non-residents. Not everyone is happy with the results.

LEONIA, NJ—During morning rush hour, one of the first things you'll notice on the streets of Leonia, New Jersey, are the yellow "resident" tags inside of cars. Nearly everyone here has one hanging from the windshield. Traffic is mostly contained to Fort Lee Road, a central stretch that connects drivers each day to the George Washington Bridge, two miles to the east. Along it, school crossing guards stand watch.

Off of Fort Lee, all is quiet on the residential roads, which are lined with old Victorians, with little foot traffic. Still, you can't help but notice the prominent "Do Not Enter" sign: "6 am to 10 am, 4 pm to 9 pm," it reads. "Residents Exempt."

You may remember Leonia. A borough in Bergen County with a population just over 9,000, it made headlines at the end of 2017 when local officials here did something that no other town in America had done before: It shut off 60 of its public roads during rush hour to non-local drivers. Navigation apps like Google Maps and Waze had made traffic unbearable, said Leonia's mayor, Judah Zeigler: An estimated 2,000 city-bound motorists were now being rerouted each day through its side streets as a turnpike shortcut. "We have had days when people can't get out of their driveways," Leonia's police chief, Tom Rowe, told *The New York Times* in December.

Just days after Leonia police began issuing $200 fines to non-local drivers, the nearby town of Weehawken followed its lead, albeit slightly, enacting rush-hour restrictions on a specific right turn in an effort to ease traffic to and from the Lincoln Tunnel. And many other small towns across the country have floated similar complaints about diverted drivers taking over local streets—a growing backlash against the so-called 'Waze Craze.'

One resident in Takoma Park, Maryland, began posting fake wrecks to throw Waze's routing off. Town officials in Los Altos Hills, in California, installed "No Thru Traffic" signs (and were reportedly able to get Waze to reroute drivers elsewhere). Nearby, Los Gatos closed certain roads on popular weekends to prevent beach traffic from navigation apps. In Los Angeles, one local official has confronted Google over a reroute that sends cars down a dangerously steep street. And a Tel Aviv suburb has sued Waze, an Israel-based company, accusing them of creating a neighborhood traffic jam.

But the Leonia ordinance might be the most dramatic example of a town taking drastic measures to combat the effects of a disruptive mobility technology. It raises a host of thorny questions about the responsibilities of private companies when they impact public space, and how government can, and should, respond. "Demographic explosion and the growth of urban areas are just going to make this problem worse," said Alexandre Bayen, the director of UC Berkeley's Institute of Transportation Studies, where he has extensively studied the effects of routing apps on traffic. "It's a real time bomb. There's no doubt."

To see how this battle was playing out, on a brisk April morning, I took a short ride from New York's Port Authority Bus Terminal to Leonia.

Nearly everyone I spoke with agreed that congestion had improved, but they were split on its consequences. Many residents said the ordinance's most passionate proponents were young parents, who had felt that the town's roads had become unsafe thanks to the extra traffic. One resident of 38 years, who declined to be named, was glad to see more safety on Fort Lee Road, which has seen deaths in the past. But she felt that the rules were "kind of idiotic"—the town, she said, should have gone after the tech companies behind the apps, not the drivers who use them. (Borough officials have said that the town is in touch with Waze, although any algorithm-retooling effort thus far has not been made clear.)

Bob Fitch, who bought his family home in Leonia in 1968, said the road laws had "certainly stopped that problem of drivers finding their way through our neighborhood's roads." But when his son had come to visit from Florida, he said he had been stopped by police for not having the yellow tag in his car: Fitch thought this run-in was a "little too aggressive" for a Leonia native. He was also somewhat taken aback when he'd returned from vacation without even knowing the ordinance was in place. "How could there have not been a vote on this?" he asked. (In fact, the ordinance was approved by the Borough Council in December, and Mayor Zeigler said then it was "thoroughly" researched.)

The biggest issue I heard was about the ban's effect on local business. In February, several shop owners marched on the mayor's office to protest the road laws. Some small businesses cited revenue drops as high as 40 percent since December. One employee told me that Leonia was a "ghost town" in the first few weeks after the traffic ordinance was signed.

In response, the town promised to install new signs that were more informative and welcoming than the existing "Do Not Enter" signs. "We believe that these signs are scaring some non-residents, and they're worried that they're not able to shop or dine at their favorite Leonia destinations," Zeigler said in a news release. The road law was later amended to clarify that anyone visiting Leonia to do business was allowed to do so at any hour. A brown banner was also put up across Broad Avenue, one of Leonia's main drags: "Leonia, NJ. Open for Business."

