

BEYOND VS

DANGEROUS TRANSPORTATION



#8



AND, I JUST HEARD THAT OVER 30,000 PEOPLE DIE FROM VEHICLE RELATED CRASHES EVERY YEAR IN THE UNITED STATES ALONE. I KNOW WE'VE TALKED ABOUT THE DANGERS OF DISTRACTED DRIVING, BUT THAT MANY FATALITIES IS SURPRISING!

YOU'RE RIGHT, BEY. ON A RATE BASIS, DRIVING HAS GOTTEN SAFER OVER THE PAST 100 YEARS. HOWEVER, MORE PEOPLE ARE DRIVING NOW AND IT'S RISKIER THAN OTHER FORMS OF TRANSPORTATION.



IT'S CRAZY THAT THE NEWS FOCUSES ON SHOCKING EVENTS RATHER THAN THESE EVERYDAY DANGERS. IF WE FOCUSED MORE ON DRIVING, WOULDN'T THAT SAVE MORE LIVES?

YOU MAKE GREAT POINTS, BEY. IF SOCIETY FOCUSED MORE ON TRANSPORTATION SAFETY, WE COULD SAVE THOUSANDS OF LIVES. BUT SADLY, NEWS AND SOCIAL MEDIA OFTEN PRIORITIZE SENSATIONAL STORIES.



SO WHAT COULD BE DONE TO SAVE MORE LIVES ON OUR ROADS AND HIGHWAYS?

THERE ARE MANY FACTORS AT PLAY, INCLUDING ENGINEERING, LAWS AND ENFORCEMENT, AND EVEN CULTURAL SHIFTS.



IT STARTS WITH ACCEPTING THAT TRAFFIC-RELATED FATALITIES AND SERIOUS INJURIES ARE UNACCEPTABLE AND PREVENTABLE. THEY AREN'T 'ACCIDENTS', AND WE CAN ELIMINATE THEM.

