition 43 on the ballot required a two-thirds vote in the Assembly and the Senate as well as the governor's signature. The legislature agreed nearly unanimously on the $7.5 billion Proposition 1 and it was signed on August 13, 2014.

To supporters, Proposition 1 signals a new approach to meeting our water needs. "We're at one of those famous turning points in California water policy," said Timothy Quinn, executive director of the Association of California Water Agencies. "This is the first water bond to couple demand reduction with storage."

Quinn thinks the bond's storage provisions will boost much-needed groundwater replenishment. During super wet years, most recently 2011, there's so much water that it pours through the Sacramento-San Joaquin Delta and out to sea. "There's no place to put that water," he said, adding that more storage would mean capturing more water for sinking into aquifers during rainy years. Quinn also sees the bond as jump-starting the state's five-year Water Action Plan, the driving force for the first-ever statewide groundwater regulations that were adopted in September 2014.

The Water Bond at a Glance

Proposition 1 would provide a total of $7.545 billion in bonds for water-related projects and programs. If California voters approve the measure, the state could sell $7.12 billion in new general obligation bonds, which are financed from the general fund rather than from new taxes. Another $425 million would be redirected from unsold general obligation bonds that voters previously approved for resource-related uses. The Legislative Analyst's Office estimates that paying off the bonds would cost $360 million annually for 40 years.

Proposition 1 projects and programs include:

- **$395 million for flood control**
- **$520 million for safe drinking water**
- **$725 million for water recycling**
- **$810 million for regional water reliability, including conservation and stormwater capture**
- **$900 million for groundwater sustainability**
- **$1.495 billion for watershed protection and restoration**
- **$2.7 billion for storage**

sources: Legislative Analyst's Office, Secretary of State, Office of the Governor

But opponents see Proposition 1 as perpetuating the same old bad habits of water policy. "Our biggest objection is the money for storage," said Tom Stokely, water policy coordinator of the California Water Impact Network (C-WIN). "It's an outdated mentality that building more storage will mean more water — there really isn't water to fill more reservoirs," he said.

The state has over-allocated its surface waters by a factor of five, according to a study by UC Davis researchers Ted Grantham and Joshua Viers. They found that state allocations allow use of 370 million acre-feet of surface water per year, but that only 70 million acre-feet of surface water are available per year on average. Caveats include that water can be reused multiple times as it flows downstream, and that the study speaks to average but not extremely wet years.

Regardless of who's right about whether new water storage would be a boon or a bust, it's important to clarify that the bond doesn't earmark money for reservoirs. "The bond says storage, not surface storage," noted Heather Cooley, director of the Water Program at the Pacific Institute. Under Proposition 1, storage project selection would be up to the nine governor-appointed members of the California Water

continued on page 6

Weighing the Water Bond (from page 5)

Commission. Groundwater recharge is considerably cheaper than reservoir expansion, at $90 to $1,700 per acre-foot versus $1,700 to $2,700 per acre-foot, respectively, according to Stanford's Water in the West program.

Replacing the old water bond silenced a vocal critic: Sierra Club California signed the ballot argument against Proposition 43, but is neutral on Proposition 1. Other environmental groups are divided on the water bond. Supporters include the California League of Conservation Voters, Defenders of Wildlife, the Natural Resources Defense Council, and The Nature Conservancy. Opponents in addition to C-WIN include the Center for Biological Diversity, Friends of the River, and Restore the Delta.

If Proposition 1 passes, some of the money will be allocated through grants that the Bay Area can compete for, and some will be earmarked for specific uses that will benefit the Bay Area. Three-quarters of the flood protection money ($295 million) will go to the Sacramento-San Joaquin Delta, boosting security for the 30 percent of the Bay Area's water that is delivered via the Delta. In addition, the Bay Area is guaranteed $65 million for local water security and climate change preparation. Rising seas could double the number of people at risk of flooding by the year 2100, especially in San Mateo and Marin counties, according to the California Energy Commission's California Climate Change Center.

The Bay Area would also likely benefit from some of the $100-plus million earmarked for the California Coastal Conservancy, which protects and restores coastal watersheds and is funded primarily by resource bonds. Current Bay Area projects funded by the last resource bond, which passed in 2006, include restoring steelhead trout watersheds and San Francisco Bay wetlands. "We facilitated the massive wetlands restoration all around the Bay — tens of thousands of acres, including South Bay Salt Ponds," said Amy Hutzel, the California Coastal Conservancy's San Francisco Bay Area regional manager.

Win or lose, Proposition 1 is not enough to solve California's water problems, according to the PPIC. "The drought has focused attention on the need, and the bond will help," said Caitrin Chappelle, a PPIC research associate. "But it's not the be-all and end-all." The PPIC estimates that even if the bond passes, the gap between water needs and water funding will be up to $2 billion a year.

