VOLUME 2 | 2017

VISION ZERO CITIES

International Journal of Traffic Safety Innovation

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International Journal of Traffic Safety Innovation

A publication of
Transportation Alternatives

Volume 2, May 2017

Publisher: Paul Steely White
Editor in Chief: Jessie Singer


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WELCOME!

Just a few years ago, *Vision Zero Cities* meant nothing. Today, we are a global movement. Vision Zero is saving lives in over 25 North American cities and around the world from Delhi to London. Here in New York, fewer people are killed every month and our city recently committed nearly $2 billion in new funding to redesign streets.

Last year, I warned of a threat to Vision Zero – ineffective policies, political posturing, and bad ideas sold under the banner of this powerful movement. That threat stands. As Leah Shahum, of the U.S. Vision Zero Network, and Claes Tingvall, of the Swedish Transportation Administration, write later in this issue, not all Vision Zero is created equal. In some cities, education programs stand in for Vision Zero while enforcement and engineering lag. Other cities' Vision Zero ended after the first press conference. In New York City, our police department calls it "Vision Zero" when they put reflective tape on senior citizens' canes and walkers. (Really.)

Vision Zero is a brand that we must protect – and today we are seeing a new understanding that launching Vision Zero is not a finish line, but a starting block. Advocates are demanding that safety is prioritized over convenience. Planners and engineers are pushing city officials to spend more, think bigger and design bolder. We are lifting up the principles of Vision Zero as the new building blocks of our cities.

The following pages are packed with guidance, big ideas and challenging proposals from innovators in 12 cities, across seven countries, and five continents. Taking direction from Naomi Doerner, a thought leader on social and racial justice in the U.S. Vision Zero community, I would humbly like to submit one more idea to this mix: equity is a Vision Zero necessity. As we consolidate our progress and protect our accomplishments, we must work harder than ever to ensure that Vision Zero heals the historic injustices of transportation planning, enforcement and street design. Put simply, if Vision Zero is not part of the solution to injustice, it is part of the problem.

The New York City health department recently confirmed what Transportation Alternatives' researchers uncovered years ago: low-income residents bear the biggest burden of unsafe streets. Communities that want and need Vision Zero are our greatest responsibility. They're also our greatest power. Politicians will come and go, but people are the longevity of our movement.

The journal in your hands was released at the Vision Zero Cities Conference in New York, where hundreds of city officials, advocates and engineers gathered to learn, exchange ideas, and do something a bit different – get trained. The crack team of activists at TransAlt is sharing their incredibly effective change-making tactics with the world for the first time.

The Your City, Your Voice Activist Trainings are a small thing, but, like the voluntary cutting-edge scholarship in this journal, emblematic of our contributory movement. That collectivism is why I believe Vision Zero will succeed. As long as we are learning from each other, we have the power to save lives.

ABOUT

Paul Steely White is Executive Director of Transportation Alternatives, New York City's advocate for bicycling, walking and public transportation. He previously served as Africa Regional Director for the Institute for Transportation and Development Policy. In 2011, Mr. White received the Rockefeller Foundation's Jane Jacobs Medal, which recognizes those whose creative uses of the urban environment build a more diverse, dynamic, and equitable city. In 2015, Paul was honored by the New York Academy of Medicine for his work to make New York City streets safer and healthier.

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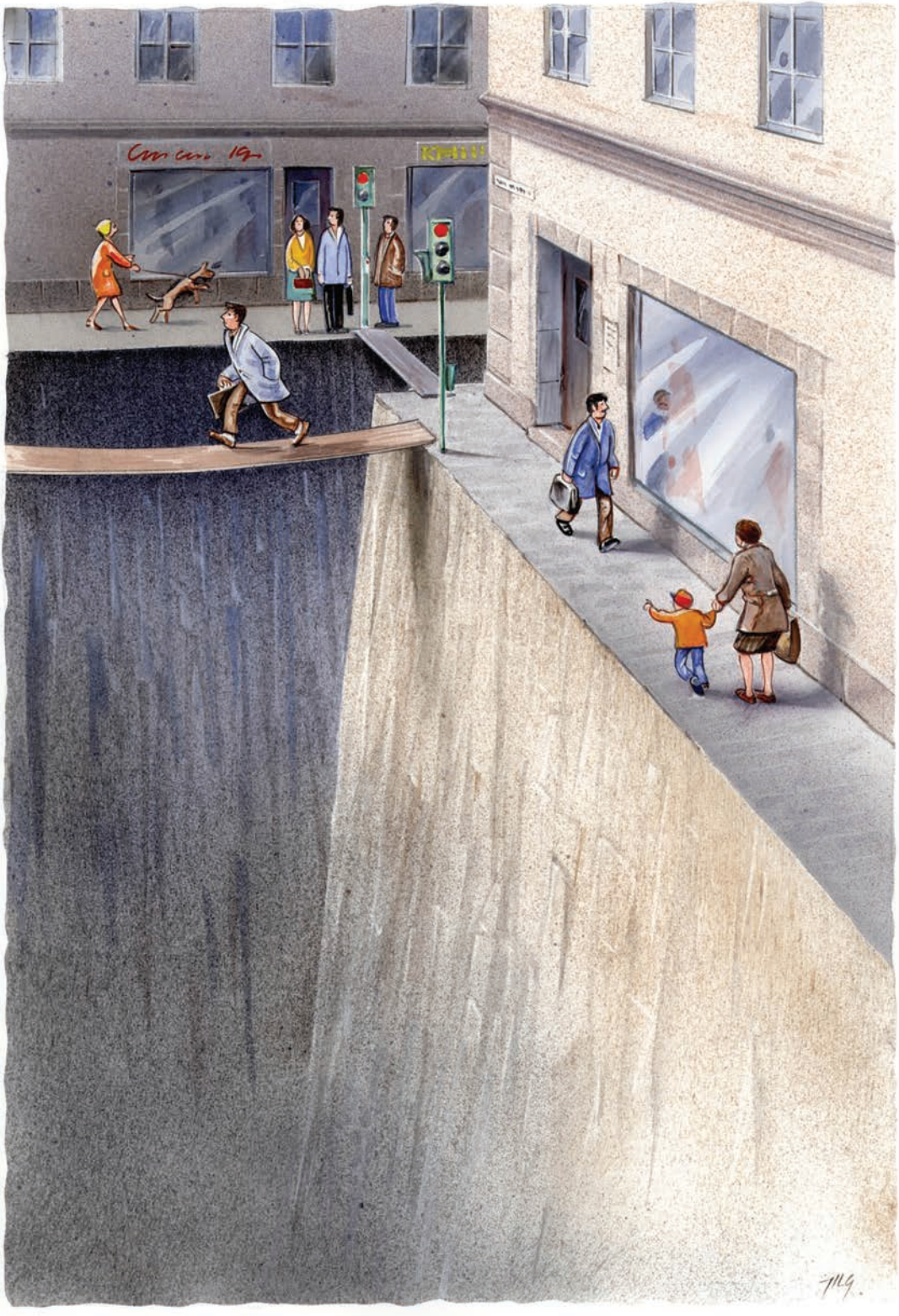

CLAES TINGVALL & MARIA KRAFFT

Defending Vision Zero

As an increasing number of global cities enact replicas of Sweden's hallmark transportation safety policy, there is a growing concern that the very foundation of Vision Zero is shifting. Swedish Transport Administration former Director of Traffic Safety Claes Tingvall argues that as Vision Zero spreads, there is a demand for every city to defend its integrity.


TRAIN

Since its launch in Sweden in 1995, Vision Zero policies have spread at an unbelievable pace. Nations, states, municipalities, organizations, corporations and people around the world have elevated the idea of the citizen's right to survive in traffic. While transportation road systems are currently responsible for almost 1.3 million deaths annually, Vision Zero states that, in the long run, there should be none.

While the popularity of Vision Zero and its growth to encompass so many stakeholders of different sizes, roles and competencies is very positive and promises to save millions of lives, expansion brings the threat of dilution. Increasingly, the content of Vision Zero policies being proposed is less pure than when Vision Zero began.

When Vision Zero is seen as natural, an idealized philosophy rather than an actionable set of policies, then our goals become dreams instead of destinations. When the long-term vision is stated, but no action is taken toward fewer deaths and serious injuries, Vision Zero appears weak or ill-conceived, or perhaps results in traffic safety measures not being implemented at all. Our sincere hope is an important part of Vision Zero, but our hope must be supported by action.

Vision Zero must be a policy based on ethics, shared responsibility and must use only scientific methods to eliminate death and serious injury. In its inception, this was based in three ideas:

First, Vision Zero states that the traditional trade-off between mobility and safety is banned. Mobility is a function of safety, which means that safety comes first in the design and functionality of any transportation system. An investment in safety is therefore an investment in functionality, accessibility or mobility, and in reality there is no conflict.

Second, the responsibility for safety is divided between the providers of the transportation system and the users. The user is expected to follow the basic rules of the transportation system, like staying sober, obeying speed limits and wearing a seat belt. Everything else falls on the providers, and the providers are a broad group of people: policymakers, elected officials, trucking companies, city planners and traffic engineers are all included. If the road user fails to follow the basic rules, the responsibility falls back on the providers to come up with new solutions.

Third, all decision-making around Vision Zero should be based on science and documented experience. Providers must be evidence-based in their decisions, because they are responsible for the life and health of users. There is no room for experimenting with methods that have proven ineffective. Like doctors, providers' only prescriptions for roads should be those which have been proven to be effective and safe. Since more than 90% of all crashes can be attributed to human error, the transportation system must be robust and tolerate human errors.

From these three cornerstones, we can fairly well distinguish between what is Vision Zero and what it is not. Our most important work, as Vision Zero spreads around the world, is drawing this line in the sand.

If a stakeholder, nation, municipality or corporation claims that their actions, products or services are based on Vision Zero, it is normally quite obvious whether this is true or not. If a city does not have a plan for speed management that limits drivers to 20 miles per hour where streets are used by pedestrians, it is not a city that is serious about Vision Zero. If the CEO of a taxi company does not manage their employees or vehicles

ABOUT

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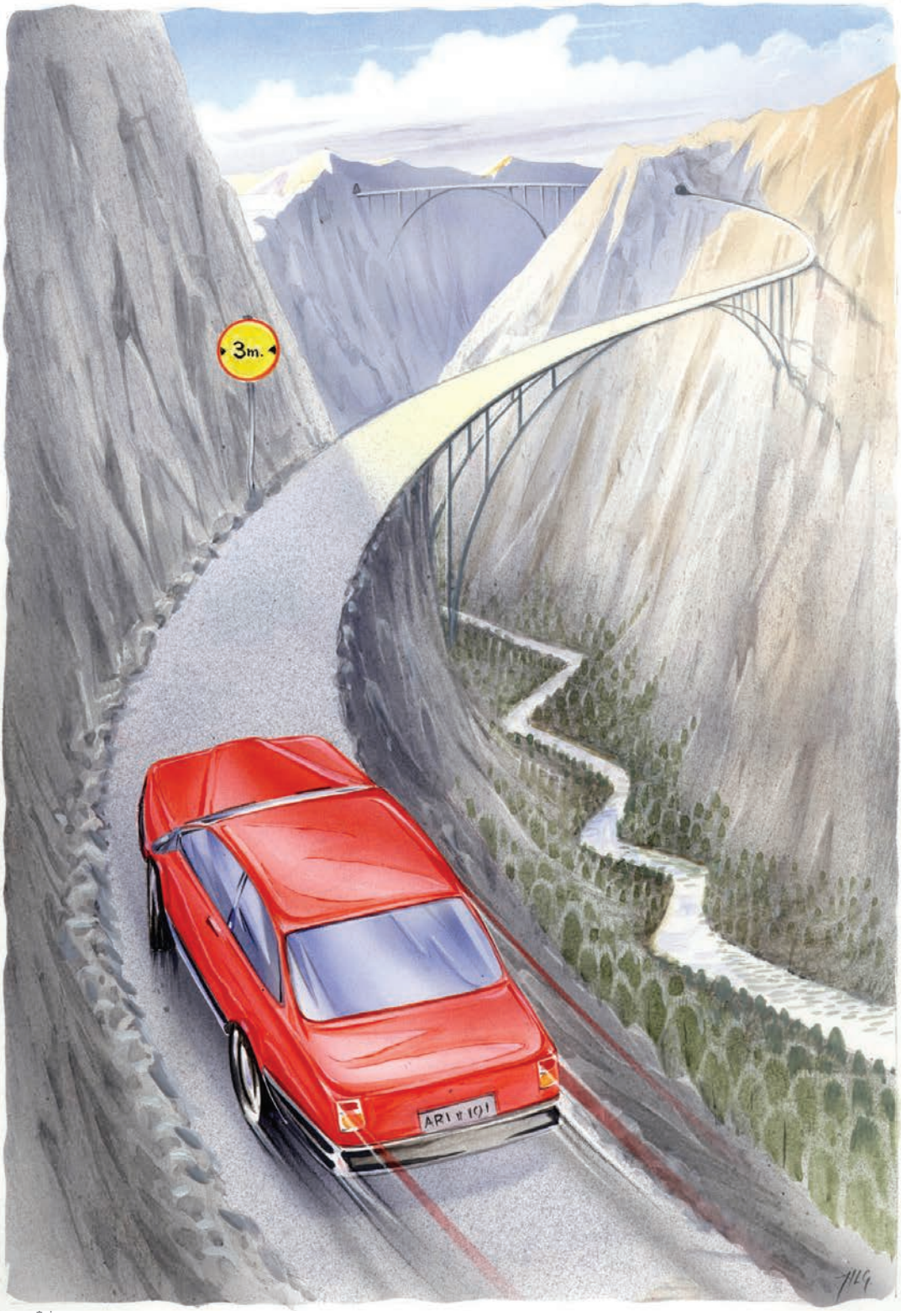
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If it becomes common to merely rebrand "business as usual" as Vision Zero, and therefore acceptable for Vision Zero to have little effect on safety, then Vision Zero will not survive as meaningful policy.

to wholly prevent speeding and strictly prioritize pedestrian safety, that CEO is not serious about Vision Zero, either. If an elected official or policymaker claims that educating children about traffic rules would be a good idea, they are without basic knowledge about traffic safety. If a motorcycle organization or manufacturer claims that advanced driver training is effective for safety, its claims are in fact a dangerous exercise. These are obvious cases of Vision Zero in name only.

It is the responsibility of every person with the power to influence Vision Zero where they live to make sure that their Vision Zero is sound and effective. In the past, traffic safety was driven at best by lack of knowledge but often also by myths and "common sense" and what might be most popular. Today, in places where Vision Zero has been adopted, the strong tenets that govern the policy should eliminate this lack of rigor.

But this is not the case everywhere. From Sweden to the United States, we see examples of weak and watered-down versions of Vision Zero. The threat of these examples might be a serious threat to Vision Zero globally.

If it becomes common to merely rebrand "business as usual" as Vision Zero, and therefore acceptable for Vision Zero to have little effect on safety, then Vision Zero will not survive as meaningful policy. If a practice is branded as Vision Zero without lowering risk to people, the reputation of Vision Zero will decline precipitously.