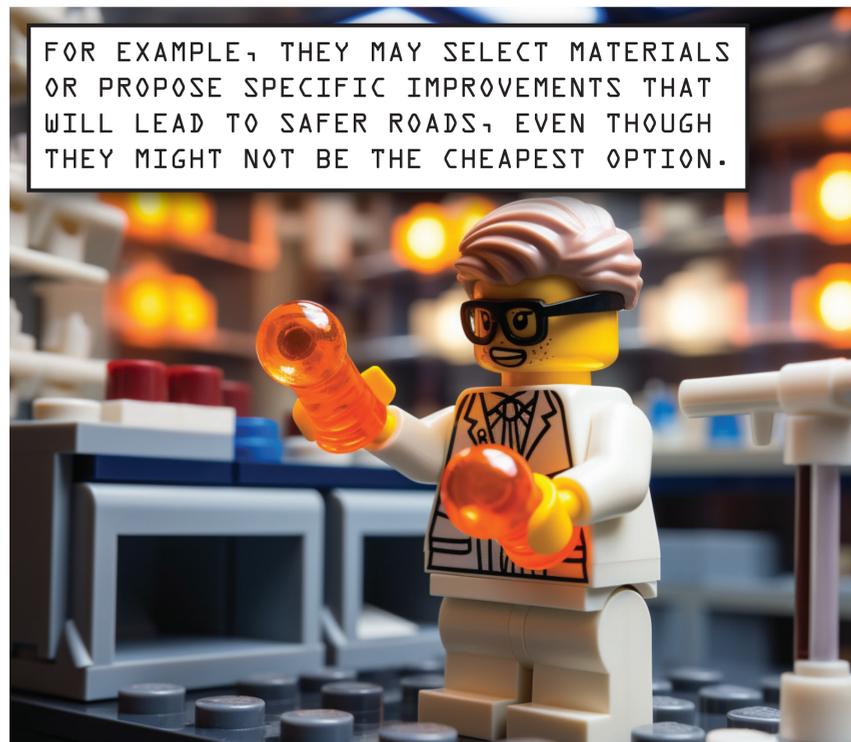
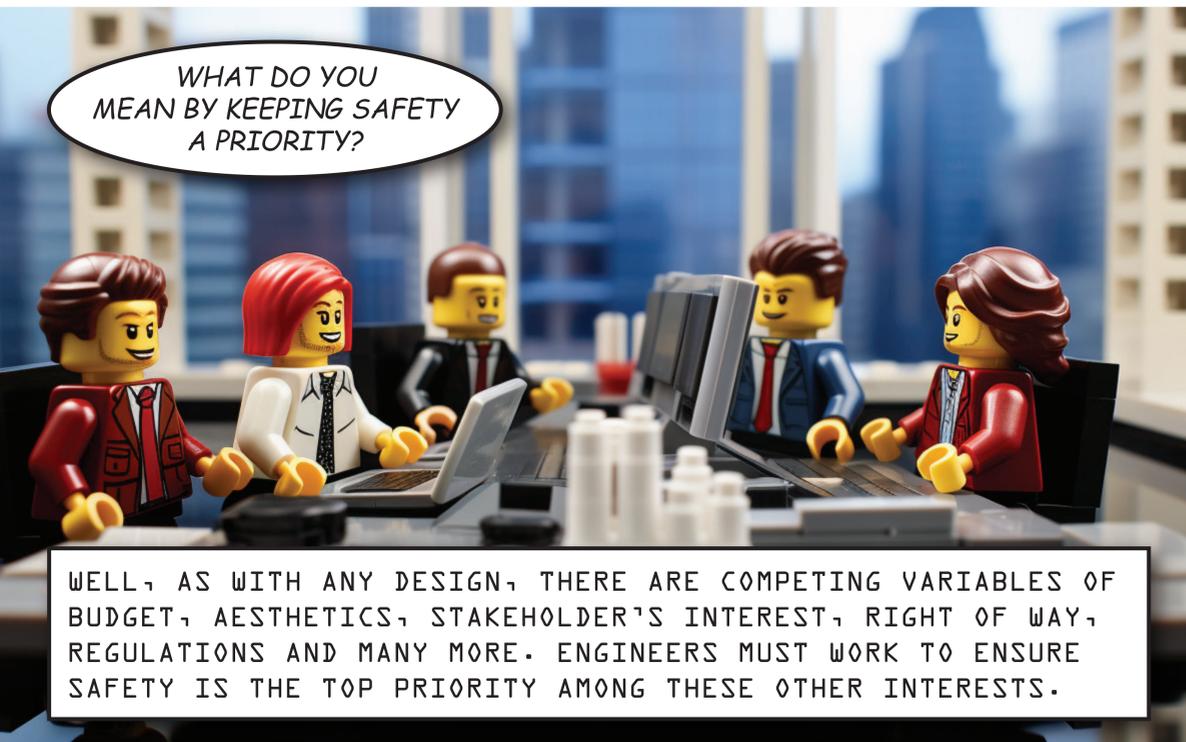
THAT MAKES SENSE!
SO WHAT ROLE DOES
ENGINEERING PLAY?

TRANSPORTATION ENGINEERS STRIVE TO DESIGN ROADS TO BE AS SAFE AS POSSIBLE. THIS INCLUDES FOLLOWING AND UPDATING GUIDELINES THAT ARE INCREASINGLY EFFECTIVE, BUT PART OF IT IS INTUITIVE, KEEPING SAFETY A PRIORITY THROUGHOUT THE DESIGN PROCESS.



WHAT DO YOU
MEAN BY KEEPING SAFETY
A PRIORITY?

FOR EXAMPLE, THEY MAY SELECT MATERIALS
OR PROPOSE SPECIFIC IMPROVEMENTS THAT
WILL LEAD TO SAFER ROADS, EVEN THOUGH
THEY MIGHT NOT BE THE CHEAPEST OPTION.



WELL, AS WITH ANY DESIGN, THERE ARE COMPETING VARIABLES OF BUDGET, AESTHETICS, STAKEHOLDER'S INTEREST, RIGHT OF WAY, REGULATIONS AND MANY MORE. ENGINEERS MUST WORK TO ENSURE SAFETY IS THE TOP PRIORITY AMONG THESE OTHER INTERESTS.

