CAPSTONE PROJECT REPORT

UCLA Institute of Transportation Studies

The Pedestrian Battle of Los Angeles

How to empower underserved communities in the City of Los Angeles towards the planning and implementation of pedestrian road safety infrastructure

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16. Abstract

The road safety Vision Zero policy of the City of Los Angeles is failing to prevent pedestrian fatalities and severe injuries. Since its implementation in 2015, tragic pedestrian crashes are increasing annually. This research studies the socio-demographic profiles of these pedestrians victims of traffic violence at the neighborhood level, and the political obstacles that prevent the redesign of the streets form the murderous car-oriented status quo to a peaceful people-oriented built environment.

First, I assess the correlation between non-white, polluted census tracts, and pedestrian fatalities and severe injuries, and find that it is positive and statistically significant. At the same time, the median income, vulnerable age, and the number of cars in a household does not have a statistically significant relationship with pedestrians' road safety. I also found that in the City of LA, black people are only 8% of the population, but 20% of all pedestrian fatalities, being the ethnic group more overrepresented.

Then, through interviews and a literature review, I identify the principal political obstacles to implementing pedestrian road safety infrastructure. There is a constant backlash from car-oriented neighbors, and the authorities are failing to support residents who demand pedestrian improvements. Based on the research, my main policy recommendation is to revive and strengthen the Vision Zero Dignity Infused Community Engagement strategy (DICE) of the Los Angeles Department of Transportation (LADOT). This program should continue building power and developing capabilities in communities, especially in historically underserved areas, towards a critical mass of residents fighting for safe streets.r

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Disclaimer

This report was prepared in partial fulfillment of the requirements for the Master in Urban and Regional Planning degree in the Department of Urban Planning at the University of California, Los Angeles. It was prepared at the direction of the Department and of Los Angeles Walks as a planning client. The views expressed herein are those of the authors and not necessarily those of the Department, the UCLA Luskin School of Public Affairs, UCLA as a whole, or the client.

The Pedestrian Battle of Los Angeles

UCLA Institute of Transportation Studies

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Executive Summary

Issue

Road Safety in the City of LA is more a political battle than a technical matter. Since its implementation in 2015, the Vision Zero policy of LA has failed to reduce fatalities and severe injuries due to road crashes. Increasing pedestrian fatalities and severe injuries evidence the main reason this policy has not been successful. The most effective way to tackle this problem is with pedestrian engineering improvements. Nevertheless, today in LA, the political cost of implementing such measures is high.

A handful of residents can stop pedestrian priority infrastructure in the name of convenience while driving their cars. In different parts of the city, these groups have sued and threatened politicians with recall campaigns. Therefore, it is necessary to empower communities to create a critical mass of pedestrian road safety advocates that can overcome such opposition.

The Los Angeles Department of Transportation (LADOT) has implemented a policy to build power in the communities and work together for safe streets. The name of this program is the Dignity Infused Community Engagement strategy (DICE). Nevertheless, the status and the results of this policy are not clear. On top of that, the City of LA officially ended DICE operations last April 2020.

This research studies the socio-demographic profiles of pedestrians victims of traffic violence at the neighborhood level in the City of LA, and the political obstacles that prevent the redesign of the streets form the murderous car-oriented status quo to a peaceful people-oriented built environment.

Main Findings

- In the City of LA, black people are only 8% of the population, but 20% of all pedestrian fatalities.
- Walking in a non-white and polluted census increases the probability of being killed or severely injured by a motor vehicle in the City of LA. Meanwhile, median income, vulnerable age, and the number of cars in a household do not have a statistically significant relationship with pedestrians' road safety.
- City council members have excessive power over road safety infrastructure. They respond to demands and threats of residents to backlash such projects, even when the City of LA and the LADOT support these improvements.
- People with louder voices, usually affluent car-oriented residents, jeopardize council members, who do not listen to the concerns of underserved people. This power dynamic of LA permits small groups of noisy stakeholders to hijack a conversation; they manipulate the narrative to make it seem convenient for everyone. It is vital to give more power to the people that fight for safe streets.

- The fight is not only about a person hit by a car. It is also about a person criminalized in the streets and getting deported. The revindication of historically marginalized groups is a deeper problem where road safety is only one of the consequences. Vision Zero should also be an anti-racist, decolonial, and decriminalize policy.

Study Approach

To analyze the socio-economic characteristics of pedestrian fatalities and severe injuries in the streets of the City of Los Angeles, I made descriptive statistics about the profile of pedestrian deaths and severe injuries (TIMS, UC Berkeley, & SWITRS, 2008-2018). Then, I analyzed throughout Geographic Information System (GIS) and regressions the following variables at a census tract level: median income, percentage of white residents, number of households with no vehicle, pollution vulnerability, and age vulnerability (CalEnvironScreen 3.0, 2018; US Census Bureau, 2017).

Then, to analyze the political challenges of implementing pedestrian road safety infrastructure, I interviewed advocates, officeholders, and road safety experts between January and May of 2020. Additionally, an in-depth literature review helped me to have a broad understanding of the political challenges that the authorities, advocates, and residents are facing.

Finally, I tell the story of Temple Street as a case study, including the backlashes, the advocates' wins, and a new reconfiguration of the street that this research proposes.

Policy Recommendations

- LADOT should revive and strengthen Vision Zero's Dignity Infused Community-Engaged policy (DICE). This program should continue building power and developing capabilities in communities, especially in historically underserved areas, towards a critical mass of residents fighting for safe streets.
- The Government of LA's budget should give the necessary resources to DICE to achieve all the Vision Zero's goals. Also, DICE institutional design should be prepared to keep working regardless of the people in charge.
- DICE should have more transparency. Although the DICE webpage has useful information about the program, there is no information about the events and the outcomes. Also, people should be able to continue participating via the Internet, telephone, and the appropriate formats to follow up on the projects.
- At a state level, the California assembly should speed up the process of substituting the 85th percentile methodology with a minimum harm approach to set speed limits (Toda, 2018). Likewise, it is essential to legalize Automated Speed Enforcement (ASE) measures, also known as speed cameras. Finally, The assembly should update the Highway Design Manual by Caltrans according to the recommendations by the National Association of City Transportation Officials (NACTO). This way, California will have a new generation of engineers that will reconfigure the streets, saving thousands of lives

I. Introduction

More than 200 people die in crashes every year on the streets of the City of Los Angeles (LA). Nearly half of these people were walking or bicycling, meaning a pedestrian or a cyclist dies every three days in LA (City of LA, 2018). In Oslo, Norway, and Helsinki, Finland, there were zero pedestrian deaths last year (Walker, 2020, January 3; City of Helsinki, 2020, February 5). Safe streets are possible. Throughout this project, I will demonstrate how Community-Based Organizations (CBOs) and road safety activists are the backbone towards zero fatalities and zero severe injuries in the streets of LA.

On the government's side, the Mayor of LA, Eric Garcetti, launched the Vision Zero policy in 2015. The Vision Zero concept first originated in Sweden in 1997 when the Swedish parliament adopted it as the official road policy. In a few words, Vision Zero is a philosophy that claims that the only acceptable number of fatalities and severe injuries due to road crashes is zero (Tingvall & Haworth, 1999, September 7).

The day that Mayor Garcetti started Vision Zero, he stated: "I am launching the citywide Vision Zero initiative. Saving human lives must be our priority, so I am declaring safety to be the number one priority in designing and building our streets" (City of LA, 2015a, p.1).

The 2018 Vision Zero Action Plan proves that the City of LA has made a great effort to tackle this problem (City of LA, 2018). Despite some wins in the streets, more people are dying due to road crashes every year (TIMS, UC Berkeley, & SWITRS, 2008-2018).

Unfortunately, the City of LA did not accomplish its ambitious goal to reduce by 20% of the traffic fatalities from 2015 to 2017. Mayor Garcetti also announced that by 2025 the traffic fatalities would be reduced to zero citywide (City of LA, 2015a). The statistics show that Vision Zero is an ambitious goal that it is almost impossible to achieve without a radical policy and infrastructure change (TIMS, UC Berkeley, & SWITRS, 2008-2018).

Notably, more and more pedestrians are dying every year. In the last few years, the number of killed motorized vehicle occupants and cyclists has stagnated. Nevertheless, the number of pedestrian deaths has skyrocketed. Due to this reason, Los Angeles has passed, in total, from 183 in 2015 to 245 fatalities in 2017 (City of LA, 2018). Hence, pedestrian safety improvements must be the top priority for LA's Vision Zero Plan.

People walking and biking are the most vulnerable users of our streets. Pedestrians and cyclists are involved in only 8% of all collisions in Los Angeles but account for 44% of all people killed (City of LA, 2018). On top of that, traffic collisions are a leading cause of death for children between ages 5 and 14 in Los Angeles County (City of LA, 2018).

Moreover, residents in underserved communities and people of color have a higher probability of being killed in traffic crashes (LADOT, n.d-h.; Loukaitou-Sideris, Liggett, & Sung, 2007). In other words, Vision Zero is not only a road safety policy; it is also a social justice initiative that will benefit low-income and historically marginalized residents of Los Angeles. Therefore, it is necessary to build power in these communities and work hand-in-hand with the residents.

Today, the political cost of implementing pedestrian road safety improvements in LA is high. For this chief reason, it is difficult to change the streets. Some residents complain about new road safety projects and threat authorities, especially when these measures take away street space from cars to give it to pedestrians and cyclists. In sum, there is a need for a critical mass of pedestrian advocates all around LA that can surpass this opposition to road safety measures.

The crisis is evident, and the authorities must intensify their efforts. Therefore, this study attempts to answer the following research questions to make road safety policy proposals and, at the same time, inform advocates on the potential strategies for reform.

- Which are the socioeconomic characteristics of pedestrian fatalities and severe injuries in the streets of the City Los Angeles?

- What are the political challenges to implementing pedestrian road safety infrastructure in underserved neighborhoods in the City of Los Angeles? And how can the City tackle such challenges?

- What can community-based organizations in the City of Los Angeles learn from others in terms of best practices to build power in their community towards safer streets for pedestrians?

The first question focuses on acknowledging the socioeconomic characteristics of the areas where the sum of pedestrian fatalities and serious injuries are more likely to happen. To tackle this question, I will start with descriptive statistics about the profile of pedestrian deaths and severe injuries. Then, I will analyze Geographic Information System (GIS) maps and statistical regressions with the following independent variables: median income, percentage of white residents, number of households with no vehicle, pollution vulnerability, and age vulnerability.

About the second research question, pedestrian life-saving engineering improvements - such as traffic calming devices, curb extensions, and pedestrian transit signal priority - have proven to reduce road traffic fatalities and serious injuries. Nevertheless, some residents and authorities are skeptics about the implementation of these improvements. Throughout this research, I am going to analyze the political challenges to tackle. I am mainly going to analyze residents that oppose these projects, councilmembers that do not want to be recalled by those residents, and the political will and resources from the authorities.

The core of this project is the third research question. Community-based organizations have the power to change the streets. I want to analyze the efforts of these organizations and propose an improvement of this community-engaged planning process. These small but powerful efforts of communities are helping the agenda of pedestrian road safety to move forward. To illustrate this political environment I will present the study case of Temple Street.

Overall, my review of existing evidence shows that implementing pedestrian road safety infrastructure in the streets is the most effective way to achieve Vision Zero's goal. Empowering the communities is mainly about getting the City to install these improvements. Los Angeles needs an army of informed and engaged citizens who fight for safe streets. LA already has a massive budget for road safety improvement and, at the same time, a great team of urban planners and engineers. The next step is to organize a critical mass of people demanding and supporting radical changes towards zero fatalities and zero severe injuries in the streets. Overall, this project aims to help the City's goal to reduce to zero road traffic fatalities and serious injuries through the Vision Zero Policy.

Client Overview

Los Angeles Walks (LA Walks), the client, is a pedestrian advocacy group dedicated to making walking safe, accessible, and fun for all Angelenos. They train and mobilize Angelenos to advocate for safe, accessible, and equitable walking environments in neighborhoods across Los Angeles. They amplify the voices of those most immediately impacted by traffic collisions and educate local policymakers concerning the rights and needs of pedestrians of all abilities (LA Walks, n.d.-a).

LA Walks organize many activations and campaigns towards a more walkable Los Angeles. They facilitate community walks around the City, but most importantly, they help to coordinate many advocacy groups to fight for safer streets. For instance, LA Walks has helped to organize the Vision Zero Alliance, which is integrated by different organizations that work in partnership with the City of Los Angeles to end all traffic fatalities and serious injuries.

Another example is the participation of LA Walks with Southern California (SoCal) Families for Safe Streets. LA Walks is one of the main organizers in this group of individuals who have lost loved ones or been injured by motor vehicles in traffic crashes, SoCal Families for Safe Streets offers support and opportunities for action to people who share their unique grief (LA Walks, n.d.-b).

Case Study

LA Walks, among other organizations (Gabba Gallery, Pilipino Workers Center, and Public Matters), work together for a safer Temple Street, the case study of the report. Temple Street, located in the neighborhood of Historic Filipino Town, has been identified as one of the most dangerous corridors in the City of Los Angeles (City of LA, 2016a, June 24). Residents have

been participating in many community meetings and activities fighting for a safe street. LA Walks has helped to coordinate the residents and channel these efforts with the authorities towards a safer Temple Street.

The interesting side of Temple Street is that, despite the great community efforts, the authorities did not implement the original plan for a complete street (Laker, 2020, February 3; Bliss, 2019b, November 25; Linton, 2018, September 26; Tinoco, 2018, March 22). The political backlash was again in the way of saving pedestrian lives. Recently, the authorities made some improvements in Temple Street, but these new configurations of the street are not what road safety organizations were expecting. The car-oriented geometry is still ruling. On the other hand, LA walks, among Padres en Acción, a group of parents fighting for a safer Temple Street is still resisting in this pedestrian battle on Temple Street. This project proposes a new reconfiguration of Temple Street to guarantee the safety of pedestrians.

