

Road Report

A publication of the Road Commission for Oakland County for public officials serving Oakland County

www.rcocweb.org

RCOC partners with U of M, GM on signal-timing program

The Road Commission for Oakland County (RCOC) has partnered with the University of Michigan Center for Connected and Automated Transportation (CCAT) and General Motors to document the benefits of a revolutionary way of retiming traffic signals using connected-vehicle technology.

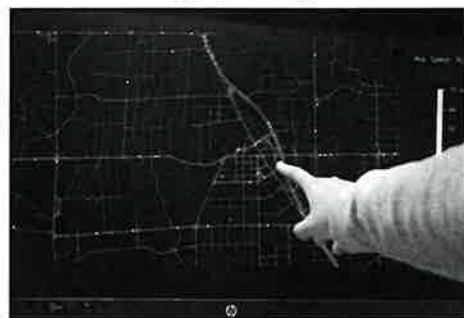
Most motorists do not understand the complexity of developing signal timings. Good signal timing, however, can improve traffic flow, traffic safety and the environment, while poorly timed signals can contribute to traffic congestion, make intersections less safe and cause increased air pollution.

Traffic-signal timing refers to the amount of green and red signal time assigned to each direction of traffic at an intersection. Historically, setting or updating traffic-signal timing was a costly and labor-intensive process, which is why so many road agencies or municipalities do

not frequently update the timing on their fixed-time traffic signals.

Traditionally, this process involved road agencies sending personnel to intersections to manually count the number of vehicles traveling in each direction for a five-hour period (including parts of the morning and evening rush hours and mid-day peak time). In addition to being both a costly, labor-intensive process, it is also subject to unreliability (if the observer looked away for a moment, lost track of his/her count or momentarily lost focus, the data could be at least somewhat inaccurate). Additionally, the five hours of data must be extrapolated to apply to 24 hours a day/seven days a week.

This study demonstrated, for the first time, that there is a better, less expensive, less time-consuming and more accurate means of collecting more reliable traffic data upon which to base signal timings. And not only is the data more accurate and less



A close up of the computer screen showing the signals in Birmingham.

costly to collect, the fact that it is potentially accessible at any time is also significant.

Because of the labor involved and the cost of the traditional method of collecting traffic data (data collection alone represents more than 50 percent of the cost of traditional signal retiming), many communities and road agencies seldom update

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Road Commission staff respond to mystery spill

In the early morning hours of Tuesday, May 7, the Road Commission for Oakland County (RCOC) learned from the West Bloomfield Twp. Police Department that someone had, apparently intentionally, poured what appeared to be cooking oil up and down several streets in the township. RCOC environmentalists and road-maintenance staff then spent the better part of the day monitoring and cleaning up the bizarre situation.

The West Bloomfield Police Department noted that neighbors in the area, near the intersection of Middlebelt and Square Lake roads, reported seeing a box truck driving down streets in the neighborhood with a person pouring the oil out of the back of the truck, coating several streets.



RCOC employees clean up the oil dumped on the roads near the Square Lake/Middlebelt intersection in West Bloomfield Township.

Early that morning the material was tested by a Birmingham Fire Department hazardous materials team, which determined it was not hazardous and did not seem to be motor oil. RCOC then responded with staff to spread an entire pallet of "oil dry" (described as being similar to kitty litter) on the roads to absorb as much

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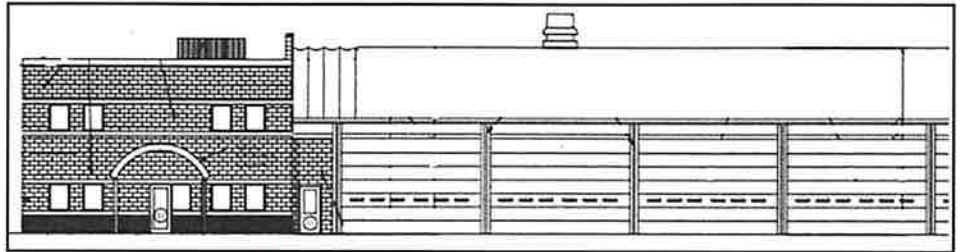
Road Commission's Troy garage getting a facelift

It all started with a plumbing problem. A bad plumbing problem.