ENGINEERS CAN ALSO
ASSESS THE PROJECT SITE
FIRSTHAND, WITNESSING
AND CONSIDERING VARIOUS
PERSPECTIVES, AGAIN WITH
SAFE DESIGN IN MIND.

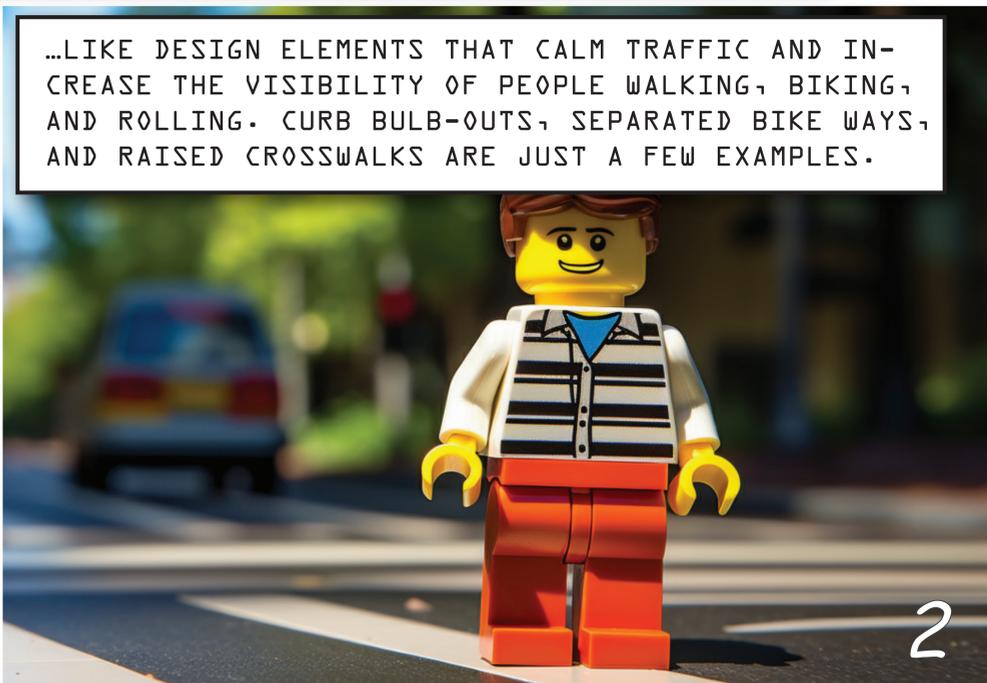


THERE ARE MANY OPTIONS TO MAKE THEIR DESIGNS SAFER AND ARE OFTEN CONTEXT-SPECIFIC. HIGHWAY SAFETY MEASURES INCLUDE RUMBLE STRIPS, GUARDRAIL AND BARRIER RAIL, IMPACT ATTENUATORS, AND OTHER HIGH-SPEED CRASH BARRIERS.

WHAT ABOUT
DOWNTOWN
STREETS?

IMPROVING SAFETY IN URBAN SETTINGS
USUALLY ENTAILS PROTECTING THE MOST
VULNERABLE USERS OF A ROADWAY...

...LIKE DESIGN ELEMENTS THAT CALM TRAFFIC AND INCREASE THE VISIBILITY OF PEOPLE WALKING, BIKING, AND ROLLING. CURB BULB-OUTS, SEPARATED BIKE WAYS, AND RAISED CROSSWALKS ARE JUST A FEW EXAMPLES.





ENGINEERS ALSO HAVE TO THINK ABOUT HOW TO KEEP THESE STREETS AND HIGHWAYS SAFE DURING CONSTRUCTION AND MAINTENANCE AS WELL.



