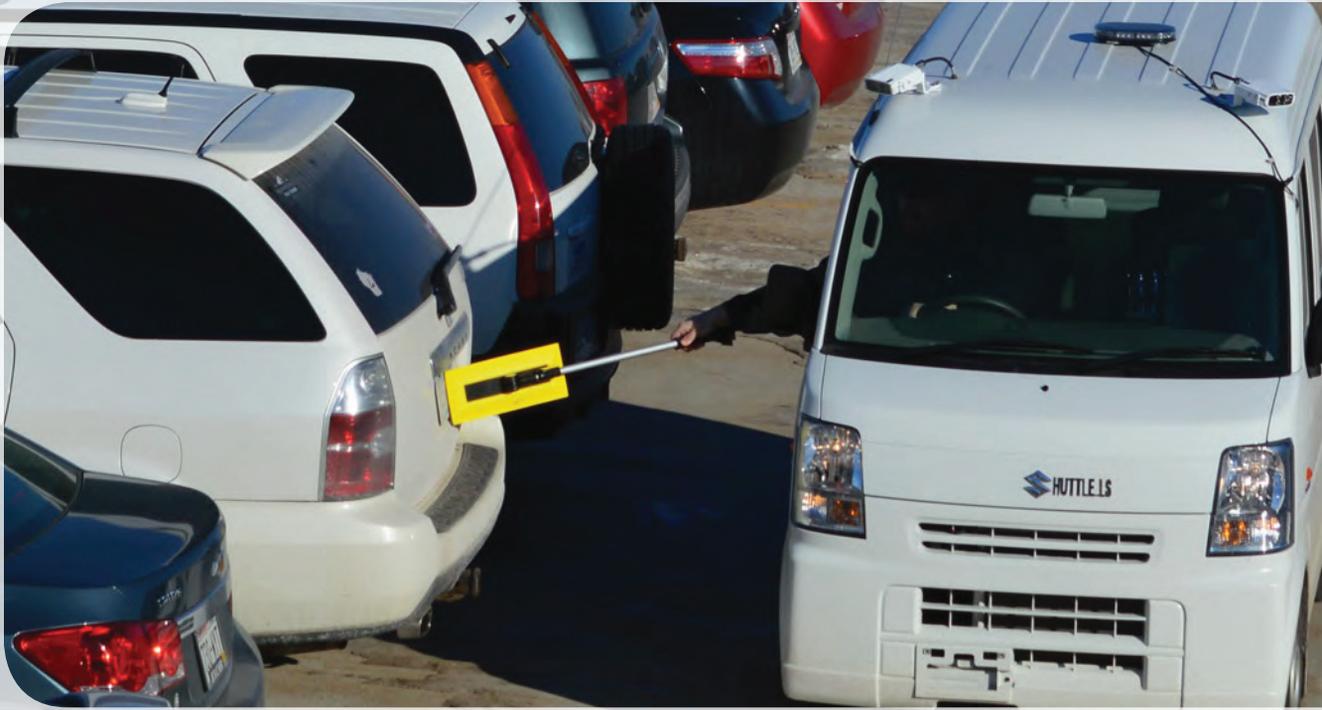


LPR at a Midsize University?



You Betcha!

License plate recognition (LPR) technology is a tough sell at small or midsize universities, where projects with high initial costs require solid justification, even if they offer better options to customers. The University of Wisconsin-La Crosse (UWL) recognized the benefits of LPR and deployed it last year. Convincing leaders of LPR's value took data and persistence to show how the technology could make the operation more efficient and, more importantly, provide better options for students, employees, and visitors.

This is our story of why we wanted it, how we got it, and how we deployed it.



Getting Buy-In

Why does a university our size need LPR? UWL is a Division III school in the Wisconsin university system with an enrollment of more than 10,000 students each year—considerably smaller than the Madison campus’s enrollment of more than 43,000 students. UWL has about 2,800 parking spaces across 17 surface lots and a five-level garage. We do not have access controls in lots or the garage. Staff includes me, two office associates, one

I worried that if her leaders weren’t interested, ours wouldn’t be either.

She was right. One of our vice chancellors had seen a similar presentation and expected an accuracy rate of more than 85 percent. My chief and I eventually received permission to insert a placeholder for LPR in our capital projects plan and developed a plan for deployment.

In 2016, we got the green light.