Structure

The following academic research consists of six chapters. The first chapter is this introduction that presents the context, the research questions, and the client overview.

The second chapter is the literature, which contains three sections. The first one compares the City of Los Angeles Vision Zero policy with the cases of New York City, Mexico City, and Sweden. The second section is a review of pedestrian road safety infrastructure, the officials and non-official manuals to design streets, and the current policy in Los Angeles. Finally, the third section is a literature review of community-engaged planning. In this part, I summarize the theory behind participation processes and the steps to implement projects among residents and community-based organizations. To illustrate this theory, I mention the cases of the neighborhood of Cully, Portland, as well as organizations in Los Angeles, such as the Bus Riders Union, the Alliance for Community Transit Los Angeles, Los Angeles Walks, People for Mobility Justice, and Ovarian Psycos.

The third chapter presents the data and methodology that will respond to the research questions. This part contains the geographic and temporal scope, as well as the evidence to be used.

In the fourth chapter, I present the findings of the sociodemographic profile of pedestrian fatalities and serious injuries. Also, I will summarize the interviews I made to Community-Based Organizations, road safety experts, and officeholders.

The fifth chapter focuses on the case study of Temple Street. This street is a microcosm of the road safety political backlashes in LA. First, I present an analysis of Temple street, and I make a comparison of this case with other pedestrian projects in LA. Finally, I propose a road safety redesign of Temple Street based on a progressive engineering approach.

The sixth and last chapter discusses the Vision Zero Policy of Los Angeles in terms of community-engaged planning. Here, I present my policy recommendation about how to improve DICE (Dignity-Infused Community Engagement), the LADOT's program that builds power in communities towards safe streets. Also, I will stress the urgency to adjust the speed limit methodology and to legalize Automated Speed Enforcement (ASE) in California. Finally, I propose updating California's official street design manuals; here, I suggest to follow the recommendations by the National Association of City Transportation Officials (NACTO), and other organizations such as Smart Growth America, Institute for Transportation and Development Policy (ITDP), and World Resources Institute (WRI).

II. Literature Review

Roads are the largest public space a city has; in Los Angeles, roads represent 15% of the total land area (City of LA, 2015b). In this regard, streets harbor a high number of interactions. However, these tend to enhance feelings of stress, aggression, and violence (NACTO, 2016).

Every year, more than 200 people die in road crashes in the City of Los Angeles. Although pedestrians and cyclists are involved in only 14% of the total collisions, they represent around 50% of all fatalities (City of LA, 2018). On top of that, the city divisions enhance this vulnerability; residents in underserved neighborhoods of LA have a higher probability of being killed in traffic crashes (LADOT, n.d-h.; Loukaitou-Sideris, Liggett, & Sung, 2007).

Fortunately, the concern for road safety has gained attention over the last decade. Engineering projects such as traffic calming devices, curb extensions, and pedestrian signal priority, have proven to reduce fatalities and injuries due to road crashes (NACTO, 2016; Speck, 2018; WRI, 2015; Smart Growth America, 2019; ITDP, 2018).

In this regard, local authorities all over the world are working in the promotion of road safety policies to mitigate fatal risks; however, projects are failing to align with the community's needs, mainly those in underserved neighborhoods. Cities worldwide that share this same problem have seen the rise of community-based organizations that have actively addressed their road safety necessities through the development and implementation of pedestrian plans and projects (Shahum, 2017, June 26; Charney, 2017, October 7).

The city of Los Angeles has been no exemption to this phenomenon where more and more communities are taking action on the roads. The present project will aim to understand how the City of Los Angeles is tackling road safety problems from a community-based approach, as well as assess the level of success or evaluate different alternatives. In this regard, I worked on a comprehensive literature review, compiling relevant research from academic papers, official documents, and media articles, concerning three main subjects:

1. **Road Safety.** Here, I will try to understand the global trend on road safety policies, Los Angeles City's current situation, and the tendencies for years to come.
2. **Pedestrian infrastructure.** This section aims to assess which projects or policies have worked the best in Los Angeles and other cities in reducing fatalities and injuries among pedestrians and other vulnerable road users.
3. **Community engagement.** This section talks about the best practices in participation processes. I will give some examples to illustrate how community-engaged planning has empowered community-based organizations to push and implement projects and policies in their neighborhoods.

Road Safety

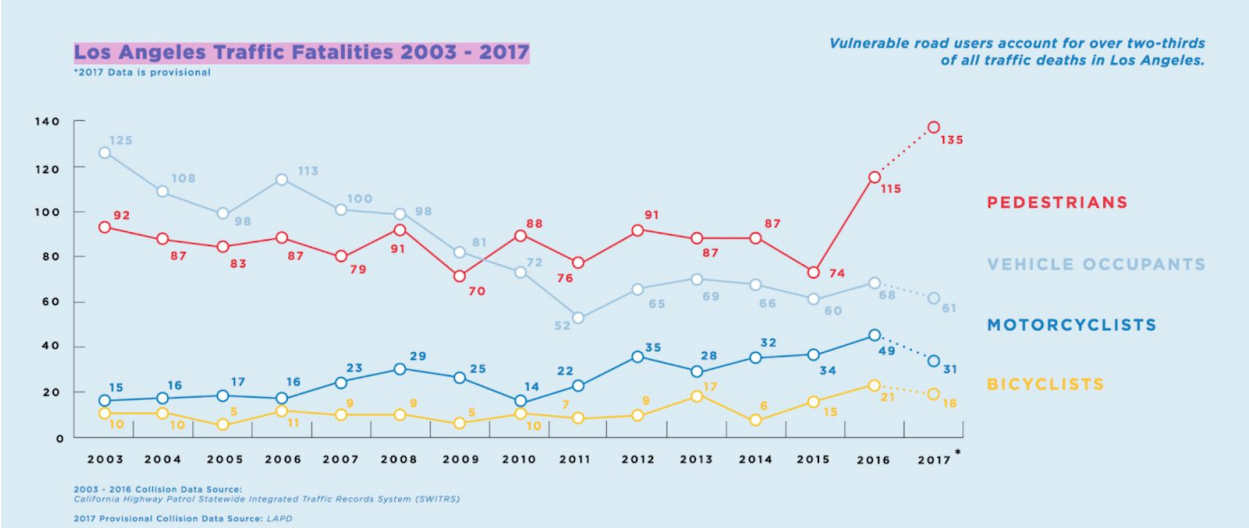
With the majority of the worldwide population now living in cities (UN, 2018, May 16), urban authorities are facing more significant challenges regarding mobility and health. The historic investment in automobile infrastructure as a flawed response to transportation needs led to an increase in car trips and speeds, which consequently gave place to a rise in fatalities and injuries on the roads (Sadik-Khan & Solomonow, 2017).

Every day, almost 3,700 people die globally in road traffic crashes (WHO, 2019). This number is the equivalent of seven Airbus A380, the biggest commercial airplane in the world, crashing every day with all the passengers dying. Following the analogy, 500 out of those passengers are children (WHO, 2015). Today, road crashes are the leading cause of death among children and young people between 5 and 29 years of age (WHO, 2019). Similarly, in Los Angeles County traffic collisions are the leading cause of death for children between ages 5 and 14 (City of LA, 2018). Fortunately, in 2011, The World Health Organization (WHO) called upon a Plan for improving road safety at a global scale, declaring the years 2011-2020 as the “Decade of Action for Road Safety” (WHO, 2011). At last, health authorities acknowledge that road crashes fatalities are a global pandemic that we, as humanity, have to tackle for once and for all.

Consequently, several cities did recognize road safety as a serious health issue and developed strategic plans and specific actions to reduce the number of fatalities and severe injuries, the City of Los Angeles, among them.

In the year 2015, Los Angeles launched the Vision Zero policy, which is an international initiative whose goal is to reduce severe injuries and deaths in roadway collisions to zero (City of LA, 2015b). In this regard, the City of LA committed to eliminating deaths due to traffic accidents for the year 2025. However, five years have passed since the initiative launched, and although traffic fatalities have decreased for most road users of the streets, they have increased for pedestrians (City of LA, 2018). On average, taking into account all users of the street, more and more people are dying in the streets of LA.

Figure 1. Pedestrian traffic fatalities 2003 - 2017



Source: (City of LA, 2018)

On the other hand, Vision Zero has proven to be successful in other cities in the United States, achieving a 43% reduction in traffic fatalities in Minnesota, a 48% reduction in Utah, and a 40% decrease in Washington State (Shultz, Sullivan & Galea, 2019). Meaning that Los Angeles's approach has not been strong enough to mitigate the problem, even when LA's Plan has established a multi-faceted approach for improving road safety, which includes the "4 Es": Engineer, Enforce, Educate, and Evaluate (City of LA, 2015b).

Although all mentioned components are crucial to reducing deaths and injuries, research has proven that road design and infrastructure is the most effective strategy for improving road safety, especially for pedestrians, the ones currently dying in the roads (Kim, Muennig, & Rosen, 2017). Additionally, Latino neighborhoods present a higher concentration of pedestrian collisions per capita (Loukaitou-Sideris, Liggett, & Sung, 2007). Also, the City has identified the main roads where fatalities occur, what they refer to as the High Injury Network (HIN), and most of the Network concentrates in Downtown (City of LA, 2016b, June 24). The City can improve these identified areas with pedestrian infrastructure.

The information on where to act is clear; what is needed is a comprehensive approach that focuses on the implementation of safe infrastructure. For the Vision Zero to succeed, pedestrian safety projects must be a top priority for the City of Los Angeles.

To close this section, I would like to acknowledge the proposal “The New E’s” from the transportation consultant firm Toole Design. They state that: “The conventional Three E’s approach of engineering, education, and enforcement, first introduced in 1925, doesn’t provide the guidance or moral compass we need to plan, design, and build a transportation system for the 21st century.” (Toole Design, n.d.). The new E’s that Toole proposes are Ethics, Equity, and Empathy.

- **Ethics:** Engineers, landscape architects, and planners have an ethical obligation to develop transportation and public realm solutions that improve the safety, health, and welfare of the public. While we work with these goals in mind, too many projects fail to deliver these outcomes in practice. Our industry has become too reliant on implementing solutions that meet “minimum standards” without sufficiently considering the more significant impacts of each design decision we make.

- **Equity:** Most people wouldn’t point to the transportation world as the right industry for someone who wanted to fight for social justice and the protection of civil rights — human rights law, prison or education reform, or public health might seem like better fits. But the built environment has always been ground zero for systems of oppression: from redlining to Jim Crow to urban renewal, many communities across North America — frequently people of color, low-income people, and immigrants — have long born unfair environmental and transportation burdens because they were different from those in power.

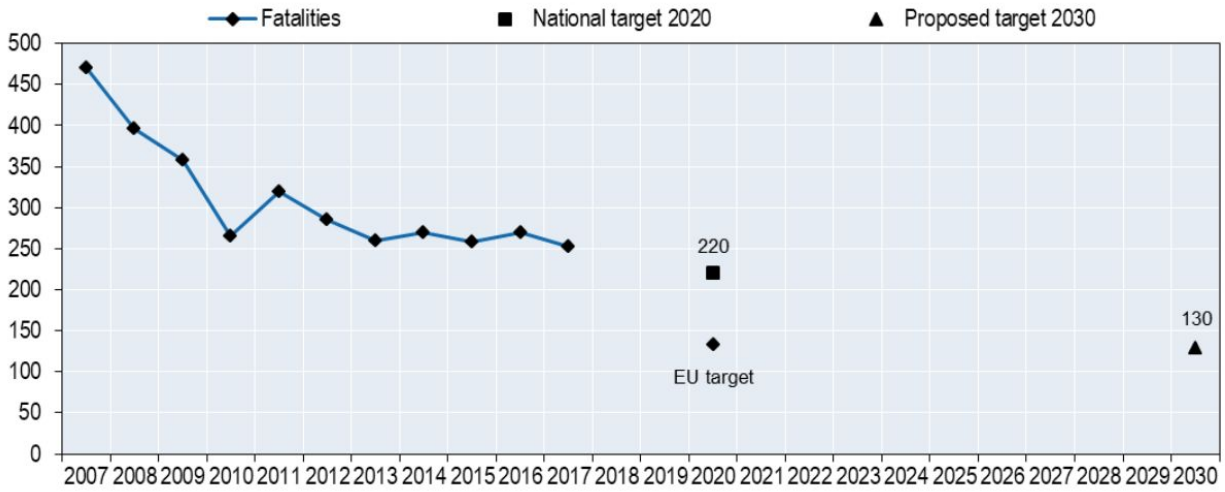
- **Empathy:** Transportation professionals are trained to solve problems, but we’re often so focused on the solution that we forget the people for whom we’re planning and designing. Can’t kids walk to school safely? To a planner or engineer, the next move might seem obvious: add a sidewalk. But for neighbors near the school, it might seem equally obvious that there’s no safe way to get to the proposed sidewalk.

Vision Zero Around the World

According to the Vision Zero philosophy, it can never be ethically acceptable that people are killed or severely injured when moving within the streets (Tingvall & Haworth, 1999, September 7). Thereby, the only acceptable number is zero. Under this powerful idea, the first Vision Zero policy in the world was born in 1997 when the Sweden parliament adopted it as a National policy.

Since then, this nordic country has decreased dramatically road crashes fatalities and serious injuries. As we can see in this graph, the tendency in Sweden was favorable until 2010; since then, casualties have continuously been around 250. The target is 220 by 2020 and 130 by 2030 (OECD, 2019). Meanwhile, in Los Angeles, Mayor Garcetti announced plans to reduce fatalities to zero by 2025. It seems that only a radical change in the streets of LA would make this goal come true.