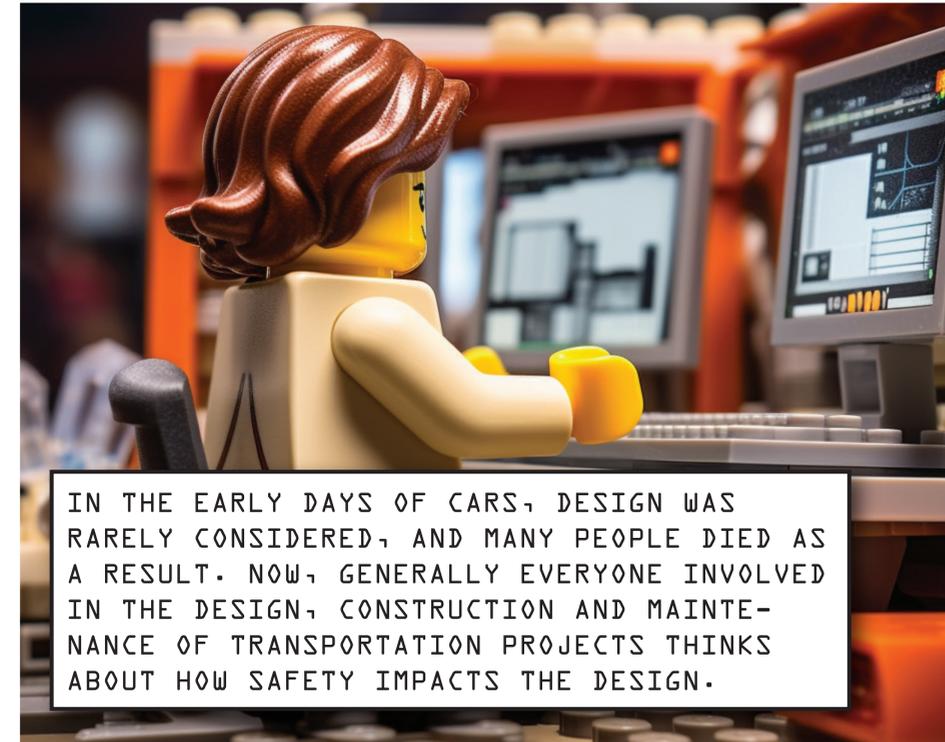
WHAT'S AN EXAMPLE OF THAT?

TAKE SNOW REMOVAL. ENGINEERS NEED TO DESIGN ROADS THAT CAN BE EASILY CLEARED OF SNOW AND ICE TO PREVENT SLIPPERY CONDITIONS IN ADVERSE WEATHER.



THERE ARE ALSO SAFETY CONSIDERATIONS IN BRIDGE AND RETAINING WALL DESIGN. AND DON'T FORGET PROPER PAVEMENT MARKINGS, SIGNAGE AND LIGHTING PLAY A ROLE IN ROAD SAFETY AS WELL.

WOW, THERE'S WAY MORE TO ROAD SAFETY DESIGN THAN I WOULD HAVE THOUGHT!



IN THE EARLY DAYS OF CARS, DESIGN WAS RARELY CONSIDERED, AND MANY PEOPLE DIED AS A RESULT. NOW, GENERALLY EVERYONE INVOLVED IN THE DESIGN, CONSTRUCTION AND MAINTENANCE OF TRANSPORTATION PROJECTS THINKS ABOUT HOW SAFETY IMPACTS THE DESIGN.



SO ALL OF THIS RESULTS IN SAVED LIVES?

ABSOLUTELY. OUR ROADS HAVE CONTINUALLY BEEN BUILT SAFER OVER THE DECADES, THANKS TO THE EFFORTS OF THESE DESIGNERS AND CONTRACTORS. AS OLDER ROADS AND BRIDGES ARE REPLACED AND DESIGN CRITERIA IMPROVES, ROADWAYS WILL BECOME EVEN SAFER AND FATALITY RATES WILL CONTINUE TO DROP.



OKAY, WHAT ABOUT THE DESIGN OF THE ACTUAL VEHICLE?