As we look to a future where Vision Zero has spread around the globe, we must see communities where Vision Zero is open to all new needs, technologies and trends. To build livable cities, where pedestrians, bicyclists and public transit riders are put before the users of private cars, we must begin by always considering the safety implications. Autonomous driving, driverless cars and robotized vehicles must not only be safe, but also feel safe, so our children grow up in cities where safety is the clear and present priority. To ensure the future is safer than the present, we must go beyond claiming that new technologies are a danger; we must engage with coming challenges and help guide them. Here, Vision Zero can be our road map to navigate a fast-changing society.

The Vision Zero of tomorrow will be defined by the policies and actions we take today, so our care is essential. It is important for us all that Vision Zero remains undiluted, powerful and unflinchingly aimed at saving the lives our fellow citizens.


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TAMIKA BUTLER

Can Vision Zero Work in a Racist Society?

In the United States, advocates have proposed that equity is requisite for Vision Zero's success. Los Angeles County Bicycle Coalition Executive Director Tamika Butler asks whether the engineers and policymakers who will enact Vision Zero are capable of meeting that challenge, and sets an agenda for beginning to rectify inequity in city planning.

Vision Zero was invented in a European country far more homogeneous than the United States. When bringing this concept to the U.S., it is important to acknowledge, examine, and understand how the history of this country – marked with the scars of killing off the native peoples of this land, enslaving the native peoples of another, and the ongoing oppression of people of color – will influence our ability to save lives. Vision Zero cannot succeed in a vacuum devoid of context.

Low-income people and people of color are disproportionately the victims of traffic crashes and collisions. At the same time, people of color are disproportionately negatively impacted by police interactions. Black people and Latinos are more likely to be stopped by police and encounter police violence, often resulting in death or severe injury.

As advocates and policymakers, how can we ensure that we understand the struggles faced by the most vulnerable people in our cities? Do we look to Europe for solutions that gloss over our structural and institutional racism, or do we push ourselves out of the "best practice" comfort zone to confront how transportation plays a role in our nation's most deep-seated problems? It's a question of how we wish to use the promise and hope of Vision Zero – and it's up to us.

A Milestone Policy

Building on the four E's of the Vision Zero model – engineering, education, enforcement, and evaluation – is a new opportunity for many people who look at traffic violence, particularly for low-income people and people of color, as an overwhelming puzzle that we have yet to solve as a society. For the first time in cities across the country, there is an acknowledgment that traffic deaths are preventable and an acknowledgment that prevention requires cross-sectional work across various disciplines and departments. Declaring a Vision Zero city is the first step and a significant milestone for advocates and policymakers. This often marks a city's first real commitment to protecting the safety of all road users, and officials' first real recognition that some people – people of color, children, older adults, people who walk and bike – are more vulnerable than others. When tackled aggressively, implementing Vision Zero in a city often is the first step in ensuring that a city prioritizes evaluation and commits to cultivating transparency and accountability. These are remarkable byproducts for a traffic safety initiative. All byproducts of Vision Zero, however, are not rosy.

What Enforcement Means

A recent study by urban planner Charles Brown, a researcher and professor at Rutgers University, found that a majority of black and Latino community members who ride bikes find the behavior to be risky, for fear of police harassment, and will not take certain routes to avoid profiling. In Los Angeles, California, where I am Executive Director of the Los Angeles County Bicycle Coalition (LACBC), we hear this concern echoed by people of color utilizing all modes of transportation. As Vision Zero spreads to new cities across the U.S., some advocates fear that Vision Zero will lead to increased police enforcement, without challenging how enforcement targets low-income communities of color. Too often, advocates for Vision Zero stay focused on enforcement for safety

ABOUT

Tamika Butler is the Executive Director of the Los Angeles County Bicycle Coalition. Prior to leading LACBC, Tamika was the Director of Social Change Strategies at Liberty Hill Foundation, overseeing the foundation's boys and men of color program and LGBTQ grant strategy. Before Liberty Hill, Tamika worked at Young Invincibles as the California Director. She transitioned to policy work after practicing employment law for three years at a legal aid organization. She received her J.D. in 2009 from Stanford Law School, and in 2006 received her B.A. in psychology and B.S. in sociology from Creighton University.

and fail to acknowledge that enforcement is not safe for people of color; in fact, it too often results in death.

As more and more cities mark enforcement as an essential pillar for achieving the goals of Vision Zero, advocates must push local lawmakers, and lead by their own example, to ensure that the promotion of enforcement includes language that acknowledges the systematic racism that is prevalent in policing in this country. The Vision Zero Network has acknowledged that word choice matters, both in terms of building public support for Vision Zero and holding police departments accountable for their role in implementation. As a member of the Los Angeles Vision Zero Alliance, LACBC pushed back against a Vision Zero action plan published by the City of Los Angeles that failed to meet this challenge. Currently, our advocates are pushing city leaders to understand that their commitment to "unbiased policing" falls short because it fails to explicitly address racial profiling in policing and fails to acknowledge the disproportionate enforcement that is aimed at communities of color. Our city, our police force and our department of transportation must acknowledge that there is a problem with racial bias in policing before they can consider Vision Zero as a goal.

Inserting Intersectionality

Vision Zero is a policy that brings together a cross-section of people from different fields trying to save lives; however, this is still a cross-section of people from fields that have been historically dominated by white men. Traffic engineers and urban planners may design thousands of intersections every year while failing to understand how to examine social problems through a lens of intersecting frames of oppression.

For instance, if a woman of color faces harassment on the street, she often does not know if it is because she is a woman or because she is a person of color. However, she is able to acknowledge through lived experience that her identity as both a woman and person of color are linked and therefore looks at the harassment through both lenses. For people who do not live at the intersections of different marginalized identities, empathizing with the challenge of experiencing

Too often, advocates for Vision Zero stay focused on enforcement for safety and fail to acknowledge that enforcement is not safe for people of color; in fact, it too often results in death.

daily microaggressions can take intentional professional and personal development. This is not historically a job requirement for planners or engineers, and it is not professional development or training universally provided by institutions that employ these individuals. For Vision Zero in particular, and urban planning and traffic engineering at large, to be relevant and impactful as the country continues to diversify, this tradition of myopia needs to change. The people who are pushing Vision Zero in cities across the U.S. must reflect the diversity of those cities. At LACBC, we are engaging in these difficult conversations. That starts with confronting privilege in our organization and amongst ourselves as individuals, and working towards solutions to what we find in consistently held formal and informal trainings.

Vision Zero in a Racist Society

Vision Zero cannot solve systemic racism in the United States. Rather the rise of Vision Zero in the U.S. is a perfect moment to make transportation – and the advocates, planners and engineers who sculpt our streets and cities – confront racism and equity. This is the moment to educate the planning students who will lead tomorrow's Vision Zero on the systematic oppression of people of color. This is the moment to look at the racism institutionalized into our nonprofits, planning firms, and government agencies, and hire a workforce that reflects the diversity of our cities, at every level and in every position. This is the moment to invest in continual and consistent education of our employees. When we allow our colleagues and ourselves to live in isolation from those most impacted by our work, our work lacks impact.

For Vision Zero to succeed, there must be an explicit acknowledgment that racial bias in policing and planning is a problem. People of color know that race is a major factor in our safety and in our ability to succeed as we move about our cities. Any Vision Zero strategy that fails to explicitly and affirmatively acknowledge this disparity is one without true vision, honesty, and an ability to take into account the realities that people of color in this country face.

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SARAH JONES

Against L.O.S.

Traffic engineers design streets with a single purpose – the flow of automobiles – a measurement known as Level of Service. San Francisco Municipal Transportation Agency Planning Director Sarah Jones challenged the supremacy of Level of Service in California, creating an opportunity to design streets holistically for cyclists, pedestrians, drivers and the health of the city.


BUS ONLY
TAXI
TAXI

For decades, the gold standard for evaluation of street design has been "Automobile Level of Service" or L.O.S. – a measurement of the ease of movement for cars and drivers. However, the longer that L.O.S. has been used as a barometer, the greater it has grown in scope, becoming the singular defining factor in the success or failure of a street design.

Today, the ascendancy of L.O.S. is beginning to waver, as more and more cities see how a focus on L.O.S. can attribute to traffic fatalities and stand squarely in the way of Vision Zero.

A Brief History of L.O.S.

L.O.S. was developed in the 1950s to evaluate the adequacy of highways at a time when the primary objective of transportation planning was to facilitate movement of people between cities and suburbs by private car. The system grades the automobile flow of a street with a qualitative measurement, a letter grade from A to F, from free traffic flow to congested.

Despite creation for essentially car-exclusive roadways, it did not take long for L.O.S. to inch off the highways and into the primary measurement for city streets. From Los Angeles' Sunset Boulevard to New York's Queens Boulevard, we see the reckless relics of L.O.S.-led street design: easy speeding, unimpeded traffic flow, and gapingly wide streets that are impossible to cross on foot. When traffic engineers plan for optimal L.O.S., the street picks up conditions that are most dangerous to people who aren't in cars. Interestingly, in addition to defining traffic speed, L.O.S. is described as a definition of "driver comfort level," which needless to say takes precedence over pedestrians' level of comfort on any street defined by the L.O.S. measurement system.

L.O.S. is used almost universally in the United States and is an essential tool for highway engineering. But in many places it has become an all-purpose planning device too, used as a measurement that affects what kinds of projects are approved and what route they must take to get there.

In California, for example, L.O.S. was baked into the evaluation of all street design projects' impact on the environment, under the California Environmental Quality Act. This meant that all development and infrastructure projects or policies – literally any proposal subject to discretionary government approval – underwent a rigorous analysis of the potential for impacts to the environment. The idea of judging environmental impact is well-intentioned. If a project could result in release of hazardous materials, for example, the need for approvals is clear and unequivocal. But as our understanding of urban transportation advances, the need for a more subjective and value-derived system of judgment becomes clear.

Bike Lane L.O.S.

Until recently, under the California Environmental Quality Act, traffic congestion – as represented by a poor L.O.S. grade – meant that a project's impact on the environment was considered "significant" and required the preparation of an Environmental Impact Report (costing hundreds of thousands of dollars and taking several

ABOUT

Sarah Jones is the Planning Director at the San Francisco Municipal Transportation Agency (SFMTA), where she leads a team of 40 transportation planners in a variety of multimodal short- and long-range planning efforts for San Francisco's transportation system. Prior to joining SFMTA, Sarah spent 10 years at the San Francisco Planning Department, including three as Director of Environmental Planning. In that role, she initiated San Francisco's elimination of vehicle L.O.S. as a measure of environmental impact. Sarah holds a Bachelor's Degree in Urban Studies from Stanford University and a Master of City Planning from the University of California at Berkeley. She lives with her family in San Francisco.

As long as vehicle L.O.S. is a defining factor or an exalted yardstick by which planners measure effectiveness, it will be that much more difficult for cities to reach Vision Zero.

years to complete), as well as special requirements for project approval.
Needless to say, pedestrian, bicycle and transit projects didn't fare well in that system. Thinking about reducing the number of traffic lanes to give more room for sidewalks? Better have your environmental consultant on speed dial! Want to put in some bike lanes? Get ready to do an Environmental Impact Report – like we did in San Francisco, to the tune of $2.5 million and three years effort from court order to completion, just to produce a master plan for bicycle infrastructure. With L.O.S. omnipresent in traffic engineering regardless of road type, and places like California where L.O.S. triggers a mess of high-cost hand wringing, it is no surprise that the cities do not do everything possible to create safe streets.
In 2013, California passed a law that explicitly prohibited use of L.O.S. It was the first step in shifting the focus of transportation analysis away from measuring vehicle delay and toward methods that encourage reduced greenhouse gas emissions, multimodal networks, and mixed land uses. In other words, true environmental impact. California told cities that the time had come to reward and incentivize street networks that are safer and easier places for a person to move around outside of a car.

Tomorrow's Gold Standard
California's new law was a monumental milestone; adopting a replacement metric was the next step. Today, California's transportation impact assessment identifies three areas of impact that cities must consider as they engineer streets. Powerfully, each has a direct connection to collision risk and a direct goal of putting fewer cars on the road. First, new transportation developments must be evaluated by the expected increase in Vehicle Miles Traveled (VMT) they would cause. Second, transportation projects must consider the possibility of "induced travel," (like the addition of street capacity making car use more prevalent, or the decrease of street capacity easing the use of cars, or the addition of opportunities to use bicycles reducing the need for car ownership). The associated technical advisory suggests that cities also consider the potential for a project to result in danger, like increasing vehicle speeds or creating longer crossing distances for pedestrians.
California was looking for ways to streamline environmental review of projects in urban areas and better achieve greenhouse gas reduction goals. Safety and reduced collision risk were not the primary reasons for changing what was considered a transportation impact, but the change in law has positioned California cities to tackle Vision Zero in a way they never could when policy compelled them to prioritize car traffic over all else.

The new California Environmental Quality Act standards have met with resistance from suburban and rural communities and highway advocates in the state, and the approval process is still underway. However, cities have a legal right to adopt their own standards, and now have all the tools they need to set those standards around a framework of complete streets and places for people instead of cars. San Francisco was the first city to adopt the new guidelines, and Oakland followed suit, with other places considering the change instead of waiting for the State adoption process to be completed.

Level of Vision

San Francisco's pedestrians and bicyclists are already benefiting from the new evaluation criteria. On 6th Street in the South of Market neighborhood, home to one of the highest rates of injury collisions in the city, the San Francisco Municipal Transportation Agency's 6th Street Improvement Project is preparing to widen sidewalks, add corner bulb-outs, and reduce vehicle travel capacity, and as of press time, is proceeding through approvals without requiring a costly and time-consuming Environmental Impact Review.

Other projects reflect the relationship between Vision Zero and planning unyoked from L.O.S. even more explicitly: after a fatal crash in summer 2016, the Municipal Transportation Agency was able to fast-track improvements to 7th and 8th Streets, including protected bikeways, safety zones, and transit boarding islands, making these corridors safer and more comfortable for all modes. This project – which once would have needed extensive review for L.O.S. impacts and ultimately may have been modified to maintain vehicle speeds – was approved by November of the same year and will be under construction less than a year after the tragedy that brought the dangerous conditions to light.

Reaching Vision Zero will take concerted effort across all of the forces that influence travel in our cities. As long as vehicle L.O.S. is a defining factor or an exalted yardstick by which planners measure effectiveness, it will be that much more difficult for cities to reach Vision Zero. Just as we must create complete streets that protect people from traffic death and severe injury, we must step away from L.O.S. There is a long list of reasons to stop using L.O.S. as a way of shaping urban streets, but chief among them is that vehicle L.O.S. is in direct conflict with safety, and we will never reach Vision Zero without putting L.O.S. at the bottom of that list.