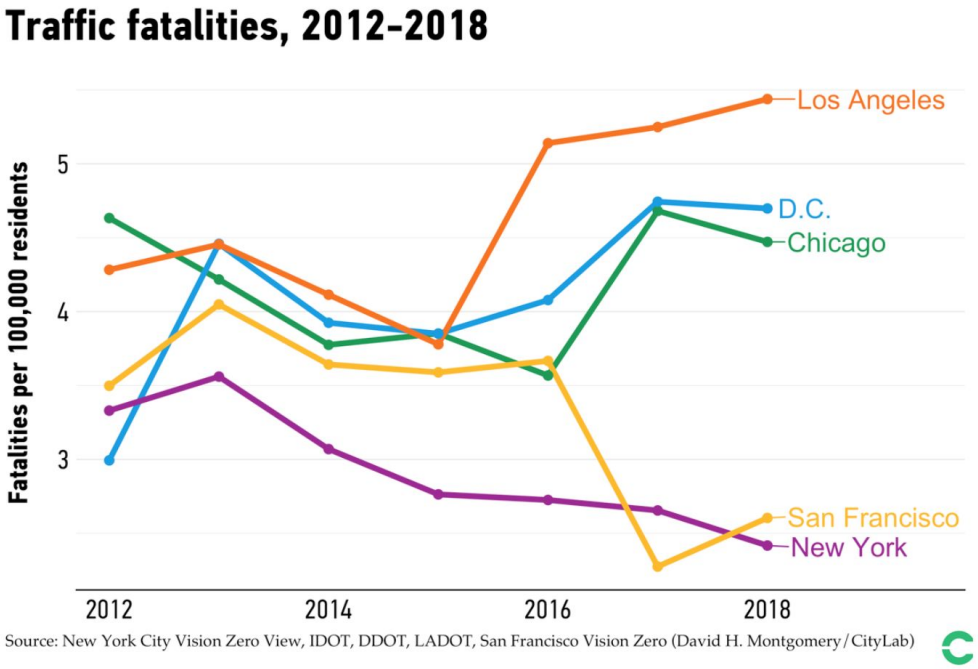
Figure 2. Trends in road fatalities towards European Union and national target



Source: (OECD, 2019)

In America, motorized vehicles killed more than 6,000 people while walking in 2018. In the last ten years, there has been a 50 percent increase in pedestrian fatalities (Schmitt, 2020). In some other cities in the US, the Vision Zero policy has been successful. Including a 43% reduction in traffic fatalities in Minnesota, a 48% reduction in Utah, and a 40% decrease in Washington State (Shultz, Sullivan & Galea, 2019). Nevertheless, the national trend is not decreasing, due to cities like Los Angeles that are moving the nation-wide average up as one can see in the graphic below.

Figure 3. Traffic fatalities in five major cities of the US



Source: (Bliss, Montgomery, & Gerring, 2019, November 21)

One great example in the United States is New York City. In 2018 fatalities dropped to 200 (Fitzsimmons, 2019, January 1), which is the lowest level in more than a century. This achievement is mostly thanks to the vast improvements in pedestrian and bicycle infrastructure around the Big Apple. In New York City, traffic deaths have decreased by 34 percent in areas where the city made significant engineering changes — twice the rate of improvement at locations without changes (Trotta, 2016, May 12).

Mexico City is another compelling case with a city-wide approach. This metropolis also adopted Vision Zeron in 2015 and reduced in three years of road crashes fatalities and severe injuries by 18% (SEMOVI, 2017). I found three main reasons for this achievement. One, the City identified the most dangerous intersections and then implemented more than 100 safe crosswalks under the program Pasos Seguros or Safe Steps. Two, a new transit law reduced the speed limits drastically and enforced them with speed cameras all over the City. And three, the City empowered pedestrians and cyclists with new regulations like legalizing jaywalking. Also, the City prohibited the continuous right turns for motorized vehicles, and introduced the so-called “Idaho stop,” which is the common name for a law that allows bicyclists to treat a stop sign as a yield sign, and a red light as a stop sign.

Pedestrian Infrastructure

Several studies have established that specific sociodemographic, and urban form characteristics impact the road safety conditions considerably (González, Loukaitou-Sideris & Chapple, 2019). For instance, there is a correlation between the width of the streets and the number of fatal crashes. The wider the roads, the higher the probability of a deadly crash (Dai, Taquechel, Steward & Strasser, 2010). The City of Los Angeles has an average road width of 16m, when the average of other cities from developed countries is 11m (Atlas of Urban Expansion, n.d.). Analyzing the infrastructure characteristics of the City brings a deeper understanding of why Los Angeles is considered one of the worst cities regarding road safety in the United States (Nelson, 2019, November 22).

Road safety comprehends the interaction between people, streets, and vehicles. In this regard, infrastructure plays a critical part in promoting a safe environment for all road users, and mainly the vulnerable ones (WRI,2015). The cities can become safer and healthier by changing the design of the streets (Walker, 2016, September 1), which currently aims to serve automobiles and not people. For instance, in Santa Monica, by reducing the lanes on Ocean Park Boulevard, adding bike lanes and creating a designated turn phase, the street saw a reduction of 65% in collisions (Walker, 2016, September 1).

The City of Los Angeles, through the Vision Zero strategy, has created a toolbox for redesigning streets. These tools include bike boxes, bike lanes, bus boarding platforms, highly visible crosswalks, interim intersection tightening, leading pedestrian interval, traffic signals, pedestrian refuge islands, speed tables, and lane configurations (LADOT, n.d.-i). A well-designed street

creates intuitive navigation among its road users, and an overall safer environment by slowing speeds and creating more refuges for pedestrians. However, when this language is not consistent throughout the City, changes in design could cause confusion rather than certainty.

Los Angeles Department of Transportation has been working on modifying infrastructure for the past years. However, the sparsity of the projects has failed to create a change in the dangerous behavior of motorists. In 2017 there were 1080 interventions on the streets, and in 2018, 289; the projects included changing timing in traffic signals and painting crosswalks (Nelson, 2019, November 22). The responses targeted at 40 of the most dangerous roads and intersections part of the High Injury Network.

However, until there is a comprehensive approach to redesigning the streets as a whole network, these isolated efforts will continue to fail. According to the 2018 Vision Zero Action Plan (City of LA, 2018), LADOT and Public Works Bureaus will continue to coordinate on a street reconstruction work plan. This strategy includes new and improved signals, curb extensions, median islands, and other design elements that eliminate conflict and better organize the streets. Additionally, there is new hope in the City of LA, thanks to a new law in California that measures improvements in the road by Vehicle Miles Traveled (VMT), instead of Level of Service (LOS). I will walk through this new opportunity to build more pedestrian road safety infrastructure above.

Drop the "LOS" in LOS Angeles: A New Opportunity to Return the Streets to the People

And so the time has finally come. New rules already approved in the state of California will ease the transition from car-oriented streets to streets for the people. Instead of focusing on moving vehicles based on a Level of Service (LOS), California will now focus on moving people based on Vehicle Miles Traveled (VMT). This metric is a revolutionary approach to measure the impact of an urban project. Now, cities in California can easily justify the implementation of pedestrian, cyclist, and transit infrastructure.

Now, what is the point of the California Environmental Quality Act (CEQA) if it is not Environmental? CEQA is a statute that forces state and local authorities in California to analyze the potential environmental impacts of a project. In this sense, urban development projects have to follow CEQA rules to mitigate environmental effects. A couple of years ago, CEQA used to evaluate projects based on the Level of Service (LOS) of motorized vehicles. This car-oriented vision is one of the main culprits of the wideness and hostility of the streets in California.

For instance, if a developer wanted to build a massive housing project, they could be asked to add more lanes in certain streets around the project to maintain a stable flow of motorized vehicles. Now, thanks to the bill S.B. 743 approved in 2013 at a state level, California will start to use Vehicle Miles Traveled (VMT), instead of LOS to evaluate the environmental impact of projects (Senate Bill California, 2018). VMT is a transit-oriented measure that considers the act

of driving a car as an environmental impact. These new metrics will be mandatory by July 1, 2020. In the meanwhile, some Californian cities have taken the lead.

The City of Los Angeles has developed a customized VMT calculator (LADOT & DCP, 2019). This online tool can be used by developers and planners to forecast the impact of a project. According to the location of the project and other factors, the calculator helps the users to know the possible mitigation measures. For instance, a project near a transit station does not require the same level of mitigation as a development far away from transit facilities. Thereby, this policy will incentivize compact and dense transit-oriented communities.

The calculator can ask the developer to mitigate the potential VMTs with the following measures: reduced or "unbundled" parking; neighborhood shuttles; transit subsidies; education programs to discourage automobile use; employer-sponsored vanpools and rideshare programs; car share programs; bike share or other shared mobility devices; improved bicycle infrastructure; traffic-calming improvements; and pedestrian network improvements (Sharp, 2019, February 27). As one can expect, this means a significant milestone towards a walkable, bikeable and transit-oriented LA.

Which One is the Official Manual to Design Streets?

One cannot talk about pedestrian road safety infrastructure in America without mentioning the National Association of City Transportation Officials (NACTO). NACTO is integrated by “81 major North American cities and transit agencies formed to exchange transportation ideas, insights, and practices and cooperatively approach national transportation issues” (NACTO, n.d.-a). NACTO’s mission is “to build cities as places for people, with safe, sustainable, accessible, and equitable transportation choices that support a strong economy and vibrant quality of life” (NACTO, n.d.-a). They have published several design guides that include the best international practices to protect pedestrians.

Unfortunately, NACTO is not the official manual to build streets in California. The Highway Design Manual (HDM) of the California Department of Transportation (Caltrans) is the official guide. From its origins, authorities made the HDM merely to build highways, as its name states. Therefore, in the last decades, streets in the City of LA are practically built as highways for motorists, instead of streets for people. Fortunately, little by little, Caltrans has been sensitized with the logic of human-scale streets and the importance of road safety. Proof of this is the appointment of progressive leaders like Toks Omishakin, the new Director of Caltrans sworn in October 2019.

Nevertheless, state legislation ties the hands of progressive leaders. For instance, state rules force cities to follow an absurd and dangerous speed limit methodology. A study by Ribeka Toda (2018, May 30), a UCLA alumni expert in road safety, finds that the 85th percentile method used by the State of California is outdated, and cities should not use it as the sole means for establishing speed limits. Setting the speed limit should fall under local jurisdiction,

and should be mainly based on injury minimization principles. Also, speed limits must then be reinforced through Automated Speed Enforcement (ASE) to ensure that motorists respect them. By the way, these Automated Speed Enforcement measures are illegal by state law.

Therefore, it is crucial to focus on State legislation to make possible changes in the streets of LA. This way, the Highway Design Manual by Caltrans could be more similar to the NACTO guides. In the study case section of this document, I will delve into how residents can apply the NACTO guide to make Temple Street a safer place for pedestrians.

Community Engagement

> "Tired of waiting for regional or national authorities to right these wrongs,
> a new generation of planners, engineers, urban designers,
> and city residents are working to take back the streets."
> (Sadik-Khan & Solomonow, 2017, p. XV)

Road safety is a critical health matter that residents and authorities need to place on top of the political agenda. Although LA has a Vision Zero policy, these attempts have failed to reduce the number of fatalities. Hence, when the authorities fail, the community rises.

Such was the case of the transit equity movement of the 1990s. Los Angeles County Metropolitan Transportation Authority was preparing to raise fares in 1994. As a consequence, The Bus Riders Union (BRU), a community-based organization, presented a lawsuit to the court (Badger, 2014, May 15). They demanded better public transport conditions for low-income minorities. Their main argument was the lack of investment and subsidies in the bus system, where 80 percent of riders were people of color. Meanwhile, Metrolink riders, the train system that goes to the suburbs, was more subsidized, and the white riders here made up 73 percent. This way, in the name of the 14th amendment and the 1964 Civil Rights Act, the BRU won the case (Reft, 2015, May 14). This precedent established a new form of planning regarding transportation, and shed some light on the fact that formal urban planning was failing in being equitable. In this sense, planning began to take a political approach beyond a solely technical aspect (Flyvbjerg & Sampson, 1998).

As issues of climate change, mobility, and road safety become more critical, more people are demanding solutions or are creating them themselves. For instance, the Alliance for Community Transit Los Angeles (ACT-LA) is pushing forward an agenda to make public transit equitable. Specifically for people from minority backgrounds who are the primary users of this mode of transportation, and the scope of the population who usually gets neglected. Currently, members of ACT-LA who are frequent Metro users are advocating for improvements in the Silver Line, looking for physical changes that would improve the experience and the safety of the stations and the overall rides (Flores, 2019).

Regarding pedestrian activism, Los Angeles Walks is an advocacy organization that identified the importance and the power of the people in urban planning matters; they have helped communities mobilize themselves and advocate for safe, walkable environments. Organizing and uniting Angelenos has helped bring attention to different issues related to pedestrians and safety; one example is the formation of Southern California Families for Safe Streets. This organization pushes for solutions like complete streets to prevent people from dying in traffic collisions. (LA Walks, n.d.-c).

In LA, the fight for safe streets goes beyond road safety. For instance, the grassroots advocacy group Ovarian Psycos is a bicycle brigade with anarco feminist ideals, indigenous understandings, and urban/hood mentality. This disruptive organization is an example of new ways to do community organization in LA. Their principles of struggle help urban planners to put in perspective the technical knowledge and face other battles like anti-white-supremacy, anti-capitalism, anti-misogynist, among others. The sense of community of Ovarian Psycos sums up in their last principle of struggle: “ALL of us or none. Para todxs todo o nada para nadie” (Ovarian Psycos, n.d.).

Another group that has taken mobility as the core of their equity fight is People for Mobility Justice (PMJ). They are a Black Indigenous People of Color (BIPOC) collective, whose we seed critical consciousness about mobility justice across all communities. They believe that people have the freedom and resources to move in public spaces with love and dignity (People For Mobility Justice, n.d.). PMJ offers a different alternative to the conventional four Es approach of road safety (Engineering, Enforcement, Education, and Evaluation). PMJ claims that the root of solving the road safety problem in LA is in the five Ds (Oxas, R., n.d.).