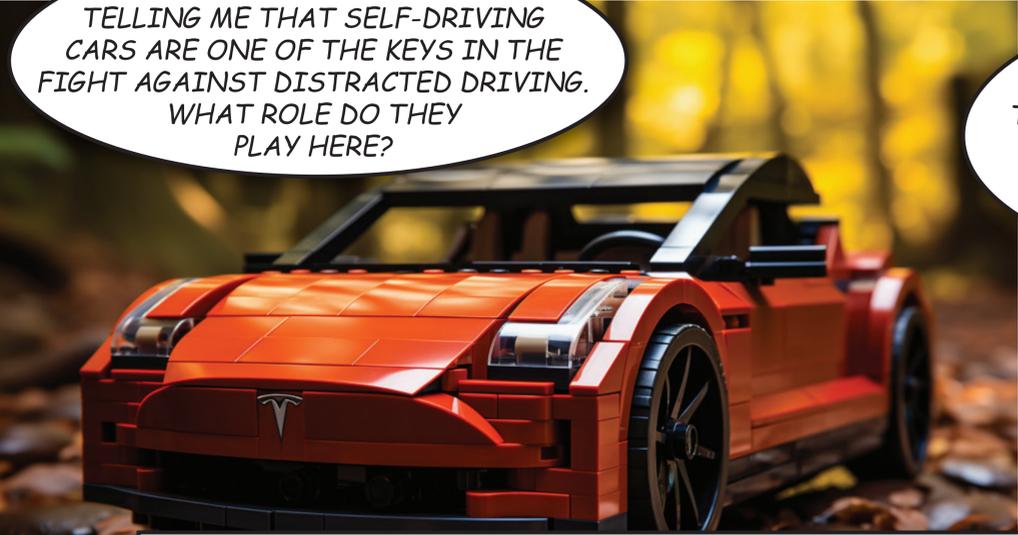
WHAT WE ARE DRIVING IN MAKES AS MUCH A DIFFERENCE AS WHAT WE ARE DRIVING ON. SIMILAR TO THE DESIGN OF THE ROADS, AUTOMOTIVE DESIGN CODES HAVE EVOLVED, REQUIRING SAFETY ELEMENTS THAT ARE PROVEN TO WORK - LIKE SEATBELTS AND AIRBAGS.

IMPROVEMENTS IN TECHNOLOGY AND TESTING TECHNIQUES HAVE MADE ELEMENTS OF VEHICLE DESIGN LIKE CRUMPLE ZONES AND MATERIAL COMPOSITION MUCH BETTER AT PROTECTING PASSENGERS IN THE EVENT OF A CRASH.



AND MORE ACTIVE TECHNOLOGIES LIKE CRASH DETECTION HAVE ONLY BEGUN TO SHOW THEIR POTENTIAL IN SAVING LIVES.

I REMEMBER YOU TELLING ME THAT SELF-DRIVING CARS ARE ONE OF THE KEYS IN THE FIGHT AGAINST DISTRACTED DRIVING. WHAT ROLE DO THEY PLAY HERE?



THEN WHY ARE WE STILL MANUALLY DRIVING CARS? THE AI THAT IS POWERING YOU HAS BEEN AROUND FOR A WHILE AND KEEPS GETTING BETTER. IS IT THAT HARD TO MAKE A CAR DRIVE ITSELF?



YES, AUTONOMOUS CARS REPRESENT THE BIGGEST POTENTIAL IMPROVEMENT IN TRANSPORTATION SAFETY. IF WE WIDELY ADOPT THEM, IT COULD SAVE TENS OF THOUSANDS OF LIVES EVERY YEAR, JUST IN THE UNITED STATES.



IT'S A COMPLEX ISSUE. IN MANY SITUATIONS, AUTONOMOUS CARS ARE ALREADY SAFER THAN HUMAN ERROR. BUT MAKING SURE THEY CAN SAFELY NAVIGATE UNIQUE CONFLICTS AND OUTLIER CONDITIONS LIKE ADVERSE WEATHER AND UNPAVED ROADS HAS PROVEN CHALLENGING.