"California needs to think about going beyond bonds to finance the water system," Chappelle said. Maryland has a parcel tax for stormwater control, Minnesota has a state sales tax surcharge for healthy watersheds, and Kansas, Missouri, and New Jersey fund their water systems partly with a surcharge on urban water use.

California could also think about investing more in water conservation, recycling, and reclamation, which the Pacific Institute estimates could save 20 times as much water as Los Angeles uses each year. A big drop in water needs would help us weather future droughts — as Chappelle pointed out, "You can't buy rain."

If passed by voters, Proposition 1 would likely provide funding for additional restoration work on the South Bay Salt Ponds, among other Bay Area projects.

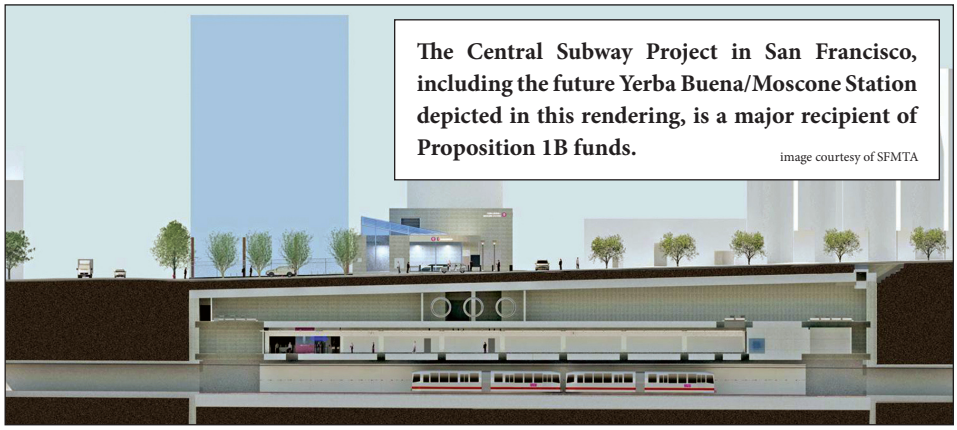
photo by Jitze Couperus

Robin Meadows (www.robinmeadows.tumblr.com) is the reporting fellow for the 2014-15 Water Education Initiative.

Created by the League of Women Voters of the Bay Area Education Fund to promote better understanding of regional water issues, the initiative is underwritten by the Association of Bay Area Governments, Bay Area Biosolids to Energy, the East Bay Municipal Utility District, the League of Women Voters of Marin County, Louise Anderson, the Marin Municipal Water District, Marion Taylor, the San Francisco Public Utilities Commission, the Santa Clara Valley Water District, and the Sonoma County Water Agency.

Tracking the Transportation Bond: A Study of 2006's Proposition 1B

By Cecily O'Connor



The Central Subway Project in San Francisco, including the future Yerba Buena/Moscone Station depicted in this rendering, is a major recipient of Proposition 1B funds.

image courtesy of SFMTA

Proposition 1B, part of California's largest general obligation bond package ever offered on a single ballot, is closing in on the end of its 10-year lifespan. The 2006 program is poised to leave a legacy of improvement in the Bay Area, bolstered by multiple completed and committed transportation infrastructure projects.

Before that legacy becomes final, voters will weigh another high-profile bond initiative in November. This time, it's a $7.5 billion water bond to alleviate California's drought woes and advance water delivery. There's been hemming and hawing about the water bond — just like there was eight years ago when Proposition 1B was on the ballot. Underlying each cause is concern about whether bond measures are a good way to finance big projects.

Transportation experts interviewed by the *Bay Area Monitor* discussed the positives and negatives, noting benefits of a cash infusion against the reality of repayment. Certainly, 2006's Proposition 1B and the current water bond are difficult to compare apples-to-apples. But the upcoming election should compel voters to scrutinize the efficacy of bond financing, and Proposition 1B offers a worthwhile case study.

Proposition 1B was made up of $19.9 billion in general obligation bonds to relieve traffic congestion and improve goods movement, air quality, safety, and security of the transportation system. It was part of a $37.3-billion smorgasbord of infrastructure investment programs covering housing (Proposition 1C), education (Proposition 1D), and flood control (Proposition 1E) that was being promoted by then Governor Arnold Schwarzenegger.

About 61.6 percent of California voters approved Proposition 1B as residents sought solutions to modernize infrastructure and expand public transit. In the Bay Area, the measure gained an average of 62.9 percent support among the nine counties (Contra Costa County provided the most support with 67 percent, while Napa County was at the bottom with 56.5 percent).