But, when all is done, the Road Commission for Oakland County (RCOC) District 4T Highway Maintenance garage in Troy will have a new office/locker and lunchroom portion of its building.

The plumbing problem was a burst eight-inch water main under the foundation of the building located on Stevenson Highway. The garage serves as the headquarters for the Highway Maintenance Department's District 4T, which provides maintenance services for RCOC and MDOT roads in Troy, Clawson, Royal Oak, Madison Heights, Hazel Park, Ferndale, Oak Park, Royal Oak Twp., Huntington Woods, Berkley, Pleasant Ridge and parts of Birmingham, Rochester and Rochester Hills.

The water main break rendered the building's offices, lunchroom, bathrooms and locker rooms unusable. With the addition of portable offices and restrooms, the garage staff have been able to continue working out of the facility. However, it quickly became evident that the damage caused by the break, which included damaging the building's plumbing fixtures and cracking its foundation,



The current building, top, and an architect's rendering of the reconstructed building.

necessitated some serious construction.

And, since the old building, designed in the 1960s, did not meet current accessibility standards, it was determined it was a good time to address both issues. With input from consulting engineering company Hubbel Roth and Clark (HRC), it was determined the best way to do this, was to tear down and replace the damaged office/lockers/lunchroom portion of the building and replace it.

The next major step in the process will be the demolition of the current two-story office/lockers/lunchroom portion of the building. Once that is complete construction of the new building will follow.

The RCOC Central Operations Department (COD) is overseeing the project. COD Director Mary Gillis noted the goal is for the new portion of the building to be completed by the end of this year.

RCOC supports state's proposed study of fuel-tax alternative to fund roads

The Road Commission for Oakland County (RCOC) applauds the state Legislature's recent discussion of a plan to set aside \$5 million in the coming year's state budget to study the possibility of replacing the traditional fuel taxes with a mileage-based road-usage fee.

Michigan's gas and diesel taxes are the

SPILL — CONT'D FROM FRONT of the oil as possible.

RCOC environmentalists also made sure that the material was not seeping into ditches or other bodies of water in the area. They also confirmed, based on the hazmat team analysis, that the material did not appear to be dangerous, and any material not absorbed would break down naturally in the ground. Further review was being handled by the state Department of the Environment, Great Lakes and Energy (EGLE)

The West Bloomfield Police Department investigation continues.

second largest sources of road funding in the state, behind vehicle-registration fees.

"The fuel taxes — gas and diesel — are generating less and less revenue each year," RCOC Managing Director Dennis Kolar explained. "Thanks to federal Corporate Average Fuel Economy, or CAFÉ, standards, cars are continuing to become more fuel efficient, meaning they are driving further on each gallon of fuel, and, therefore, paying less in fuel taxes."

Kolar also pointed out that electric vehicles pay no fuel taxes, but weigh more than traditional internal-combustion engine cars. "Yes, electric vehicles pay slightly more in vehicle-registration fees, but that does not make up for the lost fuel tax revenues. And because they weigh more, they are likely doing more damage to the roads," he said.

"The bottom line is that we need to find a more reliable funding source for our roads," Kolar said. A number of other states have been studying other options for years,



**MILEAGE-BASED
USER FEES**

and the item included in this year's proposed state budget would allow Michigan to begin the lengthy process of moving toward a more reliable way of paying for its roads.

While it is not yet clear what Michigan's study might suggest, most other states are looking into some form of millage-based user fees (MBUF), in which drivers pay a set rate for each mile they drive. Part of what is being studied in other states is how the state would gather information about how many miles drivers rack up.

"If we, as a state, don't begin to move in this direction soon," Kolar noted, "we are going to experience a very serious road-funding crisis."

It is expected that the \$5 million allocation will be included in the final 2025 state budget, though the budget process continues in Lansing.