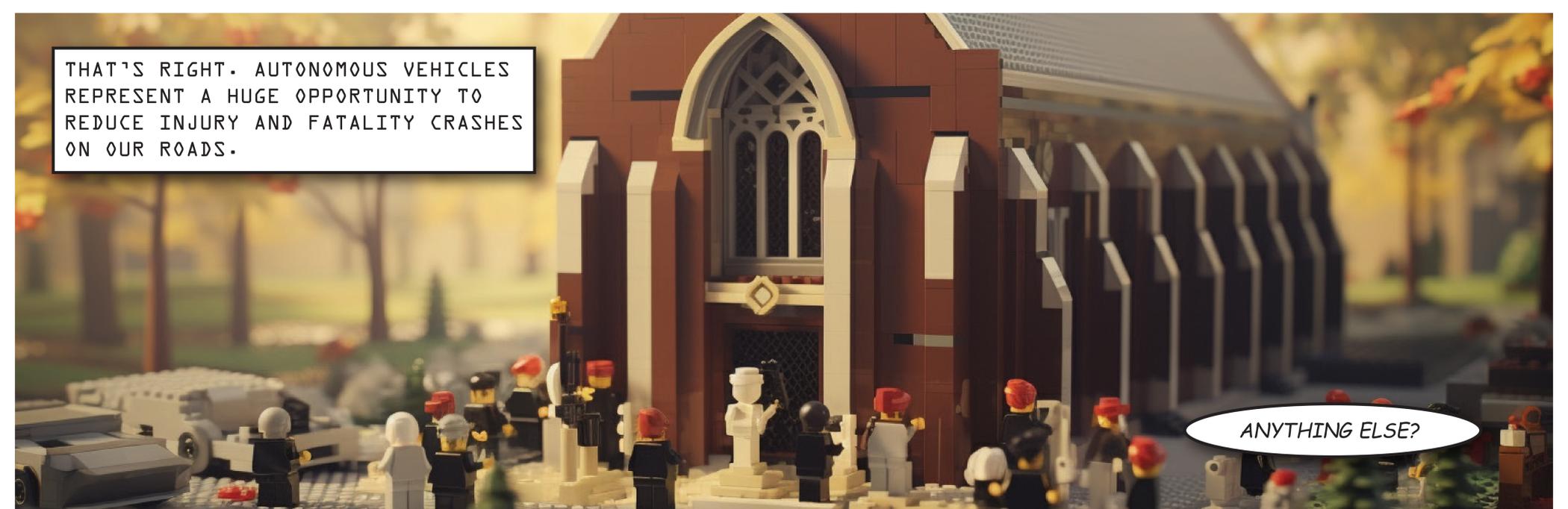
AND MANY PEOPLE ARE AFRAID OF HANDING OVER CONTROL TO A COMPUTER. THAT CAN BE UNSETTLING TO SOMEONE THAT HAS SPENT DECADES SAFELY DRIVING MANUALLY.



PUBLIC PERCEPTION IS A HUGE HURDLE FOR APPROVAL OF AUTONOMOUS VEHICLES DRIVING ON SHARED ROADS WITH OTHER TRAFFIC. GOVERNMENT APPROVAL IS VITAL, BUT POLITICIANS FACE THESE AND OTHER CHALLENGES BEFORE MASS ADOPTION CAN BEGIN.



I REMEMBER HEARING THAT MAKERS OF SELF-DRIVING CARS ARE HOPING TO MAKE THEM AT LEAST 10 TIMES SAFER THAN HUMAN DRIVERS. THAT MEANS THAT 30,000 FATALITIES A YEAR COULD BE CUT TO 3,000 OR LESS!



THAT'S RIGHT. AUTONOMOUS VEHICLES REPRESENT A HUGE OPPORTUNITY TO REDUCE INJURY AND FATALITY CRASHES ON OUR ROADS.