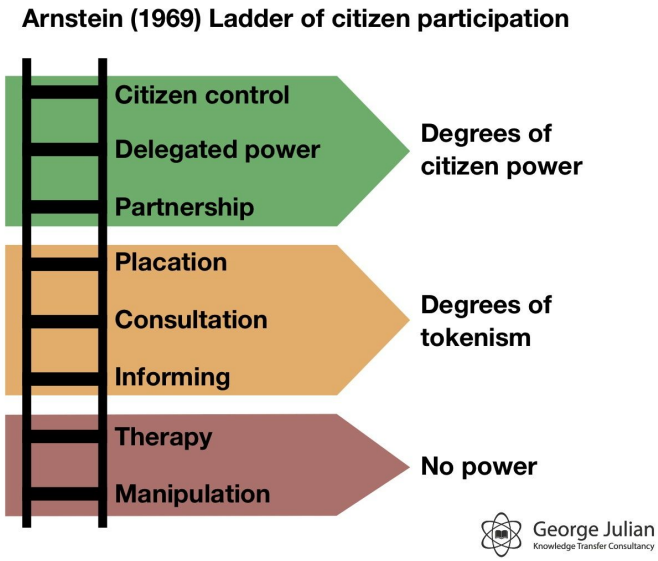
- **DECOLONIZE:** May our approach in any urban planning, design, and decision-making be rooted in the ancestral land in which we work, live, and play to honor the indigenous people and the native flora and fauna. Additionally, we are committed to halting the colonial practices that displace our people to ensure that long-term residents will be protected and have full rights to stay in their communities, be it as tenants, homeowners, or business owners.
- **DECONGEST:** May everyone has access to transportation and streets that support our full well-being and keep us alive.
- **DECRIMINALIZE:** May Black, Brown, and Undocumented people have the freedom to move in public spaces without state harassment, deportation, or death.
- **DIGNIFY:** May the people who are houseless, have disabilities, are LGBTQIA+, work the streets (sex workers, street vendors, etc) have immense protection for their lives and the resources they need to support their well-being.
- **DETERMINATION:** May our BIPOC communities have the right to self-determination, which we define as ensuring that our voice and leadership are valued monetarily, from expert advice to implemented reality on our streets.

All in all, the needs of the communities and their active approach to intervening streets and pushing for mobility policies have helped authorities recognize a broader range of necessities, and acknowledge the people as a core element for improving urban planning conditions.

Residents Control or Manipulation

Sherry R. Arnstein (1969) states that many planners and power-holders are likely to manipulate citizens as a simulation of a participatory process. Arstein wrote in 1969 the article “A Ladder of Citizen Participation.” This ladder has become a reference for all people involved in community-engaged planning. The ladder has eight steps that go from manipulation to citizen control. As one goes up closer to the citizen control step, the redistribution of power starts to be real. On the other hand, if one becomes closer to the manipulation step, the redistribution of power is an empty and frustrating process for the powerless.

Figure 4. Ladder of Citizen Participation



Source: (Arnstein, 1969; George Julian, 2013, January 22)

That said, the City of Los Angeles participation methods have to be in the citizen power steps to empower residents and let them fight against the status quo. It is essential to acknowledge that the word “citizen” used by Arnstein was criticized later by Bratt and Reardon (2013). They state that a more appropriate term would be “resident,” which is more inclusive since it does not exclude not-citizens in a community.

Thereby, all residents' voices are welcome, and the design of the participation activities matters. Organizers should tailor the plan of a participation process to give power to the most marginalized residents to be a genuine process that redistributes power (R. Toda, personal communication, 2020, February 18). As Barbara Wilson (2018, p. 15) states: "community-driven

design exists on a continuum of modes of practice that aspires not only to make design tools and processes more relevant to the needs and aspirations of lower-income communities, but also to address complex urban problems through collaboration guided by local knowledge".

Wilson (2018) explains that community-engaged participation in the United States started in the early 1960s thanks to the civil rights movements. At the same time, a direct antecedent of the civil rights movement, and therefore of the community-engaged participation, is the displacement in the late 1940s and 1950s of people of color and low-income families in the name of the interstate highway system that destroyed communities. Jane Jacobs (1992) helped to stop this project in some wealthy communities. Nevertheless, the historically marginalized residents did not have a voice, and authorities tore down their homes for a plan with massive unintended consequences. For instance, governments built urban highways displacing and targeting underserved neighborhoods of people of color with no resources to defend themselves (Stromber, 2016, May 11).

In this context, the group Planners for Equal Opportunity (PEO), a radical planning group, was born in 1964 during an annual meeting of the American Institute of Planners (which later became APA). This way, professional planners with marginalized backgrounds started to effectively confront the authorities that make decisions affecting their neighborhoods (Wilson, 2018).

Progressive community planning entails opposition to the conditions that produce and reproduce the inequalities of race and class (Angontti, 2013). The goal is to enhance the capacity of community organizations to influence the investment decisions that, in no small degree, determine the quality of life local residents enjoy (Bratt and Reardon, 2013). Meanwhile, the planner’s role is to listen to people’s stories and assist in the forgoing of consensus among different viewpoints (Fainstein, 2000).

Regarding road safety and community-engaged planning, there is an excellent example from the other side of the Atlantic. During the 1960s and 1970s, the movement Stop de Kindermoord (Stop Killing our Children), led by children and parents, started in the car-oriented Netherlands, where road deaths were around 3500 every year (Dutch, 2019, September 10). This movement triggered the construction of the pedestrian-bike-friendly Netherlands. Today, traffic deaths in this country are about 1000 every year. “Stop de Kindermoord is a lesson for the modern world. Protest and advocacy are essential to achieve universal and safe road sharing, by policy, enforcement, infrastructure, and culture change.” (Charney, 2017, October 7). These are some quotes of the kids leading this grassroots movement (BicycleDutch, n.d.): “Everything is devoted to parking. Why don’t we all ride bicycles?.” “We decided to create a play street [closed to motorized vehicles] [...] if the city doesn’t act, you have to do things yourself”, “Get these cars away from here, we want to play!”.

In the United States, local road safety movements arose in the 1920s. Symbolically, in the Milwaukee Safety Week in 1920, a parade included a crashed car driven by Satan. These local

safety events were the base of the National Safety Council (NSC). Established in 1913, the NSC was the first organized road safety advocacy group in the United States (Smith, 2018, July 16). Today, the legacy of the NCS prevails in the Vision Zero Network, a coalition launched in 2016 of more than 40 cities all over the United States fighting for safe streets (Vision Zero Network, n.d.).

On the other hand, Grant (1994) explains that participation is a luxury because it requires skills, resources, money, and time that many residents do not have. This approach emphasizes why wealthy people monopolize some community meetings. Therefore, it is essential to enhance the capabilities of the residents and design participatory methods outside of community meetings, according to the possibilities of marginalized residents.

For instance, the organization Verde, founded in 2005, in the neighborhood of Cully, Portland has a program called Líderes Verdes that helps community members to become effective advocates for their own needs to city government (Wilson, 2018). From this program, the group “Andando en Bicicleta en Cully” emerged, and now they are fighting for a more bike-friendly neighborhood. Verde is part of a coalition called Living Cully, whose mission is to ensure that low-income residents receive equitable access to the benefits of ecological restoration. Living Cully has won many battles, starting with small things like bilingual wayfinding signage in the neighborhood, and big projects such as buying a strip club and converting it to a public plaza with 141 affordable housing units. All in all, residents of Cully, Portland are a great example of community-engaged power that comes from underserved residents.

The other face of resident power is the NIMBY (Not-In-My-Back-Yard). These are protectors of the Status Quo and, in some cases, entitled, privileged groups that oppose projects that benefit the public realm but could hurt their lifestyle. Fischer (1993) claims that one solution for the NIMBY should involve more, rather than less, resident participation. Whether one supports or opposes NIMBYs point of view, more participation will accelerate the dialectic process that can overcome a non-optimum status quo for the public benefit. Perhaps, the first dialogues present conflict, and the first changes are the most difficult. Still, once the progressive community won some battles, even NIMBYs could become YIMBYs (Yes-In-My-Back-Yard).

Finally, it is essential to stress the power differentials between affluent decision-makers and lower-income residents. Authentic participation processes must embrace multiculturalism and include the underserved residents with adequate necessities such as child care during meetings, translators, and transportation. At the same time, it is necessary to increase adaptive capacity in vulnerable communities (Wilson, 200). This way, these same residents will have the skills to lead a participatory process by their community for their community. As De la Peña (2017, p. 3) claims: “Groups previously marginalized may have better access to places that have become more welcoming and tailored to their needs.”

Let's Roll the DICE

This section of this literature review combines perfectly the official Vision Zero policy of LA and community-engagement planning. The Dignity-Infused Community Engagement (DICE) is a formal strategy of the City of LA inside the Vision Zero policy of the LADOT. The DICE approach "is an all-inclusive, holistic, and equitable engagement strategy that invites members from Los Angeles' most vulnerable communities into the planning process." (LADOT, 2020).

DICE includes the formation of community teams, capacity building training, community engagement events, and access to resources for traffic violence survivors and families of victims. Additionally, this program guarantees engagement activities that center aging adults, youth, people living with disabilities, and LGBTQIA+ residents.

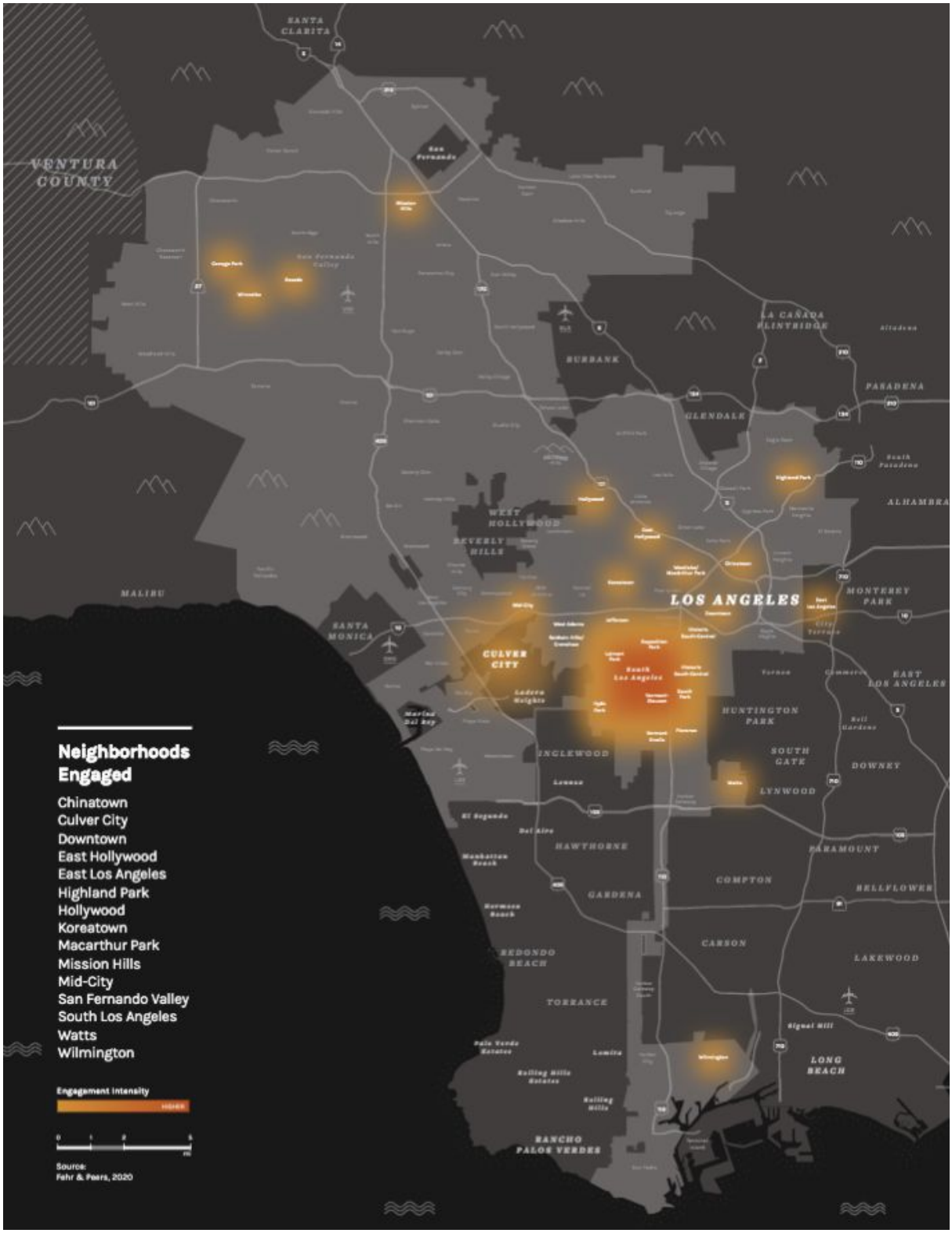
More importantly, DICE approach recognizes historic and systemic injustices, looks for opportunities to rebuild trust and work together with the purpose of zero fatalities and zero severe injuries in LA (LADOT, 2020).

It is essential to mention that DICE acknowledges the importance of the following good practices while organizing community events: on-site language interpreters, child-care, food, and transportation services, as well as access to employment resources for community advocates. Also, DICE contemplated installing the Vision Zero Resident Advisory Council (RAC) "to ensure residents are centered in efforts to eradicate traffic fatalities by 2025" (LADOT, n.d.-f). This strategy started in April 2019. Authorities ask RAC members to commit 5-10 hours a month for 18 months. The structure of RACs is conformed by two to five resident leaders from each Vision Zero project area with guidelines to ensure cultural and socioeconomic representation among these residents.

