

ITS Scholarship Essay
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Assume we reach the goal of Vision Zero by year 2025. What role did ITS and Traffic technologies play in achieving this goal?

The idea of a smart and sustainable city prompts a mental image of a cohesive community with mutually beneficial components that satisfy the needs of both individuals and the environment the city serves. Traffic technology is a key principle to both the smart and sustainable aspects of future urban developments. Modernizing transportation systems to meet the needs of global challenges stems from the idea of Vision Zero, the concept that the United States can eventually reach a goal of zero transportation-related fatalities. The notion of Vision Zero catalyzes the possibilities for traffic transportation by incentivizing the achievement of a technologically advanced infrastructural system with the individual lives of people. Some of these technologies include the following: combining artificial intelligence with traffic theory, adaptive signal timing systems, vehicle-to-infrastructure communications, pedestrian access to smartphone apps that send alerts on approaching vehicles, and adjusting roadway striping to prevent crashes and accept autonomous vehicles (“Renew Atlanta”, n.d.). In general, some of these technologies are already implemented into smart corridors throughout the United States. More specifically, the first phase of the North Avenue Smart Corridor Project incorporates all of these technologies to encourage a safer route for pedestrians, cyclists, motorists, and public transport systems. Setting a deadline of 2025 to achieve Vision Zero is a courageous goal; however, most of the technologies for these smart systems have already been designed and are eagerly waiting for policies that permit their application.

The North Avenue Smart Corridor Project in Atlanta’s Midtown community is an ideal model of how traffic technologies and ITS directly align with the motives of Vision Zero. North Avenue is a severely busy route during peak travel times and performs to accommodate various multimodal transportation methods including MARTA trains, MARTA buses, pedestrians, cyclists, electric scooters, and personal vehicles. Officials in the Atlanta area have recognized the need to prioritize safety in this high-capacity corridor and began the first phase of transitioning North Avenue to a “smart” corridor in 2015 (“Renew Atlanta”, n.d.). The fundamentals of the challenges of Vision Zero are firmly rooted in access to big data, which is why the first step of the Smart Corridor project was to install hundreds of IoT (Internet of Things) sensors along the roadway to collect and share data with many different organizations and across numerous platforms. One of the most important technologies that is enforced using the North Avenue IoT data collection is the use of thermal imaging and video cameras to detect pedestrians and cyclists near vehicle pathways. The thermal imaging/ camera system sends information to vehicles in order to prevent collisions with humans. It establishes “adaptive control” that changes traffic signals and crossing times based on sidewalk capacity, speed of vehicles, and current traffic patterns (“Renew Atlanta”, n.d.). Although there are multiple other components of the Smart Corridor project, this specific use of IoT technology for traffic applications will have critical impacts on the safety of people utilizing this route by reducing vehicle-cyclist, vehicle-pedestrian, and vehicle-vehicle collisions. Through shifting

the focus of problems in roadway safety from the minds of humans to the system itself, potentially dangerous events can be better predicted and prevented using ITS data.

Ideas within the realm of Intelligent Transportation Systems are especially valuable because the power and impact of new systems and data sharing can have worldwide applications. If the United States were to reach Vision Zero by 2025, it would be incredibly beneficial to develop unique ideas for each city based on systems that have already proven successful internationally. To parallel the thermal detection and video camera system in Atlanta, there is a similar project happening in Singapore that assists elderly and disabled pedestrians by granting these individuals more time to cross the street. This project, called “Green Man +”, is a result of Singapore’s elderly population exponentially increasing over the past decade (“Green Man”, 2018). In order to make roadways and sidewalks as efficient and safe as possible, elderly and disabled citizens are granted a concession card that can be scanned above the normal push-button crossing mechanism. This means that each citizen has ample amount of time to cross and pedestrian traffic is personalized to meet the needs of the increasing elderly population and disabled community. Green Man + is an exceptional example of what it will take to meet the demands of a Vision Zero community by seeking multiple solutions that meet the needs of each individual instead of enforcing one solution that meets the generalized needs of a community. This idea of specializing traffic systems to instantaneously adapt to traffic conditions is a far-reaching goal for the first few phases of projects like the North Avenue Smart Corridor, but sharing ITS data and publicizing reports on the successes and failures of the Singaporean Green Man + initiative can further enhance future projects in Atlanta and across the United States.

Developing comprehensive solutions that eliminate multiple issues at once is an ideal result of usage of ITS and traffic technologies. Vision Zero is a monumental worldwide movement that revolutionizes the stigma around traffic safety, stating that it is absolutely possible to prevent deaths in roadway incidents, we just need to implement the right tools and systems. The overarching method of Vision Zero that empowers its success in countries across the globe is the idea that the systems are at fault, not the people using the systems. Instead of blaming human error, Vision Zero establishes the idea that the system itself is at fault for unsafe roadway conditions and the only way to achieve zero fatalities is by completely reconstructing the technical components of traffic systems. Overall, 2025 is an ambitious goal for not only the world but the United States to achieve; however, the only way to reach this goal is through data collection and dissemination in the traffic systems communities.

References

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- Green Man. (2018, February 12). Retrieved from <https://www.lta.gov.sg/content/ltaweb/en/roads-and-motoring/managing-traffic-and-congestion/intelligent-transport-systems/green-man---.html>