RCOC increases revenue by \$5.2 million by purchasing federal funds

The Road Commission for Oakland County (RCOC) has always tried to stretch its funding as far as possible. But since 2017, it's taken advantage of a new way of stretching those dollars even further, generating an additional \$5 million for the agency.

The new way of stretching funding is the process of purchasing federal road funds from other county road agencies in Michigan, for a discount. In fact, RCOC Managing Director Dennis Kolar was part of the team that convinced the state to allow county road agencies to purchase federal funds from each other.

Starting in 2017, RCOC has purchased several million dollars' worth of federal road funds each year from other road agencies, initially at the prices of 75 cents per dollar of federal funding and then, later, at the rate of 80 cents per dollar of federal funds.

Why would a county road agency want to sell its federal funds at less than their full face value? Because the federal funds come with a lot of strings attached, and smaller road agencies do not typically have the in-house staff to complete all the work necessary to utilize the federal funds.

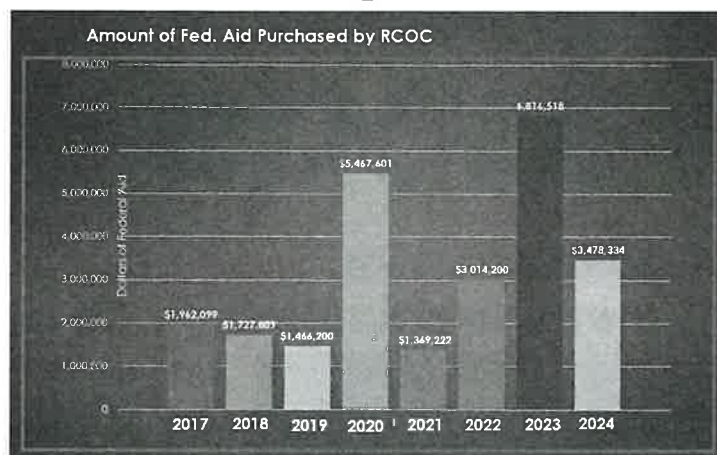
That means those smaller agencies often have to hire outside firms to complete some of the steps required to use the federal funds, meaning it actually costs them money to use the dollars. However, they can use the money they receive from

selling the federal funds without having to jump through most of the hoops required with federal funds, meaning they apply more of the dollars directly to road projects, allowing them to do more work with each dollar of non-federal funds than with federal funds.

RCOC, which maintains the largest county road system in the state, is used to complying with federal requirements – and has in-house staff who are well versed in the federal requirements. That means RCOC can use the federal funds without the additional costs that some smaller agencies incur when using federal dollars.

"This is truly a win-win situation," RCOC Managing Director Dennis Kolar explained. "We get a great return on our investment (at 80 cents on the dollar), while the smaller road agencies are able to avoid the costly federal requirements. We both benefit."

Since the program was started in 2017, RCOC has purchased more federal fund-



This chart shows the amount of federal road funds RCOC has purchased from other road agencies each year since the program started in 2017.

ing than any other road agency in the state. Between 2017 and 2024, RCOC purchased \$25.2 million worth of federal road funding at a price of \$20 million. That means RCOC has seen a net gain of \$5.2 million, all of which has gone directly into additional road projects that otherwise would not have been possible.

Kolar noted that because the program allows RCOC to stretch its existing funding, he intends to continue aggressively purchasing federal dollars whenever possible. "The bottom line is we have completed several significant projects that would not have been possible otherwise," he explained.

Preservation Overlay and Spot Resurfacing programs continue to be cost-effective ways to improve RCOC roads

The Road Commission for Oakland County (RCOC) continues to invest in two road-improvement programs that have proven very cost effective: the Preservation Overlay and Spot Resurfacing programs.

The Preservation Overlay Program involves simple resurfacing of roads in moderately good shape, thus prolonging their useful life and providing a smooth surface. The program involves minimal base repairs and "milling" (grinding off) of small sections of bad pavement before applying two inches of new asphalt.