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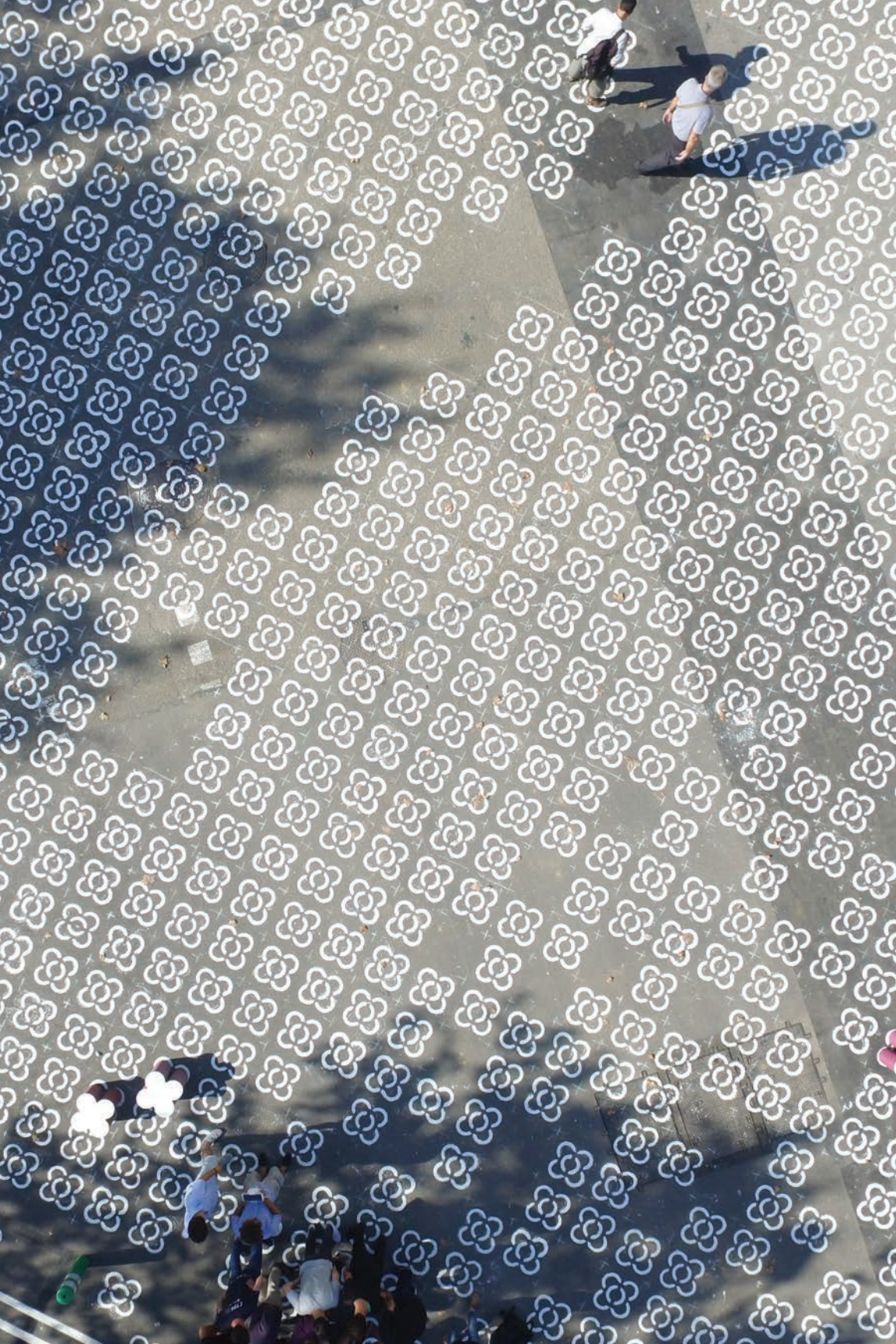
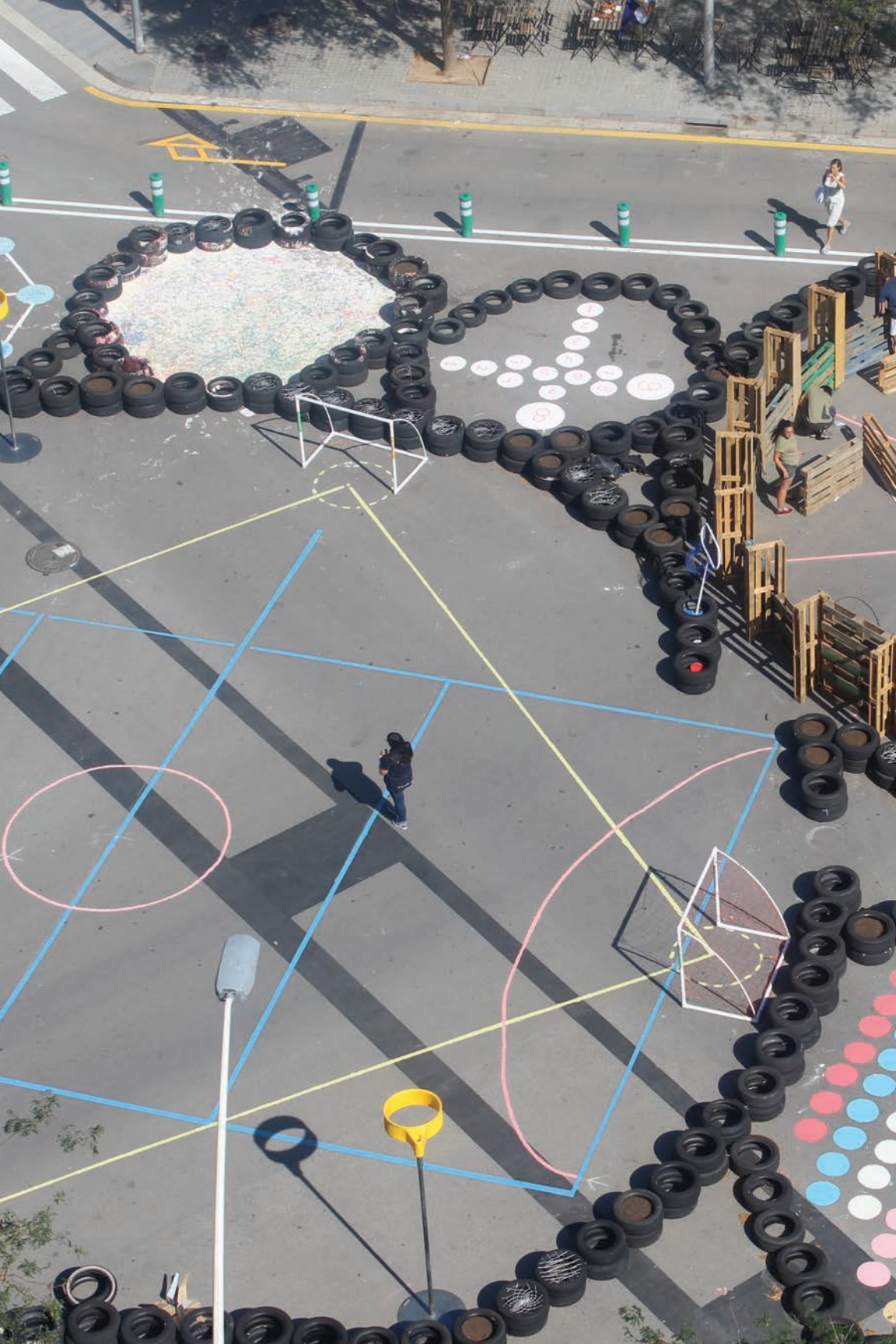


SALVADOR RUEDA

The Power of the Superblock in Barcelona

In Barcelona, Spain, superblocks have the potential to reweave the very fabric of the city. Urban Ecology Agency Director Salvador Rueda tells the story of the first superblocks, and how this innovative design concept could affect the lives of city dwellers in remarkable ways.



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Every year in the Barcelona metropolitan area there are 3,500 premature deaths, 1,800 cardiovascular-related hospitalizations, 5,100 cases of chronic adult bronchitis, 31,100 cases of pediatric bronchitis and 54,000 asthma attacks – all the consequence of air pollution.

These smog-filled conditions inspired the Barcelona City Council, in March 2015, to create a sustainable urban mobility plan for the city. The result of a two-and-a-half year-long participatory process, the plan's main objective for 2018 is a reduction in air pollution, and one of the tools for achieving this goal – the superblock – happens to have a wealth of other remarkable benefits for traffic safety and the health of Barcelona.

Superblocks Defined

A superblock is a new type of urban cell measuring approximately 440 x 440 yards (nine square blocks). It contains a network of basic vehicle routes connecting starting points and destinations throughout the city. The interior routes (intervies) constitute a local network where the speed limit is 10 km/h (6.2 mph). You can't drive across a superblock, which means movement inside a superblock makes sense only if the starting point or destination is on one of these intervies. This ensures that the roads inside a superblock are local, and cuts down on pollution, noise, and crashes. It also frees up more than 70% of the space currently occupied by motor vehicle traffic passing through the area, making it available for pedestrians and cyclists.

This is a superblock in its first phase – the functional phase – which guarantees mobility. In the second phase – the urbanistic superblock – new citizens' rights and customs are incorporated, such as the right to leisure (games, partying, sports), the right to exchange (markets and the collaborative economy), the right to culture and knowledge, the right to expression and democracy, and of course, the right to movement.

The implementation of the superblocks throughout all of Barcelona has the potential to free up 7 million square meters (2.7 square miles), and would transform the city into the world's most important urban recycling project – transforming roads into parks, playgrounds, and other public space – without demolishing a single house.

Superblocks Save the City

Today, traffic is the single most important contributor to dysfunction in Barcelona. Traffic crashes cause 40 deaths a year in the city. Motor vehicles are responsible for most of the city's noise, as well as polluting emissions. The blackness of the asphalt combined with car emissions creates heat islands, causing as much as a nine-degree temperature increase, which especially affects the most vulnerable – children, the elderly, and the infirm.

In the Eixample neighborhood, for example, which occupies a good part of the city's urban fabric and where vehicular traffic has a preeminent role, 50% of the population is exposed to hazardous levels of noise (daily values in excess of 65 dBA). This district also has only 1.3 square meters of green space per resident, well below the 10 square meters recommended by the World Health

ABOUT

Salvador Rueda is the founder and director of the Urban Ecology Agency of Barcelona and has served in the Planning Department of the governments of Catalonia, Barcelona, and Sant Adrià de Besòs. Rueda is the author of several books and technical articles, is a major contributor to masters and postgraduate courses, and has acted as scientific advisor and speaker at many national and international conferences. From 1994-2000, he was a member of the European Commission's Expert Group on the Urban Environment. **Daniel Sherr**, who translated this article from Catalan, is an interpreter who works in Barcelona and New York in the public and private sectors. His working languages are English, French, Spanish, and Catalan.


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Organization. For every kilometer of road in the Eixample there are more than 30 injuries a year.

To tackle these severe problems, the Sustainable Mobility Plan set a goal of reducing vehicular traffic by 21%. It is estimated that if Barcelona reaches this goal, the pollution readings in every measurement station in the city will fall below European Union limits. Superblocks are one of the tools that should make this possible.

This is not the first time Barcelona has attempted to solve the myriad problems of traffic by taking space from private car drivers. Prior to the 2015 Sustainable Urban Mobility Plan, Barcelona saw success in piecemeal efforts to widen sidewalks and create small public squares where it could do so without modifying the mobility model. The failure to change the mobility model meant that the car was – and still is – predominant.

Despite the widening of sidewalks, in Barcelona, like much of the world, streets have been designed with one goal – mobility – and a single right, the right to movement. With superblocks, Barcelona is attempting to give people back the possibility of exercising all of their rights in the street by making the street a public space. Fewer cars mean less pollution, which in turn leads to an increased presence of non-governmental organizations, companies, business and commerce in the more attractive superblock neighborhoods. Superblocks abandon the old model of city planning, transforming the pedestrian from a mode of transportation into a citizen, and city streets from highways into public spaces.

Superblocks in Action

In September 2016, Barcelona saw the implementation of the first superblock of the new era, fresh from the maps of the Barcelona Sustainable Urban Mobility Plan.

Today two transportation networks can be distinguished in the superblock: the city network (on the periphery of the superblock), which allows for travel from one point of the city to another at a maximum speed of 50 km/hour (31 mph), and a local internal network with a maximum speed limit of 10 km/hour (6.21 miles per hour), which services residents and local activities.

In their first phase, superblocks use only traffic signals and signage to modify traffic flows, which means they can be implemented throughout the city at relatively little cost. Most of the space is reserved for pedestrians, and cyclists accommodate their speed to that of pedestrians. The space is emptied of cars, and with the drastic reduction in automobiles comes a decrease in the impact of their use.

To achieve the objectives of the Barcelona Sustainable Urban Mobility Plan, first-phase superblocks need to be implemented throughout the entire city, since superblocks make the most sense when they are networked. At the same time, Barcelona must introduce measures to reduce the number of vehicles in circulation. This will be achieved not only through the extension of superblocks throughout the city, but also through the implementation of Barcelona's innovative orthogonal bus network and the expansion of its network of bike lanes, a reduction in the number of free parking spaces and an increase in the price of short-term parking.

Now that mobility issues have been dealt with in Barcelona's first new superblock, a participatory process with neighbors, businesses and companies has been launched to define new uses for the space that has been freed up and fill the streets with life. In this way, we will enhance the exercise of all the rights of Barcelona's citizens.

GREGORY H. SHILL

Unsafe Streets' New Liability

In New York, a recent court case could affect the pace of Vision Zero street redesigns across the United States. Harvard Law School fellow Gregory H. Shill explains the history and repercussions of Turturro v. City of New York, and what advocates can learn about making their city uphold its responsibility to build and maintain safe streets.

On the Sunday before Christmas in 2004, Anthony Turturro, age 12, set out on his bike in a residential area of Brooklyn, and was struck and nearly killed by a motorist. He suffered extensive skull fractures, subdural hematomas, intracranial hypertension, hip and ankle fractures, and a collapsed lung, and spent five months in a coma. Today, at age 19, Anthony lives with permanent damage to his cognitive and motor skills and a seizure disorder.

For decades, victims like Anthony have received only a hollow form of justice, if any at all. Yet now, thanks to a recent ruling in a case brought by his family, Anthony's story may help right that basic unfairness – not only for him, but for all of us: in December 2016, the state's high court, the New York State Court of Appeals ruled by a vote of 6-1 that cities can be held accountable for known unsafe road conditions created by their transportation engineers and other officials. The implications of Anthony's case (Turturro v. City of New York) for Vision Zero are tremendous, but the story begins long before he took out his bicycle that day.

Legal Steps to Accountability

The stretch of Gerritsen Avenue where Anthony was injured had a speeding problem known to everyone in the neighborhood. It was also a problem known to the City of New York, after local residents spent two years petitioning city officials to fix the street. Everyone from local children to elected officials reached out to the New York City Department of Transportation to complain about the "racetrack" conditions. They demanded traffic studies, and the Department of Transportation complied, conducting three speeding studies at Gerritsen Avenue intersections. The resulting data confirmed residents' concerns: speeding was rampant. Yet the city did not study the larger problem of speeding on Gerritsen Avenue as a whole and took no effective action to curb it.