Planning Deployment

We needed to know the good, bad, and ugly of LPR from other universities. The three years that passed allowed us to solidify relationships with vendors and see how others used it. We researched options that integrated with our parking software and examined operations with standalone systems. We surveyed universities, studied cost benefits, and visited colleagues in Green Bay and Milwaukee. We asked about obstacles, how the expense was justified, how LPR was deployed, and how permits are phased out. Responses varied, but all had one thing in common: time. Colleagues agreed that allocating enough time to ensure the system worked before it went live was paramount. A minimum of six months was the common response, and we used it as our starting point, figuring we could install the system in spring and be ready for an official deployment that fall in time for a new academic year.

We analyzed cost savings for printed permits and staff time saved. Our permit printing costs are relatively small—less than \$10,000 per year depending on needs. And it takes time to process permits. Every permit sold requires one or more employees to associate it with a customer by noting its number or stuffing it in an envelope. Daily permits must be accounted for, and permits provided to other departments are tracked. Citations issued to students and employees who forget permits create issues.

All of these practices add up and cost approximately \$20,000 in staff time. We argued that LPR would improve our operational efficiency and ensure happier customers. We estimated we could recover our initial investment in the hardware within two or three years and recommended a one-vehicle system for mobile enforcement that integrated with our parking software. Our vendor said we could enforce our campus in about an hour and increase citation revenue thanks to the increased efficiency. On average, we can do it in less than two hours, and citation revenue has been steady thus far. Our research indicates that the installation of new lot signs, increased permit sales, and more proactive educational efforts have actually reduced the number of citations we’ve issued, and LPR has helped make enforcement more consistent. Larger campuses may see larger revenue gains. We expect similar results over the next three to five years.

University of Wisconsin-La Crosse ditches permits for plates.

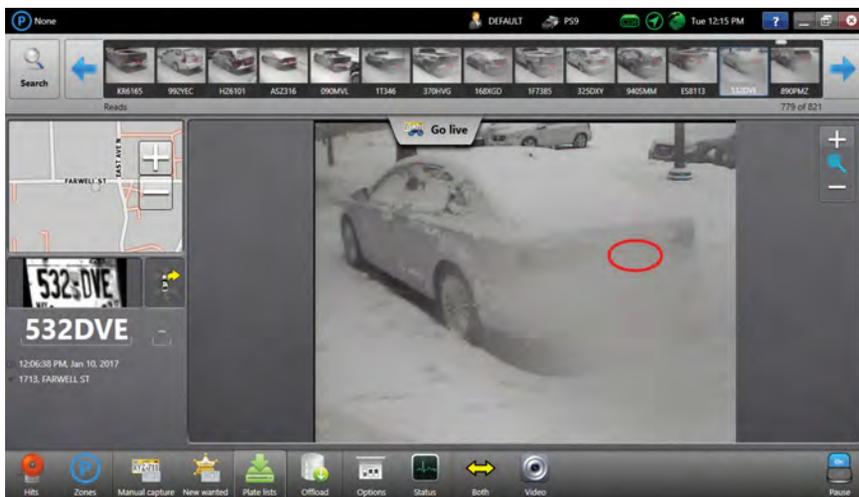
By Victor A. Hill, CAPP, MPA

full-time enforcement officer, and a handful of student officers. As director, I report to the university police chief, and police officers periodically provide parking enforcement. We have an agreement for bus service with La Crosse but do not run a campus shuttle.

UWL’s interest in LPR began more than five years ago as the technology’s adoption increased in the parking industry. LPR has been around for 40 years, but widespread deployment has slowly increased as its accuracy has improved. Prior to our adoption of the technology, UW-Green Bay and UW-Milwaukee were the only two Wisconsin system campuses using LPR.

I joined UWL in 2013 and was excited about the prospects for LPR until I spoke to colleagues at other campuses. While accuracy ratings of 80 percent were lauded by vendors at that time, several university parking officials I met at conferences balked at the rate.

“There’s no way we’re convincing our people that 80 percent accuracy can justify the expense,” one industry colleague said. The comment stood out because she worked at a university much larger than ours, and



The LPR system is useful even from a distance or during bad weather.

My chief and I made the case for LPR every year at budget meetings until we got approval last May. Our Milwaukee campus purchased an LPR system through a bid process, and policy allowed us to use their contract, but we needed to move quickly as the fiscal year ended. I finalized the order at our vendor's booth at the IPI Conference & Expo.