The program cost averages just under \$300,000 per mile. It extends the life of the road by five to 10 years. The program will be implemented on about 46 miles of RCOC roads this year at a cost of \$12 million.

Last year, RCOC completed about 40 miles of Preservation Overlay projects at



a cost of about \$11.4 million.

The Spot Resurfacing Program is similar, but involves the simple resurfacing of smaller segments, typically between about 500 feet and several thousand feet, allowing RCOC to place a new surface on bad sections of otherwise decent roads.

This year's Spot Resurfacing Program covers about five locations across the county at a cost of approximately \$1.2 million.

"These two programs provide a very

cost-effective way to address some of our roads that are starting to deteriorate, and catch them before they become much worse," explained RCOC Managing Director Dennis Kolar. "If we let the roads deteriorate to the point where we need to do a major resurfacing project, the cost would be substantially higher."

Kolar noted another benefit of these projects is they are completed fairly quickly. "Typically, for both Preservation Overlay and Spot Resurfacing projects, we are in and out in a couple of weeks, and we typically don't close the road. Usually, the contractor will close one lane at a time and direct traffic with flaggers."

For a complete list of this year's Preservation Overlay and Spot Resurfacing projects, visit the "Road Projects" section of RCOC's website, www.rcocweb.org.

ROAD COMMISSION **for OAKLAND COUNTY**

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SMART — CONT'D FROM FRONT
their traffic signal timings. Because traffic patterns can change frequently, this is an inefficient process.

Working together, CCAT and RCOC, with the assistance of General Motors, conducted an 18-month pilot study to test the potential to use connected-vehicle insights as an alternative method to gather the data needed to retune traffic signals. The study, conducted in Birmingham, resulted in a 20 to 30 percent reduction in the number of vehicle stops at the signalized intersections where changes were made.

This was the first-ever large-scale, cloud-based traffic-signal-retuning effort. The study demonstrated that there is a tremendous opportunity for communities and road agencies to recalibrate traffic patterns, thus reducing congestion, improving safety and reducing vehicle emissions, much more quickly and at much lower costs than traditional traffic-signal-retuning practices.

The effort involved using data collected from General Motors vehicles equipped with the requisite technology, which make up approximately 10 percent of the vehicles on the road. The U of M system takes data from the GM vehicles and extrapolates

larger traffic patterns that can then be used to determine the most effective timing for the traffic signals.

The potential demonstrated by this study could prove beneficial for the governmental agencies in charge of traffic signals all across the country and, in fact, all around the planet.

RCOC Deputy Managing Director and County Highway Engineer Gary Piotrowicz, who has a background in traffic-signal-system management, notes that data collection has always been the Achilles' heel of the traffic-signal timing world. "This study demonstrates that U of M's system, combined with data from connected vehicles, such as that provided by GM in this case, solves the age-old data collection problem."

In fact, Piotrowicz predicts this process will eventually be the norm for traffic-signal timing around the world. In that sense, the process demonstrated in this study is nothing short of revolutionary.

The study was funded by the United States Department of Transportation Strengthening Mobility and Revolutionizing Transportation (SMART) Planning and Prototyping Grant and General Motors.

RCOC website has a wealth of info: rcocweb.org

Need info about a road project? Or looking for the Road Commission for Oakland County (RCOC) gravel-road chloriding schedule?

Then head to the RCOC website — or suggest your constituents check there for a wealth of road-related information. The

website, www.rcocweb.org, provides project info, a way to share concerns with RCOC, a traffic map that shows real-time congestion levels and much more.

RCOC info is also accessible from the RCOC app — available for free at all the usual app stores.

Contacting RCOC

If your constituents need information about a road project or want to report a pothole, traffic-signal concern or other road issue, they should call RCOC's **Department of Customer Services** toll free at:

(877) 858-4804

OR

**Fill out a report via the
RCOC Web site:
www.rcocweb.org**

ROAD REPORT

Road Report is published quarterly by the Road Commission for Oakland County. Have a question or comment about **Road Report**? Call Senior Communications Manager Craig Bryson at (248) 645-2000, ext. 2202.

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