All of this groundwork was laid before Anthony went for a bike ride in December 2004. After Anthony was struck, the Turturro family filed a civil suit against not only the speeding motorist (who was driving 54 mph, nearly twice the legal limit) but also against New York City, claiming that the design of Gerritsen Avenue had contributed to the crash. The argument, backed by expert testimony and data, was straightforward: poorly designed streets encourage reckless driving. This is the crux of Vision Zero, and while supported by science, it was perhaps the first time the argument had been presented in an American court of law. Anthony's lawyers asked the jury: should the fact that the driver was reckless excuse the city from responsibility for its own role in encouraging that very recklessness?

The jury said no, assigning 40% of the blame for the crash to the city, on top of the 50% that it assigned to the motorist – the largest share of blame – as well as 10% to the child himself. The verdict was upheld by the Appellate Division and later by the New York Court of Appeals. In its opinion, the latter court deemed "significant" the failure of the Department of Transportation to study speeding along the whole of Gerritsen Avenue (as opposed to three discrete intersections), and to look at traffic calming measures. In view of these oversights, the court ruled, the jury was reasonable in faulting the city for failing to address the problem adequately.

The court's opinion has powerful implications for Vision Zero and street safety. Simply put,

ABOUT

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streets that are known to be unsafe are now the legal responsibility of their municipality, meaning that crashes caused by reckless driving on those streets cannot be dismissed as private, individual acts of recklessness, but must also be addressed on a systematic basis by the city.

National Implications

In legal terms, the ruling – that cities must address known unsafe street designs – represents only an incremental change. The court simply placed street design in the same legal category as the physical condition of the roadbed, meaning that the city must address known design failures just as it must address known potholes. Maintaining reasonably safe road conditions is well established as a "proprietary" function of government, where the city is acting like a property owner, as distinguished from a "governmental" function, where the city is acting in a quintessentially governmental capacity, as in policing. This means that rather than enjoying a broad legal immunity, cities in New York State can be held liable for unsafe street designs under the ordinary rules of negligence that apply to property owners and other private parties.

Because street design implicates a variety of conditions, from road width to the presence of bicycle lanes, in each case, the question before a court would be whether an allegedly unsafe condition (a) was known to the city in advance and (b) contributed to a crash. Though modest legally speaking, and limited to municipalities within New York State, it is difficult to overstate the significance of the court's decision as a practical matter. The lone dissenting justice emphasized this point: not only was the motorist who injured Anthony driving well over the speed limit, but prior to the crash, he had his license suspended 18 times, had been convicted of driving under the influence, and had even been ticketed for speeding on the very stretch where he struck Anthony.

It is difficult to imagine a clearer or more relevant pattern of personal recklessness than what the motorist exhibited in Anthony's case. Yet crucially, the majority rejected the argument that the motorist's behavior excused the city from its own responsibility to ensure safe street design. While the court upheld the jury's determination attaching the largest share of responsibility to the motorist, it also upheld the jury's finding that the city's choices had played a role as well, and were actionable under familiar principles of negligence.

Simply put, streets that are known to be unsafe are now the legal responsibility of their municipality, meaning that crashes caused by reckless driving on those streets cannot be dismissed as private, individual acts of recklessness, but must also be addressed on a systematic basis by the city.

This means that rather than enjoying a broad legal immunity, cities in New York State can be held liable for unsafe street designs under the ordinary rules of negligence that apply to property owners and other private parties.

Institutionalizing Vision Zero

While remarkable, the ruling in Anthony's case provides only a blueprint for realizing Vision Zero, not a guarantee of that outcome. To make its promise a reality, advocates and policymakers must be vigilant in identifying, documenting, and reporting hazardous streets.

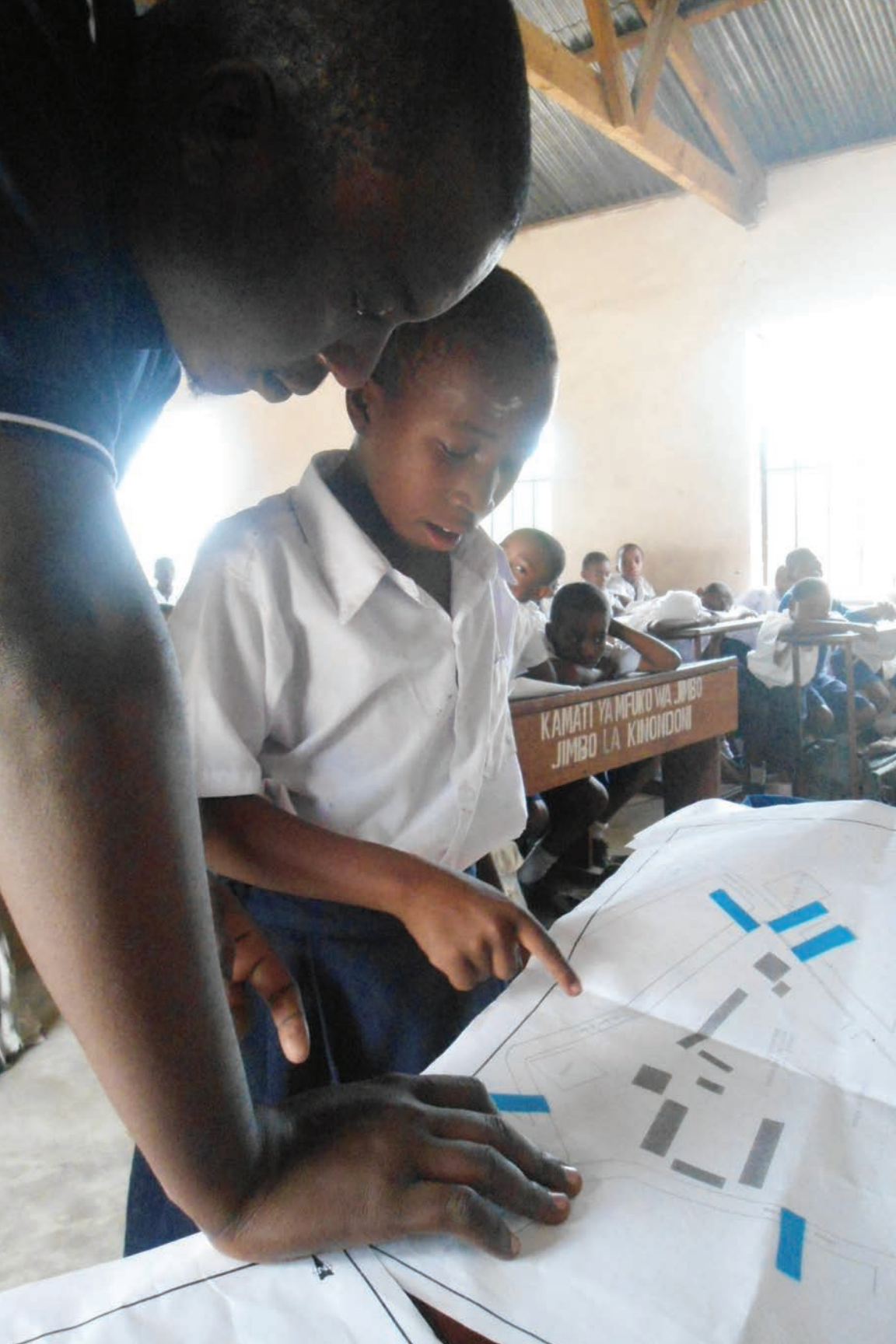
First, documenting and notifying municipal authorities of unsafe road conditions is critical. A cursory reading of the opinion might suggest that New York municipalities that fail to maintain safe street design are now generally or automatically liable for crashes in which unsafe design plays a role. The rule established by the court's holding, however, is more exacting. For liability to attach, cities must first be placed on notice of specific, unsafe conditions.

Second and related, skillful advocacy is necessary when interacting with municipalities around traffic safety issues. In this case, Anthony's lawyers did not base his claim on the fact that the police had failed to prevent speeding on the corridor in question. This was wise; the city would almost certainly have been immune from challenges to police effectiveness or discretion since they are core "governmental" functions. Anthony's family was also not deterred by the fact that the city had conducted a number of speeding studies on Gerritsen Avenue already; had the city affirmatively concluded that no further action was necessary, it would have enjoyed a similar form of immunity (despite safe road conditions being a "proprietary" function). Instead, Anthony's lawyers alleged that the city was negligent for failing to conduct an appropriately targeted speeding study, and for failing to study or implement traffic calming. This framing, built on the foundation laid by local residents' complaints prior to the incident, enabled the claim to proceed.

Third, when fighting for Vision Zero principles, persistence is critical. Anthony and his family endured a dozen years of trials, appeals, and reductions in compensation in their fight for justice. Vision Zero has faced periodic setbacks since getting its start in the U.S., and more will surely follow this ruling. In time, other U.S. courts may embrace the vision embedded in the opinion of the New York Court of Appeals. In your city, bear in mind the importance of properly notifying public officials of unsafe street conditions, and document that process meticulously. The persistence and carefulness of advocacy efforts will help determine whether streets are made safe for all.

SOURCE

Turturro v. City of New York, No. 196 (N.Y. Dec. 22, 2016).


KAMATI YA MFUKO WA JIMBO
JIMBO LA KINONDONI

AYIKAI POSWAYO

Navigating Responsibility for Intervention in Africa

In African cities, unsafe streets and epidemic levels of pedestrian fatalities are a threat to human rights. Amend Program Manager Ayikai Poswayo argues that low-cost NGO-implemented solutions have proven to remedy the problem, but finding government support for the implementation of safe streets is more complicated.

Michael Obeng, age 11, walked to school every day in Accra, Ghana, a capital city of more than 2 million people, until he was knocked down by a mini bus while crossing the busy road between his school and home. His injuries were so severe that he missed almost an entire year of education.

As African cities begin to consider Vision Zero, stories like Michael Obeng's become emblematic of the continent's unique Vision Zero challenge, with poverty and traffic safety so inextricably intertwined. Despite the world's lowest motorization rate, Africa has the most dangerous roads, and more pedestrians die there than on any other continent. Road traffic injury is the leading cause of death of people aged 15 to 29 years old. In a study of four major African cities, 87% of the students surveyed walked to school. Michael survived, but many do not.

Traffic Controls Access

When accessing basic human rights like water and education requires crossing truly dangerous roads, it's a deadly quid pro quo. The economics, education, and basic resources that have the potential to contribute in lifting the continent's future are often barricaded from individuals like Michael by unsafe city streets. However, there is hope in new and developing ideas that can uniquely lift low- and middle-income countries with limited resources. Even in countries with the fewest resources, traffic safety programs are not rocket science. Simple, inexpensive and proven-effective design solutions exist. We are beginning to see the effectiveness of implementing these low-cost interventions, as well as some undeniable indicators as to why hundreds of thousands of people suffer from traffic crashes despite known solutions.

Over the past few years, various global goals for road safety have been set, from the United Nations Decade of Action for Road Safety (2011-2020) to the Habitat III Quito Declaration. But how does the world make sure that the lofty goals set in conference rooms actually translate into action at the grassroots, in communities such as Michael's, especially as very limited resources have been made available to address this public health crisis?

Low-Cost Interventions

At Amend, a non-governmental organization (NGO) focused on road safety in Africa, we are attempting to translate these goals into action. Amend's School Area Road Safety Assessments and Improvement (SARSAI) conducts systematic assessments of school areas where children are known to be at extremely high risk of road traffic injury. Most of these school areas have 1% to 2% of their student population injured in traffic every year.

For example, in Dar es Salaam, Tanzania, in 2015, Amend carried out assessments at nine schools at high risk of road traffic injury. This involved mapping out pupil catchment areas; observing pupils on their journeys to school; undertaking various pedestrian counts, traffic counts and speed surveys; and last, but most certainly not least, speaking to the children themselves as well as their teachers and parents to get a better understanding of the risk.

At one of these schools in Dar es Salaam, bollards were installed outside the school

ABOUT

Ayikai Poswayo is a program manager at Amend, a non-governmental organization that focuses on road safety in Africa. Ayikai has a passion for children and safety. Her current role involves overseeing the implementation of Amend's 'safe routes to school' program across a number of countries on the continent. Prior to joining Amend, Ayikai worked as a traffic engineer for consultancies in the United Kingdom and Ghana. She worked on a variety of projects, including pedestrian, cyclist, and bus priority schemes.

wall to prevent vehicles from parking at this location. A zebra crossing flanked by speed humps was also installed. Before installation of the bollards and speed humps, children would be forced to walk along the edge of the road in close proximity to fast-moving vehicles, as the parked vehicles had taken up the walking area adjacent to the school wall.
Amend conducted an assessment at a school in the Kwashieman neighborhood of Accra, after finding that a number of children had been knocked down right outside their school gate. The installation of speed humps and a zebra crossing, and the construction of a footpath, facilitated children being able to cross the road in front of their school safely.
At one school, also in Dar es Salaam, where vehicles had been found to travel at high speeds, a series of four speed humps and two zebra crossings with accompanying signage were installed to facilitate children being able to cross a road in front of their school. After the intervention, average vehicle speeds in front of the school gate dropped from 41 kph (26 mph) before the speed humps to 17 kph (11 mph) after.

The Responsibility for Safe Infrastructure
For the advocates at Amend, this process of interviews, surveys and intervention is regular practice. A tailored road safety education program is provided for all children at SARSAI schools.
We come up with proposals for improved safety around high-risk schools and collaborate with the relevant government agencies to implement them.
In a population-based control evaluation of SARSAI interventions in Dar es Salaam, a study conducted in collaboration with the U.S. Centers for Disease Control and Prevention, it was found that injury rates were

But ultimately, what is most clear is that it is not the role or responsibility of NGOs like Amend to provide safe infrastructure for a country's children – that is the job of governments.

reduced over 25% for the 2,015 schools that received interventions. A notable reduction in the severity of injuries that did occur was documented as well.

A few facts are clear: in some cities in Africa, dangerous roads are directly preventing children's education; the SARSAI program is a model that contributes to the reduction of injuries at some high-risk schools; safety at schools surrounded by dangerous local roads can be improved with simple action; and it only requires inexpensive intervention to create a positive impact.

But ultimately, what is most clear is that it is not the role or responsibility of NGOs like Amend to provide safe infrastructure for a country's children – that is the job of governments.

At Amend, we set out to make small differences that have the potential to be scaled up by governments for a larger impact. We have proven that children do not have to be injured and killed on their way to school. We have proven that these interventions can be low-cost and effective. Unfortunately, rapid urbanization and development, along with capacity and resource issues, make it difficult for many governments to keep up with the road safety needs of their children. Accordingly, Amend is currently implementing its SARSAI program in 10 countries in sub-Saharan Africa with the aim of saving lives now at schools where children are at exceptionally high risk of road traffic injury, while demonstrating to governments – via the implementations and advocacy – that they can – and indeed must – act to prevent road traffic injuries to their children.

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67 Avenue Station

JOHN MASSENGALE

Designing Streets for People

Vision Zero provides an opportunity for cities to embrace the public realm in a way unseen since the advent of the automobile. Architect and urbanist John Massengale explains how cities came to shun placemaking, and the possibilities of reclaiming public space under the banner of Vision Zero.