We installed the system in August and had it running within a month but agreed to delay formal deployment to the 2017-18 academic year to make sure it ran smoothly and iron out any bugs in the system. Our security officer used LPR as his primary enforcement tool while student employees checked permits as they always had. This allowed for a system of checks and balances to gauge the system's accuracy, measure student employee performance, and to see if the system might catch anything out of the ordinary.

It did.

Bugs and Bad Data

The problems our colleagues warned us about were immediate. Until we mapped lots into the LPR software and ensured license plates were properly assigned, every vehicle we scanned registered as a hit. In addition to

learning the software, we spent the first few weeks adjusting lot configurations in the LPR software. Students and employees have assigned lots at UWL, and the system needs to know which plates belong in each lot. Our officer determined it's easier to tell the system which lot he is patrolling at that moment rather than rely on GPS to detect his location. That may not be practical for larger operations, but it works at UWL, especially in a garage with three levels of commuter parking and two levels of resident parking that may confuse GPS.

"Considering how fast we got LPR running, we didn't really have too many bugs," says Nicholas Glover, UWL's parking enforcement officer. "I think the biggest challenge was the license plates, especially with students who brought different cars up than what they originally registered or adding their friends' cars to their permits."

We caught dozens of plates that were entered incorrectly when permits were purchased. Wisconsin plates typically have three numbers followed by three letters: 123 ABC. The numbers and letters were often transposed, marking the most common error we observed. Staff adjusted the plates in the database and cleaned up a substantial amount of bad data we didn't know we had.

We also discovered several instances of misuse of permits, notably at the start of spring semester after some students decided to remain on campus. UWL policy prohibits the transfer of permits, but Glover found several students who sold permits to classmates.

"We usually find a few of these every year, but LPR made it a lot easier," he says. "It was a nice bonus."

The findings helped set the tone for a revised student policy of one plate per student. Employees can register multiple plates and pay for one or more permits, but students can only have one on file at a time.

And as we discovered these instances of misuse, the snow began to fall.

Read Rates and Weather

We were writing citations with LPR by mid-September and happy with the 90-percent-plus accuracy.

"There really weren't many instances of errors unless the plate was at a weird angle or was damaged," Glover says. "It's been great. There were a few days I didn't think it'd work so well, but I got plenty of good tickets. We haven't seen too many special characters on plates, but those stand out and are easy to deal with."



Our biggest worry was snow and Glover devised a clever way to brush off plates in inclement weather without leaving the vehicle; it turned out to be a bonus for reducing slip/fall hazards. He uses a brush with an extendable arm, similar to a tire chalk, to reach plates. Fortunately, the LPR system reads plates in heavy snow with few issues, and heavy rains don't appear to affect the read rate either.

License plates from other states are read accurately at more than 90 percent as well. We provided our vendor a list of the most common states we see, and the more uncommon ones are still accurate. Wisconsin plates are white with black letters, and that contrast makes a big difference.

Revising Policy

LPR's deployment requires adjustments to policy and customers are, understandably, concerned about access to personal information. In our policy revisions, we reiterated our adherence to the Driver's Privacy Protection Act and Family Educational Rights and Privacy Act. The former prohibits the release of personal information from motor vehicle records. Personal information is only accessed for permit sales or when overdue notices and appeals are managed for citations.

Employees received an annual email with additional information about ensuring their license plates are updated. Students will receive similar information this summer when sales begin. We will produce an instructional video about permit ordering for our website and social media that will appear in late spring or summer.

Looking Ahead

We advocated for LPR to provide better customer service and improve operational efficiency. Permit holders often forget to switch their permits when they use different-than-usual vehicles. They lose permits, or they arrive on campus to a full lot due to an event. The LPR system only needs a valid plate, and employees no longer need to worry about switching their permits if they drive a different vehicle to work. We can adjust parking rights if events fill up lots.

As a result, printed permits simply are not needed as often, and our customers are happier for it. It is a more sustainable way to operate, and we believe the investment is worth it for customer satisfaction. In fairness, not all of our printed permits have been eliminated; two larger events still require them, and we expect that multi-day events may use them on occasion.

Our deployment coincided with a transition to pay-by-plate pay stations. Departments that host events and wish to absorb parking costs can request coupons for the pay stations. Their customers still enter their plates, use the code, and receive an invoice based on the number of times the code is used. Receipts are optional and, mostly, unnecessary. Visitors can purchase day permits at our office using their license plates, they can use the pay station, or they can pay with a mobile app. Customers appreciate the convenience, and our operation has become more efficient.

LPR will only get better as technology continues to evolve. The right question to ask about LPR isn't "why?" It's "why not?"



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