This might serve as a rare reminder that navigation apps also offer potential economic positives to those communities that find themselves targeted by rerouted drivers, who might come upon eateries or businesses they wouldn't have found otherwise by using the apps. Gladys Calero, who has owned Rumba Cafe for 15 years, told me that "people from all over" North Jersey come to eat at her cozy Colombian restaurant. But since the restrictions, she has seen a "big decline in foot traffic," and that every local business she knows has been affected. "There are just less cars here now," she said. The banner, she said, "was one of the solutions they think will help," but she's not holding her breath. "Let's see when the seasons change," she told me around lunchtime. "Maybe things will get better."

The economic impact issue was also the most divisive. Most of the small business owners I spoke with refused to give their names, out of fear of retribution from customers, who, they said, believe that the businesses are putting profits over traffic safety. "When a customer walks in," one employee told me, "I never know who supports the laws, and who doesn't." There was also a race factor: The town boasts a growing Asian population, largely Korean-American; several business owners who've resisted the law said they have received hateful remarks for speaking out against it. In the end, they all repeatedly stressed that they wanted what was best for Leonia.

A few days after my trip to Leonia, I gave Jacqueline Rosa a call. Rosa is an attorney who lives in Edgewater, a waterfront town a few miles away. She filed a legal complaint in early February, contending that her right to access public roads was being denied by Leonia's road laws. "I've done business there, I've used some banks there, I've been to the bakery and Italian restaurant there," she

She's received a number of calls in support, she says. The only public middle school and high school for Edgewater students is in Leonia, and many parents, she heard, had been stopped while dropping children off in the morning, making them late to work. It was difficult to tell, however, if traffic in Edgewater had gotten any worse as a result of Leonia's restrictions, she said. "Traffic comes with the territory," she argued. "You don't move across the street from New York City and expect there to be little traffic."

Rosa's lawsuit claims that Leonia's road restrictions intersect with federal and state highways, yet were never approved by the state's department of transportation, which is legal grounds for invalidation. Now she is waiting for the department's response and expecting an answer within 30 days. "Whatever ruling comes down in the Leonia case is obviously going to be precedent for any other town that does it," she said.

According to press reports, Mayor Zeigler did not comment on the case, but said the town's bill was "in the early stages and open to adjustments." In the past, borough officials have cited a Supreme Court decision from 1977 that affirmed local government's right to restrict commuter parking as provable precedent.

"It's a data problem. It's a private vs. public sector problem. It's a legal problem. It's a policy problem. And we haven't even gotten to the equity issues yet."

Systemwide, it's not clear whether states have the authority to block local traffic rulings like Leonia's. Alexandre Bayen expects "a lot of pendulum swings" around similar court cases, he said, with aggrieved homeowners attempting "more and more radical things to resist, and then the system probably fighting back, to bring it back to equilibrium." A class-action lawsuit is a possibility: While it may be difficult for a small town like Leonia to take on a huge corporation like Google alone, municipalities could conceivably group their grievances together and sue the app's makers for disturbing the peace.

But to actually address the effects of mobility tech on towns and cities, public agencies must unpack what Bayen described as a *matryoshka*—a Russian nesting doll—of issues, where solving one leads to another. Should suburbs receive some sort of payment for absorbing motorists bound for the urban center? If so, how would you measure the amount of traffic, and its impact? How do even you classify trips? (Think thru-traffic to New York, vis-a-vis visiting Gladys' cafe for lunch.) And lastly, how do you charge for it?

"It's a data problem. It's a private vs. public sector interaction problem. It's a legal problem. It's a po

From a technological perspective, it wouldn't be difficult to answer those last two questions: Connected cars could be tracked via GPS or sensors. But the politics are another story. For example, Bayen said, in California, an impact fee can only be charged on "new construction," not existing roads, and in some states, a congestion pricing scheme has no legal basis. The judicial framework does not exist right now to create a coherent ecosystem of traffic flow, especially when responsibility is often divided between local, city, state, or federal control.

What's needed, Bayen says, is a universal agreement of how thru-traffic should be handled by different jurisdictions. For example, officials from Leonia, its surrounding townships, and the states of New York and New Jersey would come together under a "joint position," he explains, that lays out exactly what they want to see on particular roads, and install proper institutional framework to achieve it. It sounded like a new social contract for mobility in the 21st century: "They could say 70 percent go this way [during rush hour], and 30 percent go this way."

But that will require striking a grand bargain between what's optimal for both a major city and small town—a difficult proposition, he admits.

Still, what's happening right now—where towns need to make their own streets less accessible to keep traffic under control—isn't working either. After rush hour had ended in Leonia, the streets were notably calm. There were only a handful of people in the shops and cafes I visited on its main thoroughfares. That quiet might be typical for a suburban weeknight in New Jersey, but it somehow felt particular to Leonia.

"If the only thing you can do to defend yourself is to make your own traffic more inefficient," Bayen said, "the whole system has gotten to a place which is really not desirable."