VISION ZERO CITIES 2017


BEFORE


TAPAS
AFTER

Vision Zero has unanticipated benefits. Making safe streets for cities goes hand in hand with making places where people want to get out of their cars and walk. Vision Zero helps us to stop killing people with cars and enables the use of placemaking and urban design tools that planners and engineers have prohibited for the last 50 years in the name of safety.

Advent of Traffic Flow

Danish architect and urban designer Jan Gehl talks about the importance of "the space between the buildings" for public life and city life. And in my book, *Street Design: The Secret to Great Cities and Towns*, I wrote that a space is not a place unless people want to be there. But more than a century ago, "organized motordom" (car manufacturers, oil companies, road builders and the like) began an effective campaign to kick the pedestrian to the side of the road, out of the way of the car, in order to sell more cars.

A new profession was born – Traffic Engineer – whose purpose was to make traffic flow as smoothly and easily as water in a pipe. Trees that were slowing down or damaging cars were labeled FHOs, Fixed Hazardous Objects. People on foot became MHOs, Moving Hazardous Objects. The concept of "jaywalking" was invented, and laws were passed to keep jaywalkers out of the street except at the new "crosswalks" at intersections. Eventually, new types of roads were invented, as part of a Functional Classification System that ranked them according to how well traffic flowed.

Thanks to historian Peter Norton, who tells this story in his book F*ighting Traffic: The Dawn of the Motor Age in the American City*, and advocacy groups like Transportation Alternatives, the rise of organized motordom became well known. But it is worth summarizing a little of this history to draw attention to an important point: departments of transportation control the design of our streets, and their historical purpose has been to make traffic flow, not to make better cities or places. In the past, when they talked about making streets "safer," transportation engineers meant "safer for cars to go faster, in greater numbers" – and that system brought with it 30,000 to 40,000 traffic deaths every year.

Access to the Public Realm

Today, there is a revolution going on: a majority of Americans want to drive less and walk or bike more; a majority want access to public life in the space between the buildings, which urban designers call "the public realm." We know now that our cars contribute to climate change, unhealthy air, and even unhealthy water, more than any other single factor. We see clearly that driving everywhere means we get less exercise, and that diabetes, heart attacks, and other health problems result.

Vision Zero states that the way to get to zero traffic deaths on streets where drivers, cyclists, and pedestrians come into close contact is to slow motor vehicles down to 20 miles per hour or less. "Or less" is crucial, and that's happening in many places in Europe. In the U.S., however, speed limits are set at 25 or 30 miles per hour, but police don't give tickets until a driver goes more

ABOUT

John Massengale AIA is internationally recognized as an expert on the connections between urban design, architecture, placemaking, and walkability. Co-author with Victor Dover FAICP of *Street Design: The Secret to Great Cities and Towns*, he has won awards for architecture, urbanism, historic preservation and architectural history. Massengale is a former board member of both the Institute of Classical Architecture & Art and the Congress for the New Urbanism (CNU), as well as the founding chair of CNU NYC. With Robert A. M. Stern, he was co-author of *The Anglo-American Suburb*, and of *New York 1900: Metropolitan Architecture* and *Urbanism 1890–1915*, the first architectural history book to win a National Book Award.

than 10 miles per hour faster. Combine that with design speeds for the roads that are at least 10 mph over the posted speed limit and the result is that drivers consistently go 30 to 40 miles per hour on "slow streets." The evolution of the American transportation revolution is slow.

In Amsterdam and many parts of the Netherlands, the speed limit on 85% of streets is 30 kph (18.6 mph). People are permitted to be anywhere on those streets at any time – pedestrians may cross the street anywhere they want, and cyclists and pedestrians may travel down the center of the street. Factors like human reaction times and the human cone of vision mean that slower drivers hit far fewer objects, stationary or moving, and in those rare instances when they do, there is less damage and far fewer deaths.

Designing Shared Spaces

With the help of traffic engineers like the great Hans Monderman, the Dutch discovered that the best way to make those "shared spaces" work well and be safe was to do exactly the opposite of what they had been doing. "The trouble with traffic engineers is that when there's a problem with a road, they always try to add something," Monderman said. "To my mind, it's much better to remove things."

In other words, all the techniques developed over time to make drivers comfortable going faster – separation of lanes, colored lanes, bold striping, signs legible at high speed, even stop lights, and stop signs – could be removed, if the goal was to slow cars down. Today, those 30 kph streets in Amsterdam have no stop lights, no yield signs and no bold graphics. Cars go slowly, and the streets are safer than the expensive over-designed streets of the U.S.

Over-designing is also bad for placemaking. New studies in neuroscience and cognitive testing have found that the best public realm is a single, harmonious space between the buildings. Cutting it into pieces and giving most of the space to automobiles reduces our sense of wellbeing. Take the time to look at American streets and you will see that all the machine-scale detritus of traffic engineering sends a clear message: People keep out, this is a place for cars and trucks!

“The trouble with traffic engineers is that when there's a problem with a road, they always try to add something,” Monderman said. “To my mind, it's much better to remove things.”

Streets for People

After World War II, cities around the country rebuilt their streets according to the principles of Functional Classification. Making traffic flow like water in a pipe made it easier to drive to and from the suburbs, but many city streets began to feel like auto sewers. Planners called this “urban renewal,” but Jane Jacobs called it “urban removal.” It made city life less attractive, and encouraged people to get in their cars and move to the suburbs.

By the 1990s, there was a lot of disenchantment with auto-centric suburban streets. The federal government mandated that states hire pedestrian and cycling advocates to make suburban streets safer and more convenient for walking and biking. Working with departments of transportation, the advocates developed concepts of traffic calming that evolved into road diets and complete streets.

Today, departments of transportation are bringing road diet and traffic calming techniques developed to tame big, ugly, auto-centric suburban streets back into the cities. Urban designers call these design and engineering techniques, and the streets they produce, “sub-urban.” Traffic flow is still the priority, and the emphasis is still on making transportation corridors to get suburbanites in and out of the city.

Vision Zero opens the door to once again making streets for people. To reduce traffic deaths to zero in places where cars and people come into close contact, traffic must be slowed down to 20 mph or less. After that, all the placemaking ideas that traffic engineers rejected in recent decades – majestic tree-lined streets, civic monuments at intersections, narrow roadbeds – become not only possible but desirable.

In other words, the design priorities for city streets, streets in town centers, and streets in walkable neighborhoods should be to make safe, slow streets, not just calming traffic. Calming traffic still favors the car over the pedestrian.

This short essay is the first in a series about how to make streets for people that meet the goals of Vision Zero.

SOURCE

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JAVIER VERGARA PETRESCU

Citizens as Problem Solvers in Santiago

In Santiago, Chile, the dominance of the automobile is being upset by average citizens armed with paint, planters, and a passion for tactical urbanism. Ciudad Emergente CEO Javier Vergara Petrescu shares a few of the creative and effective ways that Santiaguinos are changing their own streets, and the future of their city.


¿CÓMO SERÍA TU CALLE IDEAL?

Santiago de Chile is thriving, but like many urban centers in South America, vibrancy and innovation have yet to affect a status-quo of car-centric mobility.
Since 1997, Chile, along with Russia, has had the highest rate of traffic deaths of the 35 member countries in the Organization for Economic Co-operation and Development. In Santiago, the private car remains the most desired transportation mode. Highway investments go hand in hand with the number of traffic fatalities.
Yet, a phenomenon has emerged from inside the city – small, collective actions to make streets safer – driven directly by Santiago's citizens. Often called "tactical urbanism," these are simple, low-cost street interventions, generally built from household materials by untrained citizens, that challenge the car-centric culture that has dominated Santiago for decades.
Remarkably, as these small actions bloom around the city, Santiago's street culture is beginning to shift away from more dangerous forms of mobility. This seismic shift is less a byproduct of the house paint and wood pallets that residents are using to slow traffic, and more a result of participatory and collective action required for tactical urbanism, and the social cohesion and public awareness that occurs when hundreds of Santiaguinos gather to reclaim their streets.

Participatory Tactics
In 2014, activists in Santiago created six small temporary public plazas in locations known for speeding in the neighborhood of Providencia Municipality, creating a traffic calming zone (called 30 kph zones in Chile) that reduced car speeds by 40% and made illegal parking more difficult by design. However, the plazas and their remarkable effect on safety are less notable than how they came about: instead of the typical traffic calming approach managed by the local government, this was a bottom-up experimental action that invited citizens to participate in the design, construction, and assessment of an "experimental traffic calming zone."
For average citizens, this participatory tactic was an invitation to be part of something tangible and fun. The potential to shift car culture increases exponentially when we begin with participation, in this case triggering a positive perception of a place, a sense of pride, and community trust.
After the experiment, 85% of residents acknowledged greater pride in their neighborhood simply because they had contributed to safer streets. This project fostered greater social cohesion, resulting in the setup of a neighborhood group committed to monitoring the changes and decisions adopted to improve quality of life. In 2016, a permanent traffic calming zone was adopted. Here tactical urbanism did more than test possible design solutions; it created the needed social unity, bringing people together to promote a safer community.

Personal Experience
In 2016, an important downtown avenue in Santiago was transformed from a car-filled street to a people-oriented space, collectively built by 150 volunteers, activists, and community organizations, supported by the Municipality of Santiago, the Chilean Ministries of Transportation and Environment, and financed by international cooperation

ABOUT

Javier Vergara Petrescu is a co-founder and the CEO of Ciudad Emergente. He specializes in combining social innovation, participation, and technology to improve the quality of life in cities. He has worked on several tactical urbanism projects in Europe, Latin America and North America. In 2006, he was voted one of the 100 Young Leaders of Chile and in 2010 his work was published by the Museum of Modern Art in New York. He is currently a professor of tactical urbanism at Pontificia Universidad Católica de Chile and has been a guest lecturer at Columbia University and the Latin GSD of Harvard University.

programs between the United Kingdom and Chile. The intervention consisted of painting surface pavement with giant blue dots, aimed to blur car lanes and pedestrian spaces, transforming the surface, forcing speed reduction, and inviting citizens to negotiate the use of this space through face-to-face encounters. The experiment created a public interactive illustration of an idea that is otherwise difficult to visualize, demonstrating how a shared street actually works, and allowing average citizens to experience the benefits firsthand. These tangible tactics allowed people to participate in a truly safer street – with dramatically reduced car speeds (from 50 to 10 kmh). Cars, cyclists, and pedestrians shared a common space with zero traffic crashes. The action invited new directions for public policy discussions, including critiques of the car-dominated streetscape, that were not previously part of public conversations in transport planning. Before, the concept of "shared streets" did not exist in Chile. But after citizens personally experienced a shared street, over 75% supported a permanent conversion. Moreover, after the experimental action, permanent bicycle infrastructure was built to connect existing lanes that were isolated from a comprehensive grid, creating safe conditions for people to commute by bicycle in downtown Santiago.

Experimental Bike Lanes

Evidence-based planning methods have seen success in Santiago as well. Through the experimental tactics bootstrapped by NGOs and progressive local governments, decision-makers have been exposed to the benefits of testing bike lanes and corresponding signage as a tool for incorporating safe spaces for cycling in the city.
One example is the Experimental Bike Lane Project tested in Providencia en Santiago in 2015 and 2016. The tactic here was for activists to trace their own bike paths on public

Each of these actions is a virtuous cycle; citizens engage in collective action, making them prouder and more connected residents of the city, and thus more eager to improve the safety of its streets.

streets that have enough space to prioritize cycling. These D.I.Y. bike lanes allowed the very cyclists who took to the new lanes in droves to prove assumptions about the actual demand for these alternatives, as well as the design of the route and the need for infrastructure.

For example, the Experimental Bike Lane Project along Avenida Eliodoro Yanez was conceived as a joint initiative between the Municipality of Providencia and Ciudad Emergente to carry out an agile prototyping exercise for cycling infrastructure. Incorporating city officials in the experiment meant that when the lanes succeeded, they were more likely to be installed permanently, and city officials saw a demonstration of the ease of developing infrastructure for non-motorized transport.

Testing infrastructure before investing in resources and creating interactions that spark inclusive debates (which allow us to consider distinct stakeholders, record points of view, and raise a variety of arguments in public), is an effective alternate way for authorities to make decisions about the city. It's also effective at convincing reticent officials to try something new. This evidence-based planning grants the legitimacy required for the actual implementation of the projects, but also allows citizens the enriching experience of collectively addressing issues relevant to the community. These instances of citizen participation create a link between institutions and individuals whose value cannot be overstated. The Experimental Bike Lane Project is an example of short-term tactical urbanism that allowed us to gather valuable information that contributes to an enriched (and heated) debate about the long-term process of changing the city. Activists and municipalities worked together, avoiding costly implementations of unsuitable infrastructure and allowing the development of strategies that place citizens at the center of public policy design.

A Virtuous Cycle

From participating in collective traffic calming actions to painting experimental bike lanes for safer cycling, the people of Santiago are shifting from passive spectators to proactive problem-solvers. Each of these actions is a virtuous cycle; citizens engage in collective action, making them prouder and more connected residents of the city, and thus more eager to improve the safety of its streets.

In Santiago, these low-cost creative experiments on public streets have effectively fostered a social cohesion that is leading culture change. As pedagogical experiences, tactical urbanism test cases are creating a public understanding of, and respect for, transportation policymaking. While time will tell the long-term effectiveness of these short-term actions, tactical urbanism remains a powerful method to create civic awareness and community unity. When coupled with political will, even small-scale, low-cost experiments can cement into permanent changes, advancing safer streets, reducing traffic casualties, and creating more people-centered cities.


FIETSBURGEMEESTER
AMSTERDAM
2016 - 2017

ANNA LUTEN

The Bicycle Mayor Movement

The Fietsburgemeester, or Bicycle Mayor, is an innovative new concept for giving cyclists a voice in the path of their city. Amsterdam Bicycle Mayor Anna Luten explains how this nascent idea is already affecting her city, and how a mayorship can guarantee that bicycles are written into the plans for your city's tomorrow.

VISION ZERO CITIES 2017


voetgangers
oversteken

Making cities safe for cyclists and pedestrians will require streets that are human-centric – and a human touch to lead the charge. I am Anna Luten, the world's first Bicycle Mayor, and I am leading the first large-scale experiment on the potential effectiveness of a personal representative for the bicycling community.
What can a Bicycle Mayor do for communication, progress, and representation for cyclists in cities? In Amsterdam, I was chosen to find out.