All in all, DICE looks like a fantastic idea. Nevertheless, LADOT has to overcome some challenges. The mind and leader of this project, Dr. Destiny Thomas, is no longer working at LADOT. This fact has slowed down the implementation of the program. Not to mention how the COVID 19 crisis could affect community gathering and organization during 2020. On top of that, DICE formally ended in April 2020 (Carolyn Vera, personal communication, 2020, May 21). There is incertitude if it will be reborn or if it simply disappeared.

People working on the DICE program organized 55 events, reached 17,670 residents, 36 local vendors, and artists, and employed 42 community members. DICE works with restorative justice specialists to mediate difficult conversations in communities. Additionally, DICE supports CBOs who serve as liaisons between LADOT and residents. The vision was to build power among residents to fight together towards safer streets, and let them embrace the projects, design them and welcome the investment.

Figure 5. Neighborhoods covered by LADOTs Vision Zero DICE program



Source: (LADOT, 2020)

The two main projects of DICE were the street of Avalon Boulevard and Broadway. Avalon Blvd. was arguably the most extensive engagement process in LADOT's history; organizers carried out a marathon of 35 days of engagement, reaching 12,000 residents. Now, Broadway engagement consists of 12 weeks of continuous outreach strategies. In both Avalon and Broadway, the authorities have already planned improvements; the works could start in the next few months (LADOT, n.d.-b; LADOT,n.d.-c).

Figure 6. Vision Zero Dice's street team

DICE is composed by vulnerable groups of society such as people experiencing homelessness. Source: (LADOT, 2020)

DICE was new, and it is too early to evaluate the results. It lasted only one year and four months, taking into account the date where LADOT initiated a request for proposals to help deliver a Vision Zero DICE process (LADOT, 2020). I will analyze this situation more deeply in the findings section, and then I will propose some policy recommendations to improve the DICE approach.

Now, it is time to see the pedestrian battle of LA in action. In the next section, I will present the methodology of this process to answer the research questions:

- What are the political challenges to implementing pedestrian road safety infrastructure in underserved neighborhoods in the City of Los Angeles? And how can the City tackle such challenges?

- What can community-based organizations in the City of Los Angeles learn from others in terms of best practices to build power in their community towards safer streets for pedestrians?

- Which are the socio-economic characteristics of the areas with more pedestrian fatalities and severe injuries in the streets of Los Angeles?

III. Data and Methodology

My central units of analysis are community-based organizations (CBOs) in the City of Los Angeles fighting for pedestrian road safety infrastructure. My case study are the organizations Padres en Acción, Public Matters, LA Walks, and its impact on Temple Street in the Historic Filipinotown Neighborhood.

In math terms, the work of CBOs is my independent variable, and pedestrian fatalities and serious injuries are my dependent variables. I am especially interested in the work of CBOs that has resulted in pedestrian infrastructure, and how this engineering improvement helped to save lives. This approach is a qualitative study that will focus on interviews and site observation.

To complement this research, I will study pedestrian fatalities and severe injuries in underserved communities. My main variables to analyze by census tracts will be the relationship between pedestrian fatalities and severe injuries and income, ethnicity, car ownership, pollution vulnerability, and age vulnerability. This way, I will present maps and statistical regressions to obtain findings. For the maps, I used the software Google spreadsheets to clean the data, then ArcMap and QGIS to make the layouts, and finally, I design them on Adobe Illustrator. What concerns the statistics, I also used Google spreadsheet for the descriptive findings and STATA for the linear regressions.

Finally, I will analyze the case of Temple Street and give recommendations of pedestrian infrastructure interventions according to national and international standards.

Geographic and Temporal Scope

In general terms, I am focusing on the City of Los Angeles and evaluating its Vision Zero Policy. Then, I base my study case on Historic Filipinotown, specifically on Temple Street. I am going to analyze this case in a period of five years, from 2015 to 2020. I will also control my case study with other examples and Streets in Los Angeles in a similar time frame. In the case of the sociodemographic characteristics of pedestrians, I'm using the data from 2008 to 2018.

Evidence to be Used

My primary source of evidence is interviews with CBOs, officeholders and experts in road safety in the City of Los Angeles. These are the people and organizations that I interviewed for this study:

- Padres en Acción
- Public Matters
- Los Angeles Walks
- LADOT
- People for Mobility Justice

- Ribeka Toda, road safety expert
- Carloyn Vera, road safety expert

Then, for pedestrian fatalities and severe injuries, I pulled out the collisions data from the Statewide Integrated Traffic Records System (SWITRS), which is collected and maintained by the California Highway Patrol (CHP). This database I downloaded is from the Transportation Injury Mapping System (TIMS), which was cleaned and organized by UC Berkeley via the SafeTREC strategy. I will use this data from 2008 to 2018. Then, for pollution vulnerability, ethnicity, and age vulnerability I will use the CalEnviroScreen 3.0 2018 data. Finally, for income level, and car ownership, I am using the 2017 US Census information.

Below, in the findings section, I will start responding to the third research question of this project: What are the socio-economic characteristics of the areas with more pedestrian fatalities and severe injuries in the streets of Los Angeles? Then with the interviews, I will try to respond to the first research question: What are the political challenges to implementing pedestrian road safety infrastructure in underserved neighborhoods in the City of Los Angeles? And how can the City tackle such challenges? Finally, in the case study about Temple Street, I will propose an answer to the second question: What can community-based organizations in the City of Los Angeles learn from others in terms of best practices to build power in their community towards safer streets for pedestrians? Without further ado, let's start with the numbers.

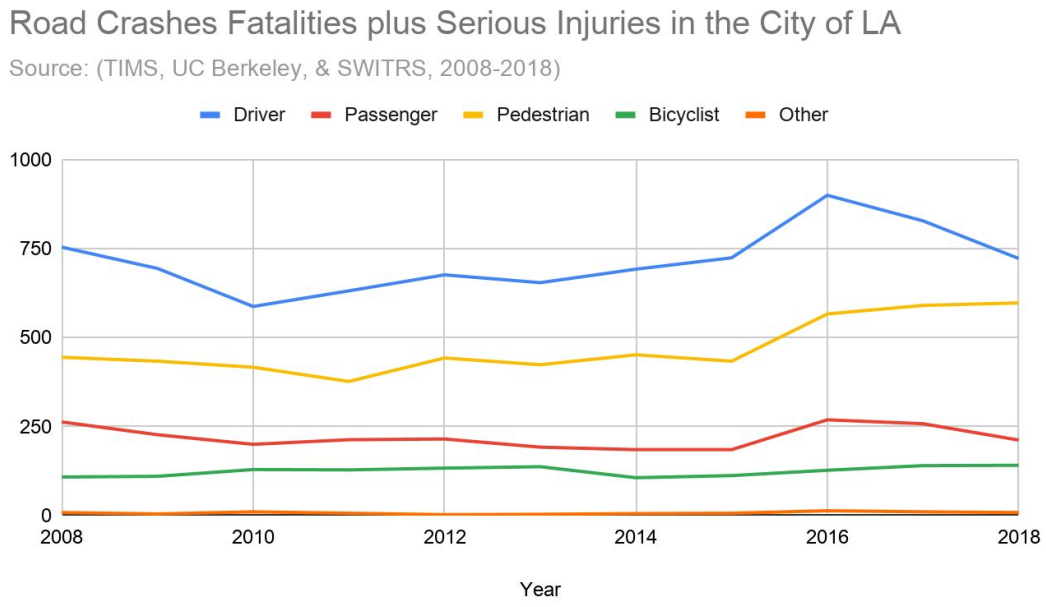
IV. Findings and Analysis

Socio-economic Profile of Pedestrian Serious Injuries and Fatalities

Between 2008 and 2018, 1165 pedestrians died due to road crashes in the City of Los Angeles. Another 4027 pedestrians suffered a severe injury in the same time frame. In total, 5192 cases that completely changed the lives of families and victims (TIMS, UC Berkeley & SWITRS, 2008-2018). In this section, I will present the socio-economic profile of these pedestrians. Down below, I will mention demographic aspects of the pedestrians killed and severely injured in the streets of LA.

I am going to start comparing between the users of the street (TIMS, UC Berkeley, & SWITRS, 2008-2018). The graphic below represents all road crashes fatalities plus severe injuries in the City of LA. All users of the street maintained a stagnant number from 2008 to 2018, except for the pedestrians. The number of pedestrian fatalities and serious injuries has increased from 445 in 2008 to 598 in 2018. Another interesting finding is that drivers maintain the lead in this rubric. This fact could be an excellent argument to convince car drivers to implement road safety measures that are not only going to save pedestrians but also drivers, which are the most affected in absolute numbers.

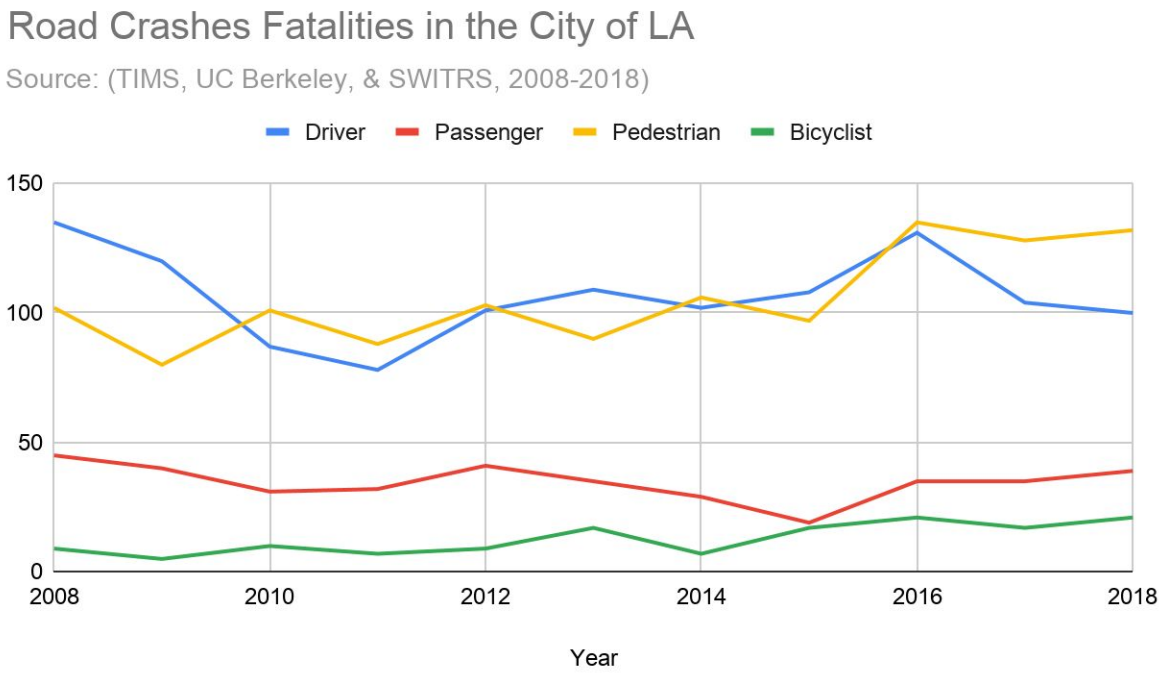
Figure 7. Road Crashes Fatalities plus Serious Injuries in the City of LA



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Now, the following graphic analyzes only fatalities by users of the street. As one can see, in this case, the pedestrians take the lead. Drivers have reduced their deaths from 135 to 100 in ten years (TIMS, UC Berkeley, & SWITRS, 2008-2018). Meanwhile, pedestrian fatalities have increased from 102 to 132 in the same period. This graph demonstrates that the main reason why the City of LA is not meeting Vision Zero's goal is due mainly to pedestrian fatalities increasing since the implementation of the policy in 2015.

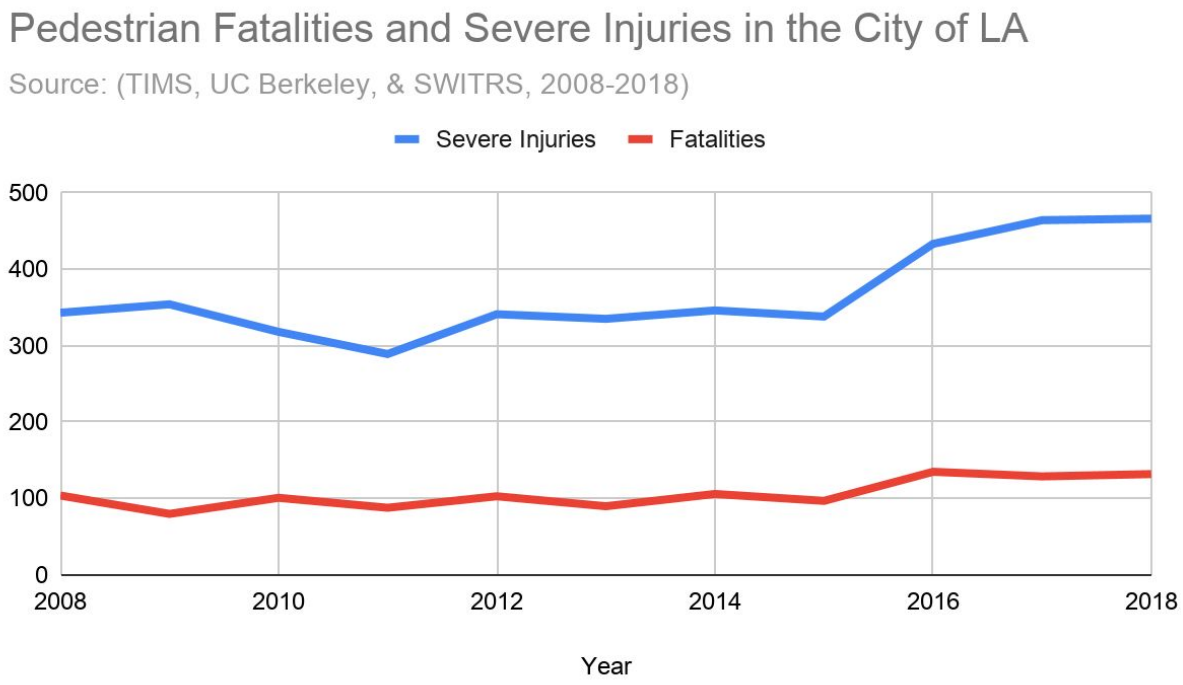
Figure 8. Road Crashes Fatalities in the City of LA



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Next, the following graph divides the pedestrian fatalities and severe injuries. As one can see, both have increased since 2008, but way more severe injuries. In 2008 343 suffered a severe injury, while in 2018 this number increased to 466. Here I can start to find an answer to this catastrophic story. Why are more pedestrians dying and suffering severe injuries in the streets of the City of LA year by year? Between 2008 and 2018 the population of the City of LA increased from 3.8 million to 4 million. This is an incremental of around 5% (US Census Bureau, 2018). While pedestrian fatalities and severe injuries increased by 34%. Thus, the population can't explain this change. Are more people walking in LA? No, the population of Angelenos walking to work has been strangled around 3% in the last 10 years (US Census Bureau, 2008 - 2018). There are two theories that could work. First, the constant increment of use of smartphones (Kunkle , 2017, April 4) and second, the number of SUVs in the streets (Laker, 2019, October 7). Other factors could explain this rise, but these are two of the most mentioned in the documents I consult for this research.