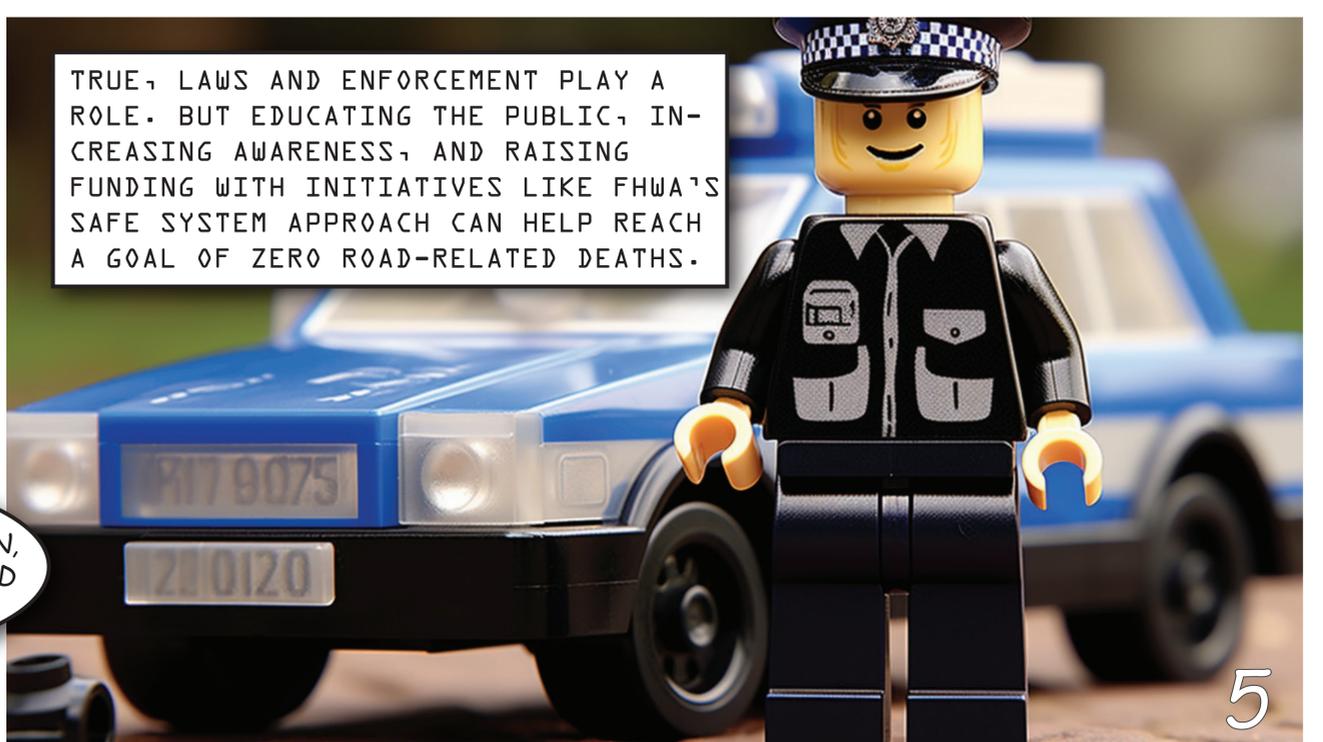
ANYTHING ELSE?



HAVE YOU FORGOTTEN THAT PUBLIC TRANSPORTATION IS OFTEN PART OF THE SOLUTION?

YES, BUT ON AVERAGE, PUBLIC TRANSPORTATION IS GENERALLY SAFER THAN DRIVING VEHICLES INDIVIDUALLY. LARGER VEHICLES CAN BETTER WITHSTAND IMPACTS, AND TRAINED PROFESSIONAL DRIVERS FOLLOW STRICTER REGULATION AND OVERSIGHT THAN STANDARD DRIVERS.

EVEN WITH THIS? BUS DRIVERS CAN STILL MAKE MISTAKES, AND TRAINS CAN STILL CRASH.



TRUE, LAWS AND ENFORCEMENT PLAY A ROLE. BUT EDUCATING THE PUBLIC, INCREASING AWARENESS, AND RAISING FUNDING WITH INITIATIVES LIKE FHWA'S SAFE SYSTEM APPROACH CAN HELP REACH A GOAL OF ZERO ROAD-RELATED DEATHS.