City of Bikes
In many ways, Amsterdam is the city of bikes. More than 60% of locals cycle daily, with over 40% commuting to work by bicycle. One reason for this is the extensive cycling infrastructure, but it is also a product of culture. Cyclists and pedestrians are given priority in the order of the city ecosystem, and this ensures that health, happiness and community – byproducts of human-powered movement – are also Amsterdam's priorities. It's no coincidence that the Netherlands has the lowest road death numbers in Europe, figures that are three times lower than those of the U.S.
Amsterdam was not always cycle-friendly. In the 1970s, Dutch streets were largely unsafe, and there were huge protests in cities against the high number of traffic fatalities. Eventually these protests pushed a cultural shift, and Amsterdam's streets were remodeled one bike path and speed restriction at a time.
Yet, there is still work to be done. Now in Amsterdam, the existing infrastructure is strained by the huge numbers of cyclists. In the Copenhagenize Design Company 2015 list of cycling-friendly cities, Amsterdam dropped to number 2 under criticism for not providing enough ongoing investment and innovation. The upshot: unless Amsterdam began to make bold changes, roads would continue to get busier, challenges would continue to grow, and safety would suffer.

The Mayor of Bicycles
Clearly the city needed to innovate in some way, and against the backdrop of other efforts, I was chosen to become the city's – and the world's – first Bicycle Mayor. I am the independent face of cycling progress in Amsterdam, helping to identify and address the barriers to more people bicycling. This means bringing together, listening to, and working alongside bicycle advocacy groups, political leaders, developers, investors, and the business community. Importantly, I am not an activist but a catalyst, and committed to working with all city stakeholders. I have no direct authority to order changes, but I have the ear of City Hall and established the trust of the people.
Amsterdam's Night Mayor program (less comically, nachtburgemeester in Dutch), which sought collaborative insight on growing the nighttime city economy, was an inspiration for the first Bicycle Mayor. Similarly, the Night Mayor was appointed to solve a growing number of issues, from domestic to tourism-related, and since it was successfully introduced in 2014, the program has been copied or considered in Paris, Zurich, Toulouse, London, and Berlin.
Amsterdam decided it could try a similar formula to deal with cycling; if it couldn't work in the city of bicycles, then it wouldn't

ABOUT

Anna Luten was appointed Bicycle Mayor of Amsterdam in June 2016 and has since been working to improve safety and increase adoption of bicycling. As a true Dutch girl, Anna grew up riding a bike, but she was drawn to the Bicycle Mayor program through her passion for truly human-centric cities. With positions at Nike and later Giant Bicycles, Anna combined an active lifestyle with a career in marketing. Anna moved to New York City in 2017 to establish a Bicycle Mayor there. The Bicycle Mayor Program is an initiative of **CycleSpace**, which wants to inspire the next billion people to start cycling.

work anywhere. But, crucially, if the Bicycle Mayor saw success, it could become a model for cities around the world.

Official Responsibilities

I took office in June 2016, and started by listening to what the city needed: getting more young people to cycle with confidence, increasing safety for all users, and giving people more influence over policy. I held hackathons where we developed new ideas and then hosted meetings and workshops with larger organizations that could help implement those ideas.

I have also fed my insights into the city's official cycling plan for the next four years. Before I reviewed the plan, there was nothing to address tourist cyclists (growing rapidly in number and often less experienced), as well as little to address the number of people reporting stress as they cycle in the busy streets (40% report stress while cycling in some parts of Amsterdam). Stress is not just a health concern but can also lead to unsafe behavior, and is symptomatic of poor behavior in others. I had the unique role of being able to make these concerns heard by City Hall.

It's undeniable that as Bicycle Mayor of Amsterdam I took on the duty of being representative of more than cyclists' needs. I am also a role model of responsible cycling, and I challenge poor behavior in others. With elected officials versed in public accountability, this gives me influence, and my best-behavior experience grants me the trust of engineers when I speak of safety.

Because my charge is so specifically focused, I can look holistically at every challenge that

In cities where cycling is growing but progress is slow, the human touch of a Bicycle Mayor has leverage with city planners and the power to engage the public.

cyclists face. While others may be occupied by the engineering, education, and enforcement aspects of Vision Zero, I can bring critical externalities to the table, such as culture, health and even employment. Take bicycle design technology, for example: too minute for some stakeholders to consider, but critical to increasing ridership. A U.S. study found that people using slower, heavier bike share bicycles are less likely to be involved in a crash than riders on their own bikes. Elsewhere, a live tracking system currently in development has the power to advise cyclists and pedestrians of busy intersections and suggest alternate routes. As Bicycle Mayor, I have the capacity to filter and elevate data and innovations that would normally pass under officials' radars.

A Global Mayoral Network

For me, and for CycleSpace, an organization dedicated to accelerating the shift to bicycle-centric cities, the ultimate goal is to establish a global network of Bicycle Mayors. Other cities are looking to see how they can replicate the model, and apply it in a way best suited to their needs. As more Mayors become established, a global network of city catalysts will share ideas, highlight innovation, and co-develop new solutions. Already, over 100 delegations come to Amsterdam every year from cities that want to understand how we became a city of bicycles. Imagine if each of these had a Bicycle Mayor who was constantly connected to an active global network of change-makers. The advantage of the Bicycle Mayor model is that cities can benefit at whatever stage they are at. In cities where cycling is growing but progress is slow, the human touch of a Bicycle Mayor has leverage with city planners and the power to engage the public. In cities where cycling infrastructure is nascent, inaugurating a Bicycle Mayor is a concrete and easy first step that creates a dialogue and taps into the knowledge of a global network.

Across the world cities are in urgent need to transition to safe streets and places that move at a human pace. If we respond to this urgency, there is the potential to uncover massive economic, health, and environmental benefits for every city dweller. Bicycle Mayors are a tool to accelerate this change, and I see a future where they are common in cities around the world. Will your city be one of them?

AMIT BHATT & SARIKA PANDA

The Hurdle of Culture Change in Delhi

Traffic in Delhi, India, is a constant danger and is largely considered an unavoidable fact of life. As the first cities in India get ready to launch Vision Zero, World Resources Institute India Director Amit Bhatt explains how a car-free day in one of the most congested places in the world was the inspiration for a nationwide paradigm shift.

Picture this: The streets of a major city in India – on any given day, clogged with traffic, clouded with smog, cacophonous with car horns – instead filled with people. In the middle of the street, they're laughing, dancing, and watching their children play. It would be hard to believe that this is one of the traffic death capitals of the world. Except that this is Raahgiri Day, a culture-change catalyst that is rewriting India's transportation future by helping people picture a better way.

A Day Without Cars

Raahgiri Day, which launched in the suburb of Gurgaon in 2013, and quickly spread to neighboring Delhi, the second-largest city in the world, is India's first car-free day. The name is a combination of Raah, a path, and Giri, from GandhiGiri, a colloquial adaptation of Mahatma Gandhi's transformative technique of non-violence, about taking charge of our own lives. The tag line of Raahgiri Day – reclaim your streets, reclaim your lives – is meant to convey that streets are not only meant for vehicles, but people, too.

Raahgiri Day is aimed at sensitizing decision-makers, elected officials, the media, and citizens to the potential of rethinking road infrastructure design. For the planners and advocates at World Resources Institute (WRI) India, in a country known for its traffic congestion, reaching that goal is uniquely challenging.

In Delhi and the surrounding Gurgaon district, a full third of the population either walks or cycles, but the area has hardly any cycle track, and 80% of the footpaths are unusable due to parked cars or poor repair. This manifests in the overuse of personal automobiles, and close to 450 people killed in the city due to traffic crashes every year. The current transport infrastructure is also one of the key reasons behind Delhi being listed as the most polluted city in the world.

Raahgiri Day is a car-free day not unlike Summer Streets in New York City or Ciclovía in Bogotá, except in the Gurgaon district it is a test case in a critical moment. Alongside the notable rates of traffic fatalities and pollution, this is one of the most prosperous cities of India and is growing rapidly. However, the current focus on car-based transport does not seem to augur well for economic growth. Millions of productive work hours are wasted due to traffic congestion. Without space to walk or cycle safely, people in the lower economic strata get priced out. The public transport supply is limited and unaffordable.

Demonstrating the Goal

Under these conditions, the demonstration that Raahgiri Day provides is a far bolder stroke than a staid presentation to city officials. It's transportation in full color, loud, and enjoyed by some 25,000 people. With this visionary living example, and the perilous state of our roads, WRI India, in partnership with the Raahgiri Foundation, is pushing for holistic and radical change to the transportation systems in Delhi and beyond.

This objective begins, first and foremost, with roads that have safe, continuous,

ABOUT

Amit Bhatt is the Director at World Resources Institute India, based in Delhi, where he provides vision and leadership to all transport initiatives at WRI India. Amit has 15 years experience in transport planning, road safety and urban planning, and degrees in transport planning, transport economics, and management, architecture, and economics. He is visiting faculty at the School of Planning and Architecture, New Delhi. **Sarika Panda** is the co-founder of Raahgiri Day, a trustee at the Raahgiri Foundation and project manager at WRI India where she leads the 'Streets for All' campaign. Sarika has 12 years experience in urban development, transport, and environment planning, and is a trained architect and urban planner with degrees in architecture, planning, and sociology.

unobstructed, adequate footpaths, and at-grade pedestrian crossing facilities. Second, to facilitate cycling, the most environment-friendly and inclusive mode of transport, urban roads should have dedicated, segregated, and safe cycling facilities. Third, public transportation systems that carry large numbers of people over long distances need priority on the road. Major urban corridors should have dedicated right of way for high-quality, affordable modes of mass transit. Lastly, space for private motorized modes of transport should be designed with road safety in mind. Road infrastructure should not be designed to encourage speeding and unsafe driving.

Tangible Change

Raahgiri Day was a roaring success in Gurgaon. The first event saw over 10,000 people who came out of their homes to enjoy streets as a public space. By the following year, participation reached 25,000. Soon, the celebrations reached the historic Connaught Place in the heart of Delhi, where authorities had been unsuccessfully trying to pedestrianize the city center for almost two decades, with traders opposing the move fearing loss of business. Raahgiri Day allowed for a test run of the idea of giving streets to people, and it became a game changer. In January, the Urban Development Ministry announced plans to transform the center of Connaught Place into a public plaza for foot traffic only. By these stories of transformation, Raahgiri is turning into a national movement.

Since the launch of Raahgiri Day in 2013, the cities of Karnal, Bhopal and Bhubaneswar have all inaugurated their own versions. Other cities renamed the event, but keep the same car-free goal. There is Equal Streets in Mumbai, Happy Streets in

Under these conditions, the demonstration that Raahgiri Day provides is a far bolder stroke than a staid presentation to city officials. It's transportation in full color, loud, and enjoyed by some 25,000 people.

Chennai and Masti Marg in Lucknow. As of today, Raahgiri Day and it sister events are held in over 40 locations in India wherein every Sunday, people turn up to reclaim their streets.

Hearts and Minds

Before the first anniversary of Gurgaon Raahgiri Day, a study by WRI India found that 80% of shop owners were opposed to the event, fearing a loss of business. After Raahgiri Day, 73% changed their minds and put their support behind car-free time and space within the city. It's a small example of how powerful of a game changer it can be to create a participatory example of the city we wish to build.

In a WRI India report about the smaller city of Karnal, 60% of participants bought a bicycle and another 25% purchased roller skates after the event. Another 80% agreed to reduce their car use, 96% voiced their support for cycle tracks, and 99% of participants felt that Raahgiri Day was a breakthrough event to bring people together in the city.

Beyond perception and public support, Raahgiri Day has paved the way for change. Gurgaon installed its first 8 kilometers of cycle track after the 2013 event. The city of Bhopal will soon launch India's first fully automated bicycle sharing system, along with a dedicated cycle track network, two years after initiating Raahgiri Day there. Bhubaneswar is redesigning its streets for safe movement of pedestrians and cyclists. The state of Haryana, which includes the Gurgaon district, is launching a Vision Zero campaign focused on road safety of vulnerable road users like pedestrian and cyclists.

India is on the cusp of overcoming a generation of transportation policy that catered to the automobile – and left our cities polluted, congested and dangerous. Thanks to Raahgiri Day, we are helping authorities see that to make India's cities sustainable, they need to reexamine the way roads are used. The hurdle of cultural change is stacked very high, but the demonstrative power of Raahgiri Day appears to be clearing it.


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KATE FILLIN-YEH

The Radical Potential of Bike Share

Bike share is exploding in the United States, and the benefits go beyond mobility. National Association of City Transportation Officials Director of Strategy Kate Fillin-Yeh explains the critical link between mobility and equity, and how bike share could have a dramatic effect on the lives of city residents where public transit doesn't otherwise add up.


BAY AREA BikeShare

Since 2010, when the United States' first bike share system opened in Washington, D.C., 88 million people have ridden bike share in the U.S. In 2016 alone, people took 28 million bike share trips – that's almost as many people as took Amtrak, and 8 million more people than visited Disney World in the same year.

Equitable transportation means providing people with a variety of options for getting around, regardless of income or race. In this context, these numbers hint at bike share's radical potential as a powerful tool for mobility and equity. More trips taken on bike share means that more people are saving time, realizing new opportunities for exercise, and finding it easier to travel in places where transit access is lacking. For people who live in bike share cities, these new opportunities can be life-changing. Data shows that economic outcomes are linked to mobility; it is hard to have a job if you can't reach it.

Possibility and Promise

Bike share, which can be implemented faster, and with lower capital costs, than any other form of transit, is an opportunity for cities to create these new transportation options. It also gives cities a way to reject the race- and income-based inequities that are so often baked into transportation planning and budget decisions.

Building good infrastructure that reduces traffic crashes is part of this promise. Across race and gender, fear of getting hit by a car is the number one reason why people don't take advantage of cycling's mobility opportunities. As cities around the U.S. adopt Vision Zero policy goals, focusing on infrastructure is paramount. In particular, enforcement is a poor substitute for street design that creates safe space for all users, and is prone to abuses along racial and socioeconomic lines.

Bike share and bike lanes go hand in hand. As the National Association of City Transportation Officials (NACTO) has shown, more people ride when good bike lanes are available. High-ridership bike share systems can help create political pressure to build more lanes, generating a virtuous cycle that is reducing cycling risk and improving rider safety in cities around the country. For example, in New York, the city with the largest bike share system and the first U.S. city to commit to Vision Zero, cycling fatalities in the bike share zone have all but vanished since Citi Bike launched in 2013. Citywide, traffic fatalities have declined for the past three years, in stark contrast to national increases.

A Threat to Effectiveness

Of the 55 bike share systems currently in operation in the U.S., rides per bike per day (RBD), a metric that indicates intensity of use, range from almost seven RBD in New York City to less than one in other American cities. A closer look at the numbers shows that just three systems – New York City, Chicago, and Washington, D.C. – generate 75% of all U.S. bike share trips. It's no coincidence that these three systems are busiest; bigger, denser systems offer more options for places to go.

In contrast, as with the recent closing of the Pronto system in Seattle, Washington, low ridership systems can be prone to collapse under the weight of political and finan-

ABOUT

Kate Fillin-Yeh is the Director of Strategy at NACTO, working on bike share, safety, and other policy issues. She has close to a decade of experience in transportation policy and implementation at the New York City Departments of Transportation and of City Planning. At the New York City Department of Transportation, Kate designed and implemented Citi Bike, the nation's largest and most heavily used bike share program, and was a lead author of Mayor de Blasio's *Vision Zero Action Plan*. Recent NACTO publications include "Equitable Bike Share Means Building Better Places for People to Ride," and the *Next City* op-ed, "How We'll Know When We're Getting Bike Equity Right."

cial pressures. Low ridership is troubling, especially as it relates to equity. The mobility and safety benefits of bike share cannot be realized if people aren't riding.