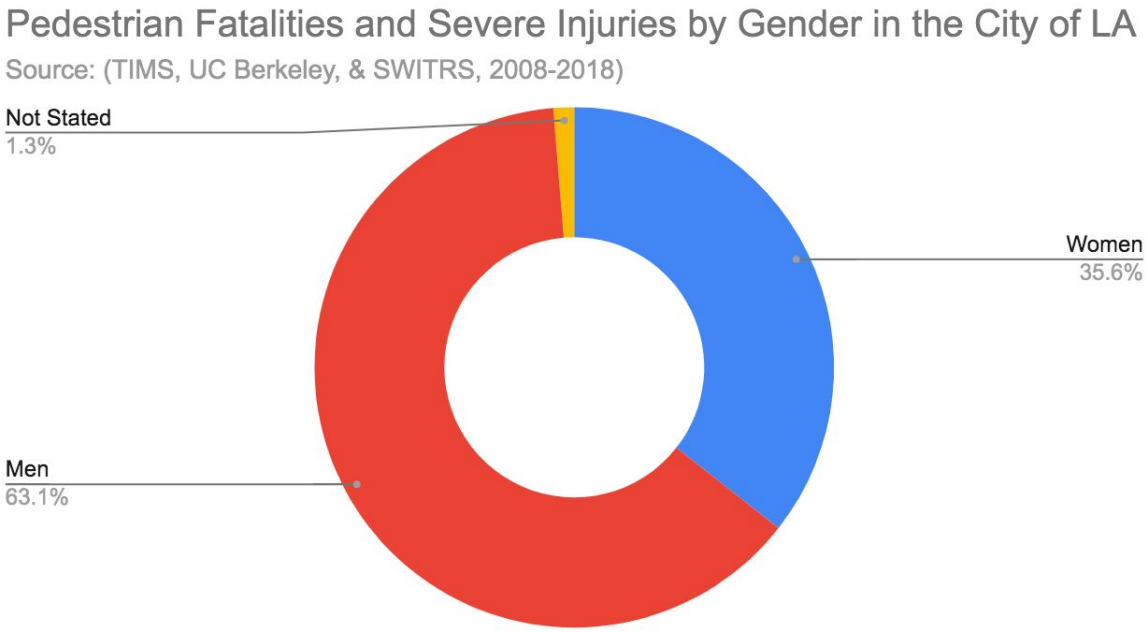
Figure 9. Pedestrian Fatalities and Severe Injuries in the City of LA



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

The next graphic shows the overrepresentation of men when analyzing pedestrian fatalities and severe injuries. The population of men is almost double the population of women. Are men more time exposed in the streets? Are men more fearless while walking? Are motorists more likely to yield women? Only further studies could help us to find these answers.

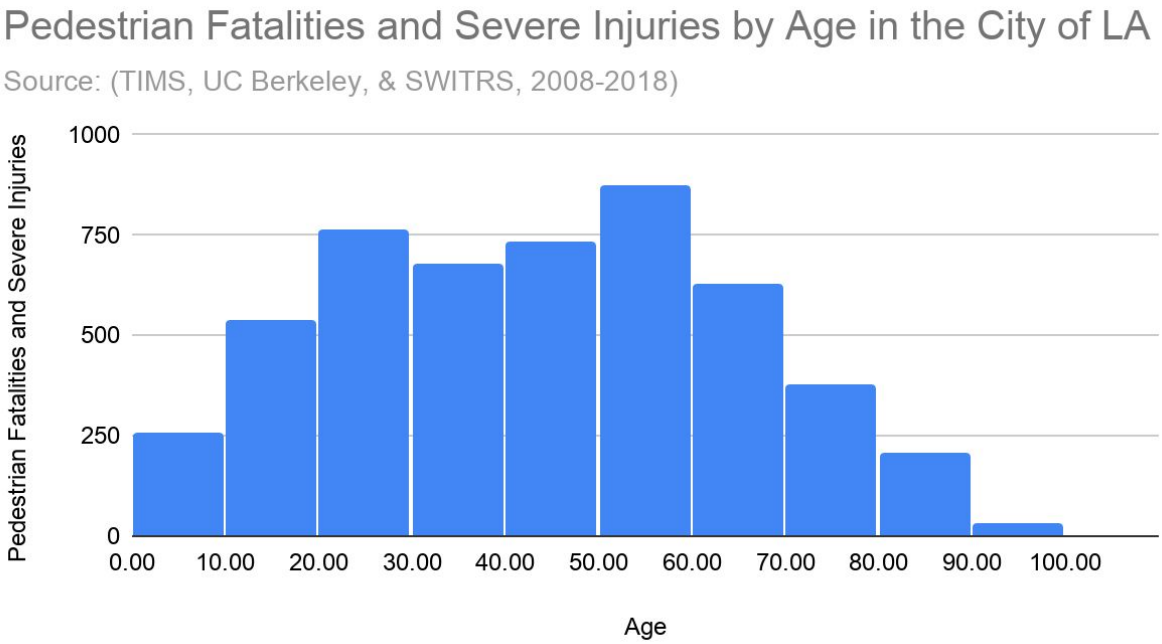
Figure 10. Pedestrian Fatalities and Severe Injuries by Gender in the City of LA



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Now, the graph below shows the entire population of pedestrian fatalities and injuries in the City of LA from 2008 to 2018 divided by percentiles. It is interesting that this histogram does not behave as a normal distribution. It has two different peaks along the spectrum. The first one in the segment of 20 to 40 years, and the second one in the segment of 50 to 60 years old. Why are these two different demographics more likely to be killed or injured than the population between 30 and 50? There could be a lot of answers, but the truth is that the pedestrian policy must be focused mainly on young people in their 20s and older people in their 50s to minimize the number of tragedies. Also, the 8-80 theory claims that authorities must design streets for 8-year-old children to 80-year-old elders. This way, the city is for everyone (8 80 Cities, n.d.).

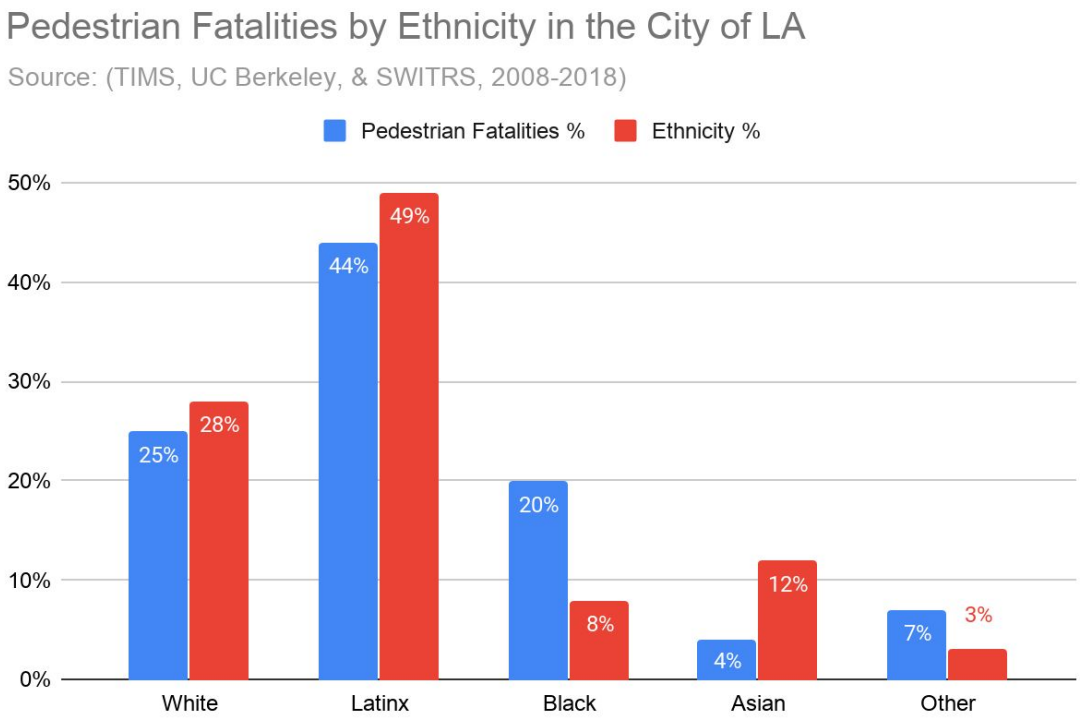
Figure 11. Pedestrian Fatalities and Severe Injuries by Age in the City of LA



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Finally, I am going to analyze the ethnicity of pedestrian victims. In absolute numbers, the Latinx community is the most affected, with 44% of all pedestrian fatalities. Nevertheless, in relative numbers, Latinx people are underrepresented in pedestrian fatalities because they are 49% of the population in the City of LA. Nevertheless, the Asian community is the most underrepresented, with a difference of eight percentage points between the total population and the overall pedestrian fatalities. Now, the most affected ethnicity of them all is the black community, which is only 8% of the people of the City of LA but represents 20% of all pedestrian fatalities. Why black people more likely to be killed by cars while walking? This probably has to do with the underserved infrastructure in black neighborhoods and the overrepresentation of black people walking compared to other ethnicities. Another speculation could be the historical criminalization of the black community and how road crashes are an easy way to get away with murder, but only further studies could prove this hypothesis.

Figure 12. Pedestrian Fatalities by Ethnicity in the City of LA

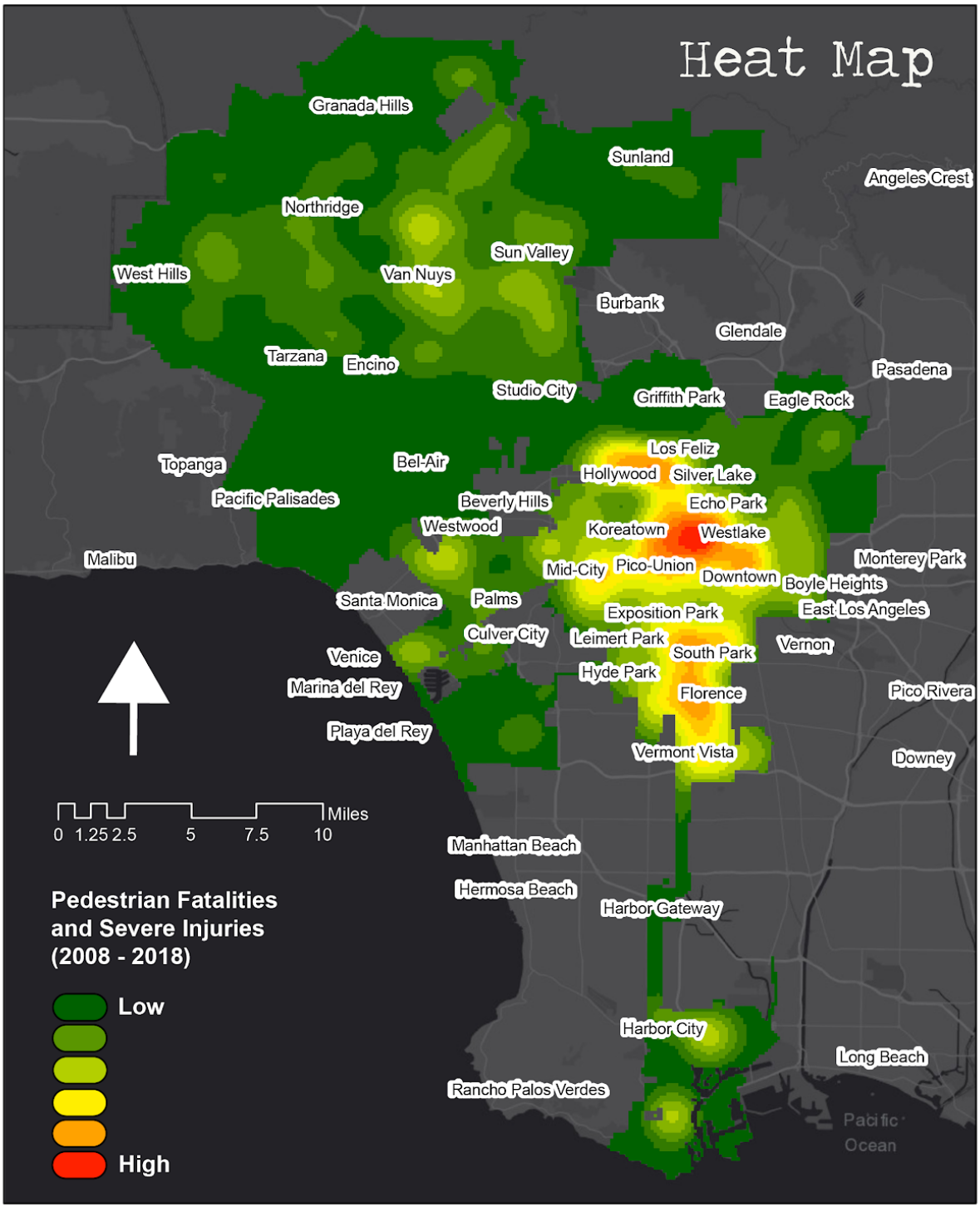


Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Maps and Statistical Regressions

The map below is a heat map classified by equal intervals, and it is the representation of all the pedestrian fatalities and severe injuries from 2008 to 2018 (TIMS, UC Berkeley, & SWITRS, 2008-2018). One can see that the epicenter in absolute numbers is around the neighborhoods of Koreatown, Westlake, and Downtown LA. There are two secondary heat islands with a high density of pedestrian fatalities and severe injuries, one located in between Hollywood and Los Feliz, and the other one between South Park and Florence.