"At the time, we were riding the peak of the economy and a ton of people were sitting behind the wheel in congestion," said Jim Earp, executive director at the California Alliance for Jobs, a Sacramento-based coalition of heavy construction companies and trade unions that supported Proposition 1B.

While no one argued the importance of alleviating traffic snarls, opponents did voice concern about whether the measure was fiscally responsible. The official argument against it in the Secretary of State's 2006 voter guide — penned by Michael Villines, the 29th District's assemblymember at the time — estimated Proposition 1B could saddle the state with $32 billion in debt.

To be sure, there are several reasons that make it hard to say how or if that figure will be significant. For one thing, not all the bonds have been issued from the $19.9 billion total. In addition, the cost of bonds depends on interest rates in effect when they are sold and the time period over which they are repaid.

And repayments are underway. Proposition 1B debt service for fiscal years 2008 to 2014 has been paid to the tune of approximately $2.8 billion, according to figures from the State Treasurer's Office.

A current repayment schedule based on the amount of bonds issued so far indicates it will cost about $29.8 billion to pay off both the principal ($13.5 billion) and interest ($16.3 billion) over a 36-year repayment period ending in fiscal year 2044. (This does not reflect Proposition 1B debt service for a sale expected to close October 7).

There also was concern in 2006 about whether California residents would experience an increase in taxes when it came time to pay the bonds back. But currently, California's general fund is growing, reducing the need to raise taxes to avoid spending cuts on critical state needs for debt repayment. General fund appropriations are $108 billion for the 2014-2015 budget — a 12 percent jump from the prior year.

"The situation is healthier now, and there's less discussion about near term trade-offs [for debt payback]," said Ellen Hanak, an economist and senior fellow at the Public Policy Institute of California. "But it's always a factor to consider."

Another factor to consider is that California has financing alternatives, such as "user fees," which include taxes on

continued on page 8

WE'VE MOVED!

League of Women Voters of the Bay Area Education Fund
436 14th Street #1213
Oakland, CA 94612

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
OAKLAND, CA
PERMIT NO. 2508

Commemorating the
40TH ANNIVERSARY YEAR
of the
BAY AREA MONITOR
Reviewing Regional Issues Since 1974-75

Thank You for Your Support

The *Monitor* would like to acknowledge recent donations from Nancy Ianni and Alex Starr. Such generous financial contributions are greatly appreciated, and help this publication continue to fulfill its mission. Donations to the League of Women Voters of the Bay Area Education Fund, a 501(c)3 organization, are tax-deductible.

Tracking the Transportation Bond (from page 7)

gas and tolls on roads and bridges. Confronted with these fees when they drive, residents think more about their transportation usage and the impact they have on congestion, Hanak indicated.

"If you're paying [for a bond measure] through sales and income tax, there's no incentive to behave differently on the road," she said.

In any case, with Proposition 1B's approval now well in the rearview mirror, Bay Area residents don't have to look far to notice big transportation changes. The Bay Area received $4.8 billion — nearly 25 percent of the transportation bond's total — with the biggest pieces of the pie going toward public transportation ($1.28 billion), corridor mobility ($1.1 billion), and transit security ($489 million), according to Metropolitan Transportation Commission (MTC) figures.

Proposition 1B "was more than a one-time cash infusion," said Anne Richman, director of programming and allocations at MTC. "It was substantial enough to make a difference. The negative is that it's coming to an end."

Proposition 1B also paved the way for partially completed projects to move forward. That includes $91.1 million to build the fourth bore of the Caldecott Tunnel, an East Bay project completed last fall.

"The $20 billion got the projects off the shelf and made them a reality," said Earp, who claimed that every $1 billion spent on public infrastructure creates 18,000 to 20,000 jobs.

Among other recent projects, the Jameson Canyon widening project finished in September. It doubled Highway 12's width between Napa and Solano counties, helped, in part, by $68.9 million in Proposition 1B funding. Beyond that, multiple Bay Area cities are benefitting from traffic light synchronization, transit equipment upgrades, the addition of high-occupancy vehicle lanes, and seismic retrofits on local bridges.

"It really has been a blessing in disguise for a lot of areas in California," said Andre Boutros, executive director at the California Transportation Commission (CTC), which was responsible for administering $11.625 billion in bond funds with the passage of Proposition 1B.

A host of other projects are in process, too. The San Francisco Municipal Transportation Agency's Central Subway Project — which will extend the T Third Line from Caltrain's 4th Street Station to Chinatown when service commences in 2019 — will have received a total of $307 million once the October 7 bond sale goes final. Another $19.3 million went toward rebuilding Doyle Drive in San Francisco. It will be done next year.

Cecily O'Connor is a freelance journalist based in Corte Madera.