Better Bike Share

In 2014, NACTO, in collaboration with the City of Philadelphia, PeopleForBikes, and the Greater Philadelphia Bicycle Coalition, launched the Better Bike Share Partnership. Funded by The JPB Foundation, the collaboration works to support and replicate equitable bike share systems. Through this partnership NACTO finds that what drives ridership is also what makes bike share equitable: dense coverage of bikes and stations over a large area, safe places to ride, engagement with the community, and a progressive pricing system.

First, cities must commit, politically and technically, to large contiguous systems that offer equally convenient access to a bicycle in every neighborhood served by bike share. The planning principle that underscores ridership is the distance that a person is willing to walk to find a bike: less than five minutes. In contrast, disconnected stations get limited use and rarely help anyone get anywhere. The Bay Area, for example, has eliminated low-ridership satellite stations along the peninsula in favor of a larger, denser system concentrated in San Jose, San Francisco, and Oakland, which is slated to open in 2017.

Second, bike share must be matched by safe places to ride. This requires cities to make political and financial commitments so that every neighborhood has bike lanes and safe streets. Infrastructure that increases safety for cyclists increases safety for everyone. For example, in New York City, injurious traffic crashes declined 17% and pedestrian injuries 22% on streets where protected bike lanes were installed. As the Vision Zero Network puts it, "roadway design that prioritizes safety" is the single best way save lives.

Third, concentrated engagement is necessary to bring the benefits of bike share to a wide range of people. In Brooklyn, a partnership led by the Bedford-Stuyvesant Restoration Corporation increased Citi Bike trips in the neighborhood by almost 200,000 trips from 2015 to 2016. In particular, the number of NYC Housing Authority residents using the system grew faster in Bedford-Stuyvesant than anywhere else in the city. Building off a system expansion, the partners, which included the bike share provider, city agencies,

Data shows that economic outcomes are linked to mobility; it is hard to have a job if you can't reach it.

and community partners, strategically used Citi Bike to help address community-identified problems like obesity, lack of jobs, and limited financial services. The resulting work has started to reframe bike share as a neighborhood amenity for long-time, often lower-income, residents, not just newcomers.

Finally, progressive pricing is inextricably linked to bike share's equitable potential. Bike share is the cheapest form of transit available but there is still the need to expand access for people at the lowest income levels. In particular, led by the City of Philadelphia, systems around the country have begun to offer monthly payment options that reduce both the upfront costs and the financial barriers to entry. Philadelphia has recently pioneered a discount membership for anyone with an EBT card, which has significantly increased the number of low-income Philadelphians riding the Indego bike share system.

Riding Forward

As transportation advocates, planners and policy makers, our goal is to make sure that everyone can get where they want to go easily, efficiently and safely. As we work to make transportation more equitable, this means that cities and advocates must be honest about where bike share is, and where it is not, the best tool to meet those goals.

For short trips, and in densely populated places, bike share is a good solution. People can get many places quickly, they have limited options for personal bike storage, and the population density allows membership revenues to form a sustainable funding source for operations and expansion.

But, in some contexts, geographic equality, especially if it means lowering station density and service quality, may not be equitable at all. In less dense places where people have to travel further distances, people may benefit more from a focus on other transportation investments, such as bike/transit connections, bike parking at bus and rail stops, and protected bike lane and trail networks. After all, trip data from bike share and general (non-recreational) cycling alike shows that most people only want to ride for relatively short distances. As with bike share, matching bike and transit investments with equity-focused engagement and pricing policies can increase options for mobility and economic opportunity for the people who need it most.

Realizing bike share's safety, equity, and mobility promise is dependent on creating systems that people can, and want to, use. Let's keep striving to get it right.

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BEFORE

SOO HONG NOH

Paradigm Shift in Seoul

In Seoul, South Korea, transforming the Cheonggyecheon River from a polluted waterway under a crowded highway to a world-class public space was a project of epic scale. Yonsei University Professor Soo Hong Noh, who led the transformation, provides a lesson in the art of managing stakeholders and finding consensus in even the most vast transportation redesigns.

AFTER

For more than 600 years, the Cheonggyecheon River ran through downtown Seoul, the capital city of Korea, before the river was covered by an elevated highway in the 1970s. By 2002, more than 170,000 vehicles used the road every day. As the road deteriorated, so did the ecological conditions of the river, and likewise, economic life in downtown Seoul.

For Seoul, the Cheonggyecheon River was a challenge of scale. Shifting the paradigm would require a vast and expensive project requiring the buy-in of a monumental array of stakeholders, from policymakers on Korea's economy to its ecology, experts in fields ranging from transportation to water engineering, plus citizens, street vendors, business owners and candidates for office. How the Cheonggyecheon River became what it is today – a pinnacle of mixed-use restorative redevelopment – is a prime test case example of a project built of many, many minds.

Setting an Agenda

This restoration story begins in 1991 with a casual conversation at Yonsei University between a historian, Lee Hee Duck, and me, an engineer. Inspired by that conversation, I continued to research and gather opinions on the idea of restoring the Cheonggyecheon River until 2000, when we formed a formal research group. Our first step was education, with the goal of building consensus around an agenda for the project. We organized seminars to teach early potential stakeholders about the basic design concepts of restoration.

The main objectives of the restoration were to restore the historical heritage of Seoul and to recover her identity, deformed in the last century; to transform the city from highway-reliant to a public transit- and pedestrian-friendly environment; to revitalize the economy of the neighboring area of Cheonggyecheon; and to provide a hands-on environmental education to millions of citizens by restoring water ecology in downtown.

Getting Attention

The Cheonggyecheon Restoration Research Group organized their first symposium on September 1, 2000, circulating the idea among environment professionals and major NGOs. By the time of the second symposium, held on April 27, 2001, the research group was able to provide a detailed restoration plan and an approximate project cost. Major newspapers started to cover the story. Politicians preparing the mayoral election in Seoul also began to show interest in the restoration.

On January 1, 2002, *Hankyoreh*, a major liberal newspaper, published a special interview with a famous Korean writer, Pak Kyongni, on the Cheonggyecheon restoration. From there, media coverage of the restoration increased steadily as the election approached. Multiple public polls showed over 70% of Seoul residents in favor of the restoration. However, the city administration, perhaps the singular required stakeholder for the project, did not show any interest in the restoration, even after researchers at Seoul Development Institute, an important city think-tank, joined an active role in the research group and reported back to the city with details of the symposium's agenda.

ABOUT

Soo Hong Noh is a professor at the School of Environmental Engineering at Yonsei University, Korea. He is a graduate of Yonsei University and has a Ph.D. from McMaster University, Canada. He joined the Yonsei University School of Environmental Engineering in 1989. In 2000 he founded a research group that initiated the Cheonggyecheon River restoration movement. He played vital roles in the restoration process and his group received the Seoul Metropolitan Policy Grand Award in 2004 for their contributions. His current research includes an appropriate technology for safe drinking water supply in developing countries to achieve United Nations Sustainable Development Goal 6.1.

The Critical Moment

The 2002 mayoral election in Seoul became a watershed moment in building consensus for the Cheonggyecheon restoration, when the candidates picked sides on the issue and lifted the topic to a top-level public debate. Lee Myung Bak, the conservative party candidate, took up the restoration as his prime election promise. Kim Min Seok, the liberal party candidate, opposed the restoration under claims that it would cause severe traffic jams. During election debates in spring 2002, the Cheonggyecheon restoration became the object of a heated battle and fierce discussion, eclipsing all other election issues. Lee Myung Bak won the election by a huge margin.

Before and after the election, public polls showed consistently strong support for the project. However, city officials were not ready to initiate the challenging tasks confronting more than 200,000 stakeholders in and around Cheonggyecheon. Despite the lack of interest of the city administration prior to the election, afterward it appeared that additional consent for the restoration of Cheonggyecheon was not necessary. Mayor Lee's strong leadership during the campaign spurred hesitant officials into action once he took office.

Building Consensus

After the election, the Cheonggyecheon River Research Group offered its expertise to the mayoral transition committee to set up a governance system for the project. This public commitment to consensus and widespread stakeholder buy-in was critical to later success. Despite support for the Cheonggyecheon River restoration in polls and a decisive victory in the mayoral election giving a clear picture of the citizens' consent for the project, we pursued a fair governance system to execute it.

The governance system we created to carry out the Cheonggyecheon River Restoration Project had three pillars: 1) a citizens' committee of 126 members, included six subdivisions and a main division responsible for consensus building and final approval of the restoration plan, granted authority via a bylaw passed by the city legislature; 2) a research team formed by the Seoul Development Institute responsible for planning the restoration and providing technical support; and 3) a project team responsible for the overall construction and supervision of daily chores.

A public poll conducted before the election by *Hankyoreh* showed an overall 75% approval rating for the Cheonggyecheon restoration. But after the election, as the mayor began to turn his election promise into reality, various stakeholders including property owners, shop renters, and street vendors voiced concerns about adverse effects on business during the construction and after the restoration of the Cheonggyecheon River. Street vendors in particular launched strong protests demanding compensation and alternate locations to set up shop.

Overcoming these challenges was led by the citizens' committee, negotiating between the city and stakeholders. In addition, the city hosted more than 4,000 hearings, public presentations, and one-to-one consultations with stakeholders large and small. For some city officials, this meant more than ten such meetings with stakeholders in a day. Throughout, the success of these negotiations could be attributed to the firm and fair system of governance guided by a committee of citizens with a strong presence of stakeholders directly concerned with the potential for adverse effects.

A Paradigm Shift

Even as stakeholders began to reach consensus on the Cheonggyecheon restoration plan, the city struggled to begin construction, because closing the Cheonggyecheon road required a permit from the city police department, which is under the control of the central government. At the time, the mayor's political party was different than the central government ruling party.

Here, it was again the support of writer Pak Kyongni that pushed the project forward. In

How the Cheonggyecheon River became what it is today – a pinnacle of mixed-use restorative redevelopment – is a prime test case example of a project built of many, many minds.

a May 2003 column in the daily newspaper *Dong-A Ilbo*, Pak emphasized the potential of an urgent restoration of Cheonggyecheon, and her well-received argument brought fresh momentum to public support for the project. Soon after, the necessary permits were issued. Construction began less than two months later. On October 1, 2005, the Cheonggyecheon River Restoration project was completed with an overall budget of 360 billion wons, or around 300 million U.S. dollars.

The Cheonggyecheon River District, once a polluted waterway under a smog-filled highway, is a gathering place for all of Seoul. Artist performances, exhibitions, fashion shows, marathons, public campaigns, and other cultural events are on the schedule every week. The ecosystem has quickly recovered, with the number of species increasing from 98 before the restoration, to 864 in 2010. Heavy traffic has eased downtown and the restoration project inspired the city of Seoul to create innovative public transit systems, extending the operating time of the subway, implementing bus-only central lanes and a free bus-to-subway transfer system. Over 200 million citizens and tourists have visited Cheonggyecheon.

To create the Cheonggyecheon River District, it took nearly a decade of consideration and research, but most significantly, the slow process of listening to stakeholders and building consensus. However laborious, the process has shifted the entire transportation paradigm in Seoul from cars and highways to public transit and pedestrian concerns. The Cheonggyecheon restoration has also triggered river restoration projects throughout Korea and has become a model of urban river restoration around the world. Steady consensus building, good governance and strong leadership worked to change a seemingly unfixable problem in Seoul, and it is a model that can be applied to do the impossible anywhere.

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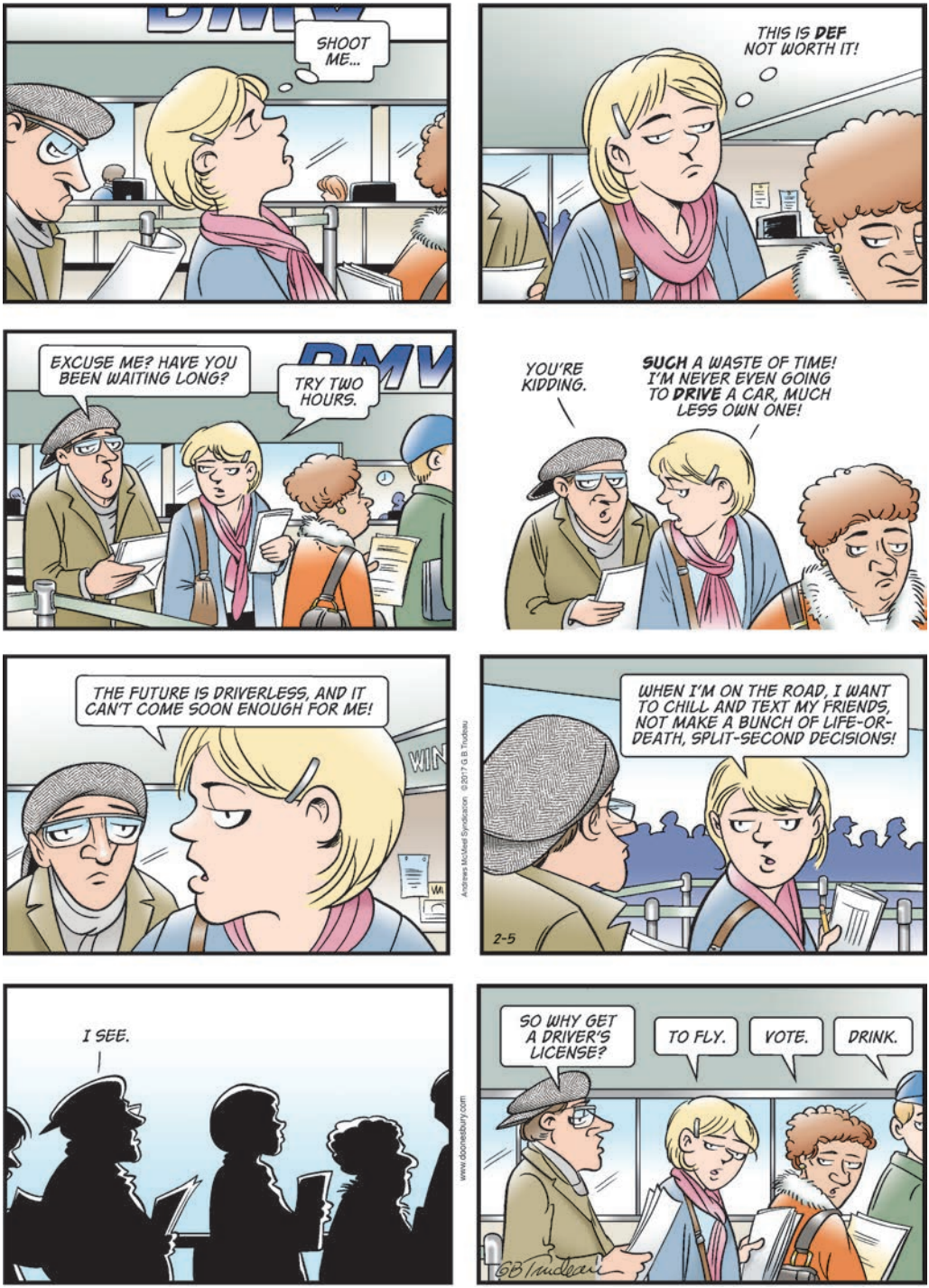

SUNIL PAUL

Can Cities Trust Autonomous Cars?