Figure 13. Heat map of pedestrian fatalities and severe injuries



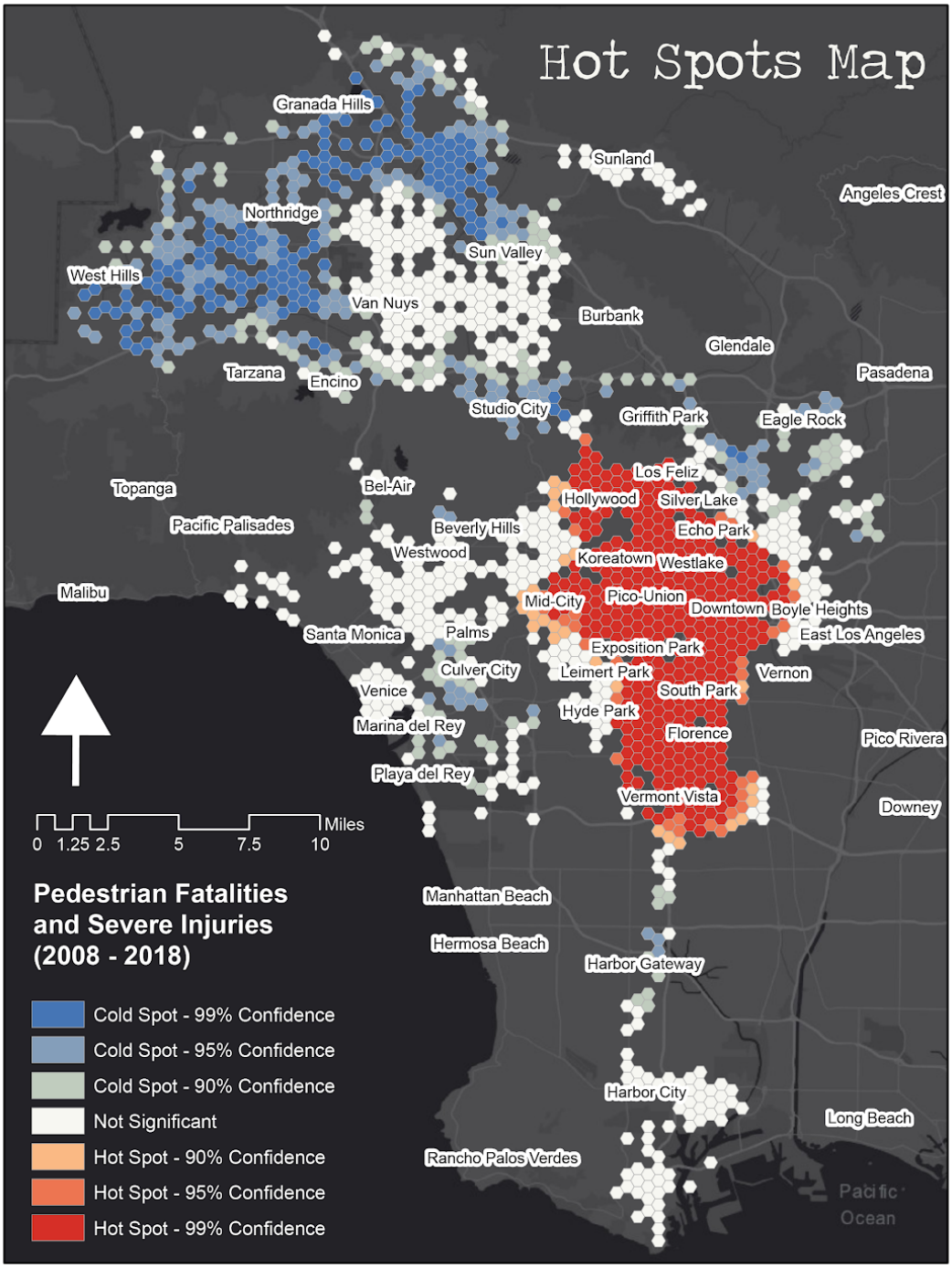
Map created by Jorge Cáñez, April 2020
Data: Road crashes: (TIMS, UC Berkeley & SWITRS, 2008-2018)
LA Neighborhoods: (LA Times, n.d.)
Heat Map classified by equal intervals

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Heat maps are a mere representation of density, which means that they only account for how close the points are without any statistical test. Now, to have another representation of the pedestrian fatalities and severe injuries, I present below a hot spot map, which uses statistical analysis to define areas of high occurrence versus areas of low occurrence. Hot spots use a mathematical formula to guarantee the statistical significance of the clustering between the points, which helps to reduce overrepresentation. In this case, one can see that there is a clear hot polygon in the City of LA that goes from Hollywood in the north to Vermont Vista in the south, and from Mid City in the west to Boyle Heights in the east. Therefore, one can claim with statistical confidence that these are the areas where pedestrian fatalities and severe injuries are more likely to occur (go to the Appendix to see the statistical test).

Figure 14. Hot Spots map of pedestrian fatalities and severe injuries



Map created by Jorge Cáñez, May 2020
Data: Road crashes: (TIMS, UC Berkeley & SWITRS, 2008-2018)
LA Neighborhoods: (LA Times, n.d.)
Hot Spot Analysis using the Average Nearest Neighborhood Tool
Based on distance band of 3500 meters
Nearest Neighbor Ratio: 0.399
p-value: 0.00000

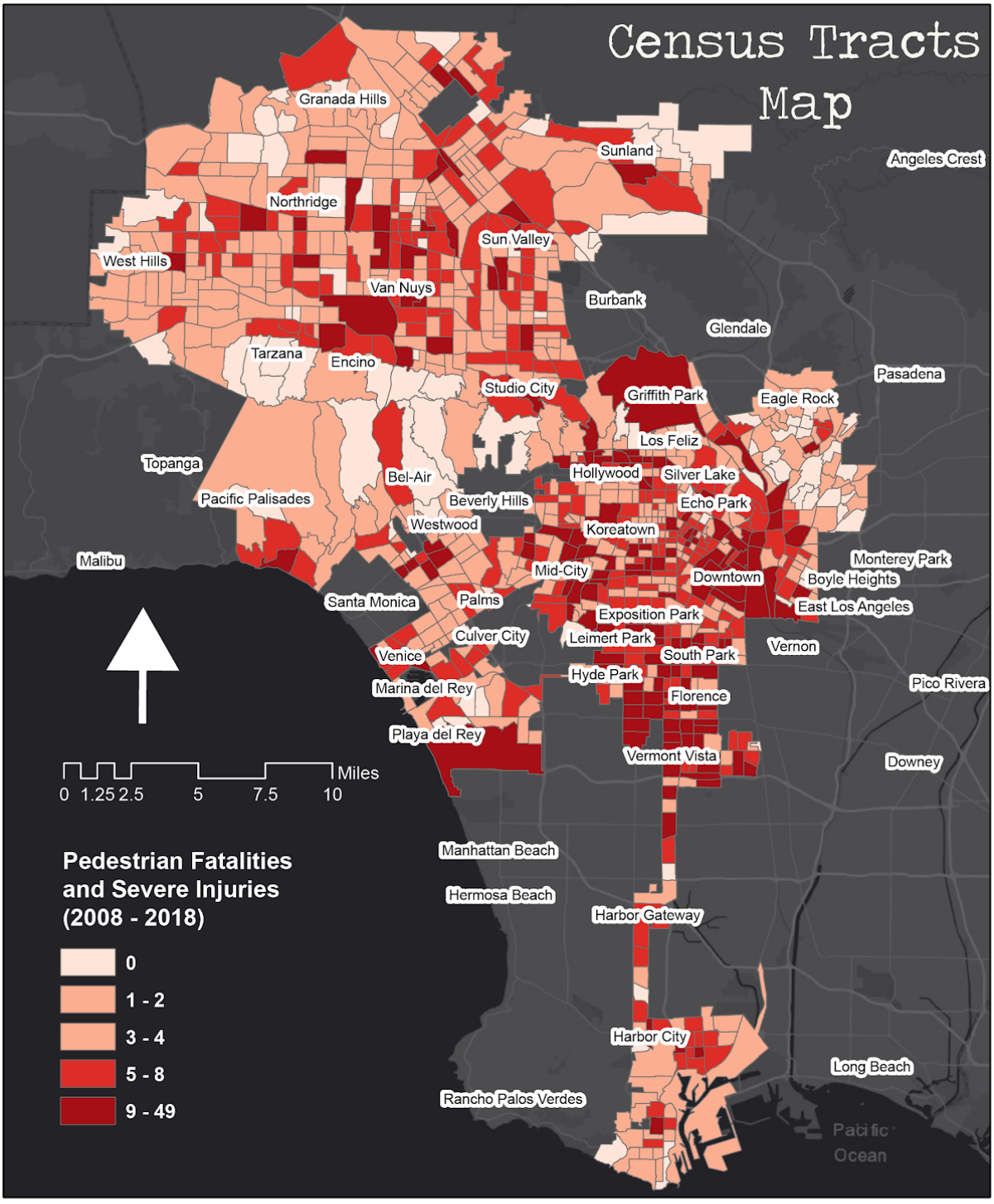
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Now, below I present a map of LA City with all the pedestrian fatalities and severe injuries from 2008 to 2018 divided by census tracts classified by quintiles. The map is divided into quantiles with five categories. The darker red represents a more prominent number in pedestrian fatalities and severe injuries. It is not easy to find clear clusters of high-risk zones for pedestrians. Nevertheless, one can see that the zones more affected are: Downtown LA, the zone around Leimert Park, Playa del Rey, Mid-City, Westwood, Koreatown, Griffith Park, Van Nuys, and Sunland.

When one looks at the absolute numbers of pedestrians killed and severely injured, the census tract that has more cases by far is one in Downtown LA, it has 49 cases — followed by a census tract in Playa del Rey with 29. The next three census tracts have 25 cases each one: one in San Pedro (located in the south of Harbor City), another one between Downtown LA and Boyle Heights, and another one in Hollywood. On the other hand, fortunately, there are 252 census tracts with zero cases from the 1166 census tracts in the City of LA used for this study. It could be the case of areas where nobody walks, which is also a concern, the best-case scenario would be to find an area where a lot of people walk and with zero cases of fatalities, this could be a good idea for further study.

Figure 15. Census tracts map of pedestrian fatalities and severe injuries



Map created by Jorge Cáñez, April 2020
Data: Road crashes: (TIMS, UC Berkeley & SWITRS, 2008-2018)
LA Neighborhoods: (LA Times, n.d.)
Classified by quantiles

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

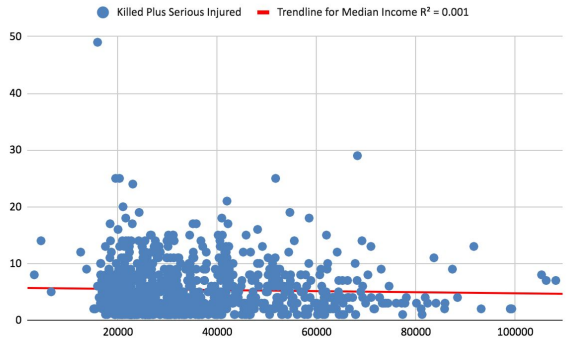
After analyzing the map above, I made a spatial join with the census tract to cross the data of pedestrian fatalities and severe injuries with the following demographics: median income, ethnicity (white - non-white), car ownership, pollution vulnerability, and age vulnerability. Here is the null hypothesis and the hypothesis for these variables:

- **Null hypothesis:** there is not a statistically significant association between the sum of pedestrian fatalities and severe injuries and the mentioned demographic variable.
- **Hypothesis:** there is a statistically significant association between the sum of pedestrian fatalities and severe injuries and the mentioned demographic variable.