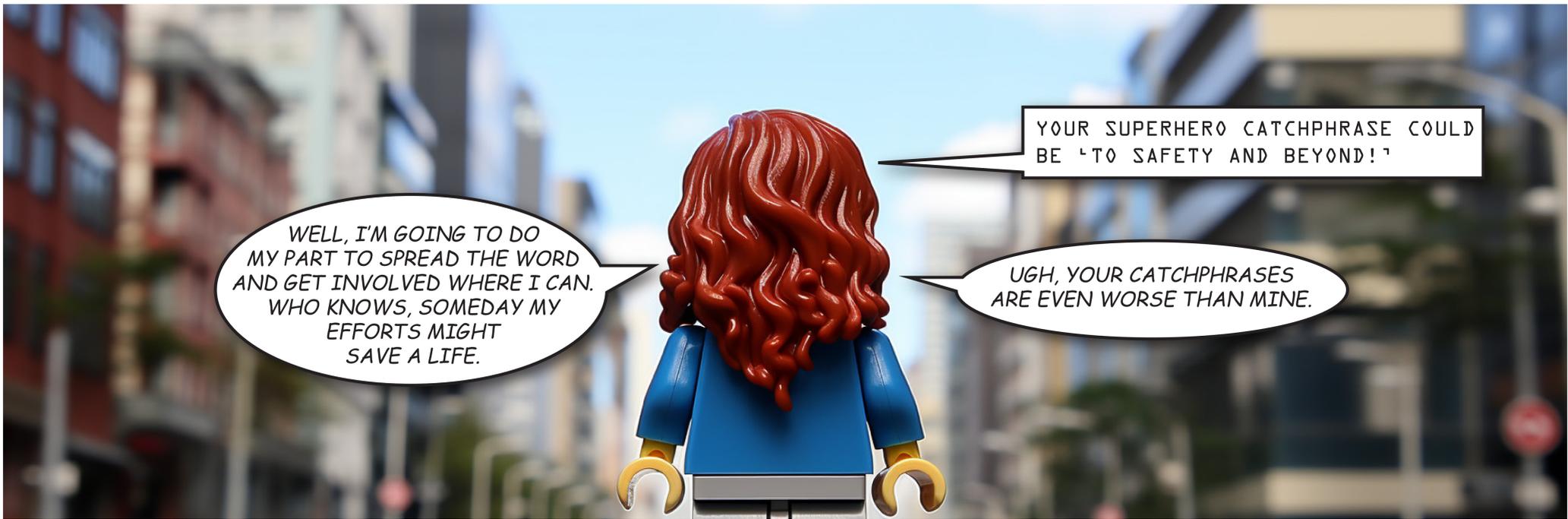
A LOT OF THIS IS ON US- PAY ATTENTION, WEAR YOUR SEATBELT, AND DON'T DRIVE TOO FAST.



YOU KNOW IN SUPERHERO MOVIES WHEN THEY COME IN TO DEFEAT THE VILLIAN AND SAVE EVERYONE'S LIFE? IT'S CRAZY TO THINK THAT WITH A LITTLE MORE WORK, WE CAN BE ACTUAL SUPERHEROES!



IT'S A VALID POINT. WITH EACH NEW INNOVATION, CAREFULLY DESIGNED ROAD OR PUBLIC OUTREACH CAMPAIGN, DEATHS ARE PREVENTED. THESE UNSUNG HEROES MAY NEVER GET THE ATTENTION THEY DESERVE, BUT THEIR WORK SAVES LIVES EVERY DAY.



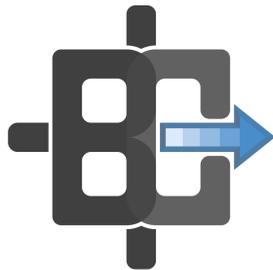
WELL, I'M GOING TO DO MY PART TO SPREAD THE WORD AND GET INVOLVED WHERE I CAN. WHO KNOWS, SOMEDAY MY EFFORTS MIGHT SAVE A LIFE.

YOUR SUPERHERO CATCHPHRASE COULD BE 'TO SAFETY AND BEYOND!'

UGH, YOUR CATCHPHRASES ARE EVEN WORSE THAN MINE.



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