Autonomous vehicle technology appears inevitable for future cities, but policymakers are still debating if the driverless car will benefit Vision Zero. Sidecar founder and CEO Sunil Paul analyzes the tension between regulation and technology, and sets a course for lawmakers and advocates to bring autonomous vehicles in line with Vision Zero cities.


HD 6420

Imagine you are driving down a city street and a child chases a ball in front of your car. You can't stop in time. Do you swerve into the opposite lane of traffic, and into the path of an oncoming truck?

This and other variations of the "Trolley Problem," a 1967 thought experiment designed by British philosopher Philippa Foot, are on the minds of technologists, ethicists and policymakers as autonomous vehicles begin traversing streets across the world. Like a human driver, autonomous software will have to make decisions in a split second, including ethical decisions like the one from the experiment.

At least one automaker, Daimler, the maker of Mercedes-Benz, says their priority will be the safety of the passenger – as everyone in an autonomous car is a passenger. That means a future Mercedes-Benz vehicle would kill a child rather than risk injury to its occupants. Why would an automaker create such a system that seems so morally reprehensible? First, it is simpler. As cold as this sounds, engineering a system that takes into account all the possible scenarios adds complexity to an already complex project. Second, incentives are aligned for that outcome. Mercedes-Benz sells cars to car owners, not to pedestrians, children, or policymakers.

Tech Forward and Policy Back

Deciding how to steer our automated future is complicated and will require the thinking of technologists and policymakers alike, and recognizing two disparate worldviews. A technologist's instinct is to push forward as fast as possible, while regulators' instincts are to slow things down. As a Silicon Valley entrepreneur, I understand the techno-optimist view of the world. As an analyst at the Congressional Office of Technology Assessment, I also understand policymakers' caution regarding unintended consequences. I learned firsthand how to walk the line of this tension by helping pass the first peer-to-peer carsharing law and then inventing ridesharing as co-founder and CEO of Sidecar.

Today, technology and car companies working on autonomous vehicles describe their design approach as being for vehicles that are law-abiding, ever-watchful, and "as paranoid as possible." The software is programmed to be almost completely deferential to pedestrians. Most of the crashes of Google's autonomous cars, for example, were rear-end collisions by human drivers who were surprised by the "paranoid" behavior of the autonomous car.

Yet decisions like that of Daimler, and high-profile crashes, like the Tesla car in auto-pilot mode that crashed into a semi-trailer last year, killing its passenger, might cause a rush to regulate. Some states, like California, have taken a more aggressive regulatory route. Others, like Florida, Arizona, and Nevada, are promoting their states for autonomous systems and taking action to prevent their cities from independently regulating autonomous vehicles. But a majority of states have simply not taken any action.

The Big Picture

Autonomous cars and trucks could bring cities closer to Vision Zero than ever before. At this stage of the development of the technology, focusing on crashes is akin to concerns that preceded the introduction of airbags and seat belts. There was real worry that

ABOUT

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these life-saving technologies would harm children or spoil aesthetics long before they were widely tested, introduced or regulated. The bigger picture, however, is the potential for truly safe city streets for passengers, pedestrians, and cyclists. Policymakers could accelerate this future.

Imagine sections of cities where only autonomous vehicles are allowed. For the first time since the advent of the automobile, pedestrians and cyclists in those zones could be confident that vehicles would obey the law and yield to them. Jaywalking laws, which were created at the behest of automotive clubs and automakers, could be revoked in an autonomous vehicle zone. Some analysts have even used game theory to predict that pedestrians could become so confident interacting with autonomous cars that they will more aggressively assert their right to walk, making it harder for cars to move about a city.

Designing for Paranoia

We can predict that one day, autonomous vehicles will need zone-based regulation because of the nature of how autonomous systems are being developed. Fully autonomous vehicles that can replace a human driver, known as Level V autonomy, is many years away. A lower level of autonomy already in test deployment, Level IV, can drive without a driver, but only in certain situations. As a result, a ridesharing or delivery service might use autonomous Level IV vehicles in certain areas, like low-speed city streets or standardized high-speed highways. A human driver would still be required for other zones or more complex driving.

The liability issues with autonomy are likely to keep autonomous vehicles paranoid and law-abiding. Volvo announced in 2015 that it will accept liability for the design of future autonomous systems, comparing them to brakes and other safety features. As lawsuits work through courts, automakers will likely shoulder at least some, maybe all, of the damages from mistakes made by their systems. Considering that auto liability, at about $200 billion per year in the U.S., is about the same as worldwide revenue for top automakers, autonomous vehicle designers will be strongly motivated to keep their systems paranoid.

When these court cases are prosecuted, regulators evaluating autonomous systems will face a challenge unlike today's automotive software. The machine learning techniques that are used to program driverless cars, like neural networks and statistical systems, are effective because they can ingest large sets of data of possible scenarios that a car might encounter. But this training process makes it harder to predict how an autonomous vehicle would behave in the future, because not every scenario can be trained, and it can be impossible to extract exactly why a machine learning system performed in a particular way.

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Traditional software, as well as certain types of machine learning, like rule-based systems, behave in a predictable way. This doesn't mean there are no bugs in that software, but that there are predictable ways to find flaws and fix underlying problems. When new machine learning systems have bugs, it is difficult to find them and then fix them. Even worse, it is difficult to confirm that the bug has been fixed.

Research is underway to enable neural networks and statistical systems to explain how they behave. The tools will be important for the effective regulation of autonomous vehicles. There is a role for policymakers to encourage this future with funding for research and development, incentive prizes, and collaboration with researchers.

Policy for Tomorrow

Today, regulators are reevaluating rules and laws designed for human drivers with the knowledge that autonomous vehicles will be programmed to follow the letter of the law. Policymakers control a very powerful form of "code" – the laws and regulations that we already use to weigh ethical and value considerations. Neither an autonomous vehicle nor its creator should be asked to weigh the Trolley Problem, or any other complex ethical trade-offs. We already have institutions like courts, legislatures, and regulators to arbitrate justice and weigh decisions of right and wrong.

In the example of the child chasing the ball, it should not be up to an automaker to decide whether or not it is appropriate to cross a double yellow line to save a life. Automakers will need laws and policies that can parse these complex situations. If autonomous systems fail to keep pedestrians safe while following the laws we have today, regulators can change those laws, and software makers will have to comply.

Autonomous vehicle technology will let us reimagine our world, especially our cities and suburbs. Since World War II, we have designed around the mechanical constraints of the automobile. Now we are designing with the constraint of software, not engines, brakes, and steering wheels. As people who seek Vision Zero in our cities, we will have to bolster the courts, regulators, and legislatures that will allow us to trust autonomous vehicle systems and guide driverless technology to be what we – and not just what the owners of autonomous cars – want.

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VISION ZERO
SAFE STREETS TO ALL

LEAH SHAHUM

More or Less Than Visionary

The proliferation of Vision Zero to cities across the United States has created a diverse set of interpretations of Vision Zero. Vision Zero Network Executive Director Leah Shahum looks at the best and worst traffic safety ideas from around the country and makes a call to action for advocates to keep their local Vision Zero true.

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#VisionZero day 2, PO Katsov of our Traffic Safety unit helps #hellskitchen resident put reflective tape on his cane

RETWEETS 5 LIKES 16

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Let's be clear: Not all Vision Zero efforts are created equal.

Certainly, there is reason to celebrate as more than 20 communities in the U.S. have made commitments in the past three years to the policy goal of eliminating traffic fatalities and serious injuries. In many ways, it is a seismic shift to see so many mayors, police chiefs, and community leaders publicly declare that "enough is enough."

But, as the spotlight fades after the press conference, Vision Zero implementers and advocates face the challenge of moving their community from vision to action. Across the country in these moments, we are seeing the rise of an uneven understanding and application of the fundamental principles of Vision Zero.

As the founder of the Vision Zero Network, where our goal is to help advance Vision Zero efforts in communities across America, I can't help but worry that weak strategies rolled out under a Vision Zero banner threaten this powerful, life-saving concept being watered down to no more than a politically expedient slogan.

How do we hold our leaders accountable, not only for setting the goal of zero, but also for taking the right actions to advance systemic safety for all road users? We can start by recognizing and calling out the differences between true Vision Zero, and Vision Zero in name alone.

Challenging Windshield Perspectives

In recent years, leaders in some Vision Zero cities have begun to respond more quickly and systematically to data on safety problems, leaning into a core Vision Zero principle – the design of "forgiving" road systems so that inevitable mishaps do not end in death or serious injury.

In the most potent examples, city leaders are pursuing changes even when politically challenging. In Portland, Oregon, and San Francisco, California, officials are systematically "daylighting" intersections by replacing on-street car parking that blocks visibility with open spaces, all with a modest budget for paint, planters, and plastic bollards.

Cities are implementing pedestrian-priority intersection crossings, or scrambles, which allow people to walk through the intersection in all directions while vehicles idle, including Washington, D.C., Chicago, Illinois, and Los Angeles, California. In L.A., the busy intersection of Highland Avenue and Hollywood Boulevard is now home to the "Hollywood Scramble" – previously the site of ten injury collisions a year. There have been no serious injuries or fatalities recorded since the scramble was added in November 2015 as part of L.A.'s Vision Zero effort.

While these design approaches may seem simple and obvious, they are still not standard practice in most places, largely because many decisionmakers do not want to challenge the sacred cows of on-street parking or travel time for those driving, even to protect the safety of those walking.

Systematizing Street Design

Other cities are moving beyond reactive responses in individual locations. Proactive investment in roadway design citywide, and the systemic diagnosis of problems before they result in injury or death, is yielding major results. For example, the New York City Department of Transportation recognized that left turns account for more than twice as many fatalities as right turns among people walking and biking, and three times as many serious injuries. After analyzing crash reports

ABOUT

Leah Shahum is the founder and director of the nonprofit Vision Zero Network, which works to advance Vision Zero in the U.S. Read more about expectations of what it means to be a Vision Zero city in the Vision Zero Network's report, *Moving from Vision to Action: Fundamental Principles, Policies & Practices to Advance Vision Zero in the U.S.*, available online at visionzeronetwork.org.

from the most problematic locations, New York is now proactively applying proven design treatments citywide that include left turn restrictions for cars, leading pedestrian intervals, and new designs to slow down left-turning vehicles.

Similarly, the Seattle Department of Transportation embarked on a comprehensive review of all collisions involving people walking and biking in order to identify patterns. The city then used GIS to apply these factors citywide, determining where similar conditions exist to identify places with high potential for future serious crashes. Seattle is planning to systematically address these potential future problem areas across the city, rather than wait for tragedies at these locations. This is Vision Zero at its best.

On the flip side, in many cities, resistance remains to systematizing traffic safety improvements. Leaders of the San Francisco Fire Department have actively worked to block the installation of proven traffic calming measures by claiming it slows fire response times, despite these claims having been consistently disproved.

And while officials in San Diego, California, claim it as a Vision Zero city, they have taken little to no meaningful action to install Vision Zero roadway designs. A 2016 analysis by the Office of the San Diego City Auditor found that intersections experiencing the highest rates of injury collisions have not been modernized with even the most basic safety improvements, such as countdown timers and flashing beacons for pedestrians. At the same time, traffic safety resources in the city are being invested at other locations where injuries are far less common.

Tackling Speed and Technology

One of the most encouraging advancements in Vision Zero's relatively short life in the U.S. is the uptick in city leaders who recognize the threat of speed and are leading meaningful strategies to prioritize safety over traffic movement.

In the past three years, legislators in New York; Seattle; Boston, Massachusetts; Austin, Texas; and Alexandria, Virginia, have

all voted to reduce their speed limits to 25 mph for the sake of safety. Both Washington, D.C., and Seattle are considering lowering the speed limit to 15 mph in neighborhood slow zones. San Jose and San Francisco, California, are lobbying to win approval from the California Legislature to use automated speed enforcement (ASE), already in place and saving lives in many cities, including D.C., New York, and Chicago.

There is also an encouraging trend of cities adopting more flexible guidelines for roadway design to slow drivers' speeds. In L.A.; Denver, Colorado; Chicago, Illinois; and Fort Lauderdale, Florida, the influence of the National Association of City Transportation Officials' *Urban Street Design Guide* – which prioritizes the movement of people walking, bicycling, and riding transit – is appearing more and more.

New technology is being utilized as a Vision Zero tool, including commitments to install rear and side guards as well as crossover and convex mirrors on large vehicles in Boston, Fort Lauderdale, New York, and San Francisco. Some are moving to require any companies contracted for city services to do the same. This is low-hanging fruit to advance Vision Zero: quick to implement, generally uncontroversial, and relatively cheap.

Message Failure

The meaning of Vision Zero has become so convoluted in some cities that officials regularly send the message that people walking have less of a right to use streets and crosswalks than people driving.

In a shocking number of Vision Zero cities, from Fort Lauderdale to Glendale, in L.A. County, officials have suggested that pedestrians concerned about their safety while crossing the street should wave a bright colored "safety flag." In New York City, police officers have taken to visiting senior citizen centers in their precinct to apply reflective tape to the canes and walking aids of older New Yorkers. Paul Steely White of Transportation Alternatives characterized it best in the *New York Daily News*: "This is like telling civilians to wear bulletproof vests instead of going after the shooters."

Real Vision Zero

Each of these efforts has been called "Vision Zero" – from predictive data analysis addressing dangerous roadways to reflective tape – at least according to city officials. In the short time since Vision Zero's U.S. introduction, we see a much-needed shift from complacency to action and urgency in cities across the country. Yet in some cities, Vision Zero has also become too broad a brush, and city leaders are painting well outside the lines of best practices, safety, or even logic.

To be fair, not every traffic safety strategy attempted will succeed. To a certain degree, and as long as it happens alongside proven-effective measures, the trial of novel approaches should be encouraged.

But above all else, decisionmakers must be held accountable for a rigorous application of the basic principles of Vision Zero. Cities must employ strategies that aim for systemic change to all streets, starting with the most problematic. Every new policy must prioritize safety over speed. And as people committed to Vision Zero in the U.S., we must be unflinching in calling out pandering, victim blaming, and politician marketing that lacks the substance of safety. Our work to ensure safe mobility for all is – and continues to be – so much more than a slogan.

SOURCE

"Emergency Response and Street Design Initiative" Congress for the New Urbanism.


PEOPLE


GDB
NC

Assistant Editor: Serena McIntosh
Proofreader: Ken Coughlin
Designer: Sarah Lang

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Transportation Alternatives' mission is to reclaim New York City streets from the automobile and advocate for bicycling, walking and public transit as the best transportation alternatives.

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