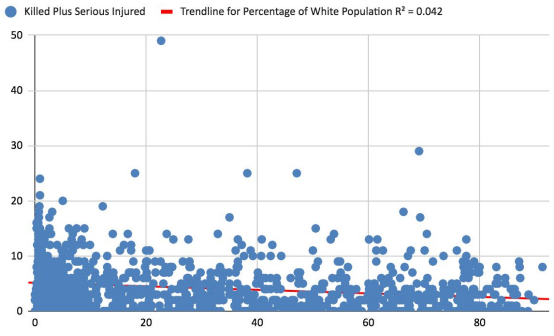
These are the results represented in a scatter plot:

Figure 16. Linear regressions

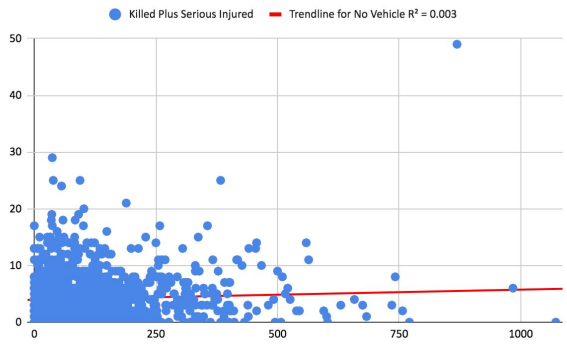
Median income
(US Census Bureau, 2017)



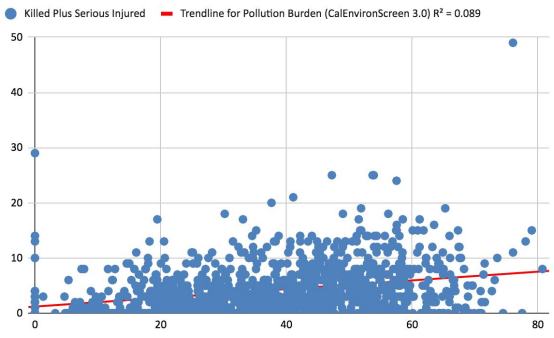
Percentage of white people
(CalEnvironScreen 3.0, 2018)



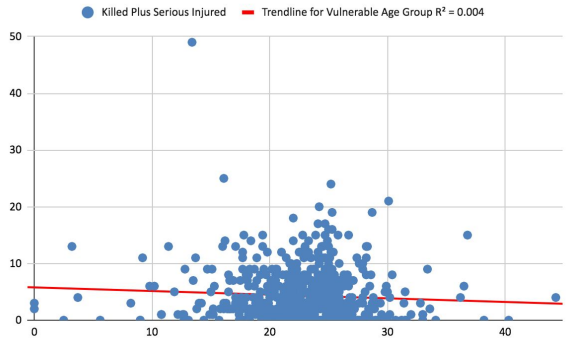
Number of Households with no vehicle
(US Census Bureau, 2017)



Pollution vulnerability
(CalEnvironScreen 3.0, 2018)



Age vulnerability - Percentage of children below 10 plus elderly above 65 (CalEnvironScreen 3.0, 2018)



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018; CalEnvironScreen 3.0, 2018;US Census Bureau, 2017)

Among all the analyzed dependent variables, the only ones with a relatively high R squared are the percentage of white people (0.04) and pollution vulnerability (0.09). In other words, the rate of white people explains 4% of the variability of pedestrian fatalities and severe injuries and 9% for pollution vulnerability. Both variables have p values below 0.000. Thus, these relations are statistically significant, and one can reject the null hypothesis for the two variables (got to Appendix to see the whole regression table).

Now, the coefficient of the percentage of white people is - 0.032, and the constant is 5.15. The complete formula goes like this:

Killed and severe injured pedestrians = 5.15 - 0.032 (percentage of white people)

Therefore, for each additional percentage point of white people, the number of killed and severely injured pedestrians go down 0.032.

Regarding pollution vulnerability, the coefficient is 0.079 (points in the CalEnvironScreen3 index) and the constant is 1.19. Here is the equation:

Killed and severe injured pedestrians = 1.19 + 0.079 (points in CalEnvironScreen3)

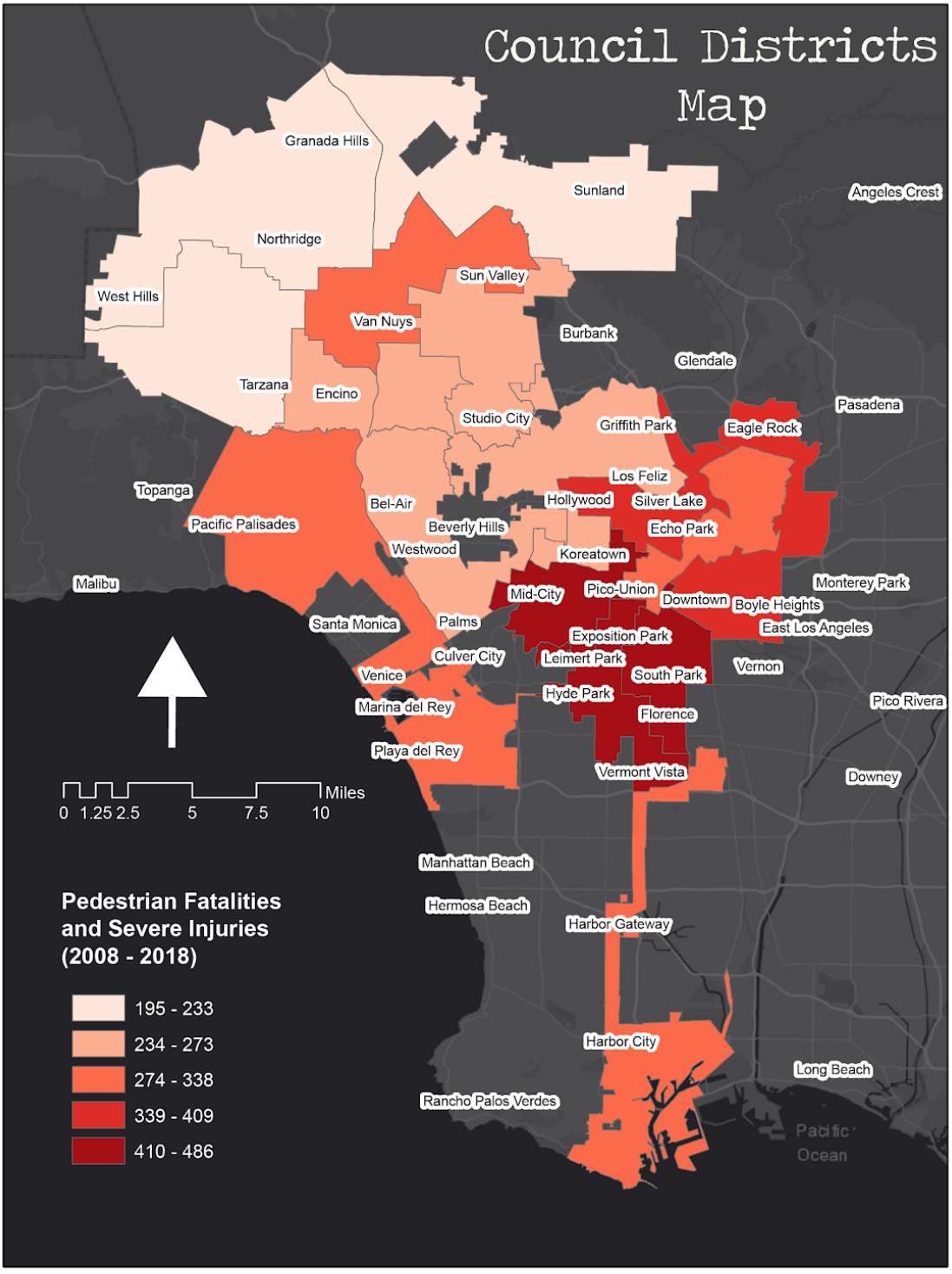
Therefore, for each additional point of pollution vulnerability, the number of killed and severely injured pedestrians goes up 0.079.

In conclusion, walking in a non-white and polluted census tract gives one more probability to be killed or severely injured by a motor vehicle in the City of LA. While median income, vulnerable age, and the number of vehicles in a household do not have a statistically significant relationship with the road safety of pedestrians.

Now, it is crucial to notice that here I am only talking about the geographic characteristics where this kind of crash happened. Unfortunately, there are no demographics attached to the victims, except the ones that I analyzed in the preceding section of this document. Also, I made all these statistics with absolute numbers; it would be necessary to have pedestrian counts in all census tracts to have relative numbers.

Finally, I made this map divided by councils districts representing the sum of pedestrian fatalities and severe injuries inside each of these political divisions. The main objective of this map is to visualize the problem at a political level. In the next section, I am going to present my findings in the interviews I carried out to people involved in road safety in Los Angeles. One of the main takeaways is that road safety is a political issue more than a technical one, and council members have a lot of political power to change the streets or even to backlash road safety projects. For this reason, I think that a map like this one and the chart below could pressure council members and have a competition to be the council district with fewer pedestrian fatalities and severe injuries. This map is also the transition between the quantitative analysis of this project to the more qualitative side of this pedestrian battle of Los Angeles.

Figure 17. Council Districts map with of pedestrian fatalities and severe injuries

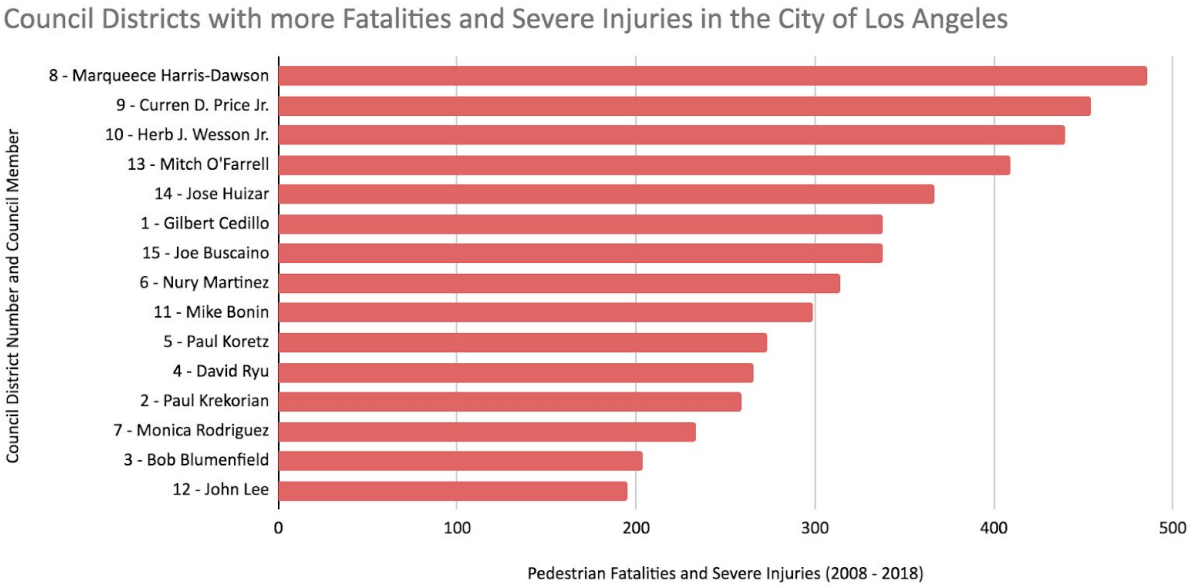


Map created by Jorge Cáñez, April 2020
Data: Road crashes: (TIMS, UC Berkeley & SWITRS, 2008-2018)
LA Neighborhoods: (LA Times, n.d.)
Quantiles classified by natural breaks (jenks)

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Figure 18. Council Districts with more fatalities and severe injuries in LA



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018

Findings from Interviews

I carried out these interviews between January and May of 2020. The summary of these conversations represents the words of the interviewees. This qualitative method of summarizing each interview gives a broad approach to the research. I do not complement any of the dialogues with my ideas. All these recapitulations try to stick as much as possible to the real words of the interviewees. Afterward, in the discussion and policy recommendation section of this project, I would present the main findings and proposals, taking into account the input of these dialogues.

Padres en Acción

(Padres en Acción, personal communication, 2020, March 4)

“Once, my daughter was almost hit by a car. In the beginning, I thought it was her fault, but then I understood that the problem was the design of the street, and I decided to fight to make it safer” This is a quote from one of the mothers of the organization Padres en Acción.

Padres en Acción is a grassroots organization of mothers fighting for safer streets in Los Angeles. They are focused on Temple Street, as they are the on-the-ground experts in this zone because their children study there. I had the opportunity to interview four of the mothers; Vilma, Magda, Beatriz, and Claudia. Above I present the main findings of this interview.

The fight of Padres en Acción started in September 2018. These mothers were worried about the safety of their children while crossing Temple Street. They decided to advocate for empathy towards the students walking in this zone. In the beginning, they had the support of Andy Linares from the California Charter Schools Association. He led the movement and helped the mothers to have meetings with stakeholders such as Council Members. Then, after a process of capacity building, Padres en Acción continued the fight. For instance, they participated in the Vision Zero Policy of LA and in the cultural events of Temple Streets called Slow Jams. Nevertheless, they would love to see more commitment from the authorities.

Padres en Acción has organized two open houses to discuss with LADOT the road safety improvements in Temple Street. After these events, the authorities started to build road safety infrastructure. LADOT installed a couple of speed tables, intersection tightening, and protected left turns. Nevertheless, the primary battle of Padres en Acción is the signal on Temple and Occidental. LADOT promised them that this signal would be installed by 2022.

“People had told us that this is an impossible task. People had laughed at us, but we were always positive, and we have won many battles with our positive, peaceful, and grateful fight,” said one of the mothers when I asked them about what they have learned in all this process towards a safer street. Then, she continued with the following statement: “We have won a lot as a community, we have had the opportunity to go far, to places that we could not imagine, now we know how to talk to the authorities and how to talk in public.”

Finally, Padres en Acción mentioned that they are very grateful to all the organizations that have helped them to build capacity to challenge the system, such as Los Angeles Walks and Public Matters.

Public Matters

(R. Estrada, personal communication, 2020, February 26)

Public Matters is a creative studio for civic engagement that addresses the trust gap between institutions and agencies and historically marginalized neighborhoods and communities. This organization cultivates reciprocity and accountability to foster a collective sense of ownership. They were one of the key actors during the artistic road safety interventions on Temple Street called “Slow Jams.” I had the opportunity to interview the creative director and co-founder Reanne Estrada, who is an artist with an A.B. in Visual and Environmental Studies from Harvard University.

Reanne claims that art shouldn’t be only in the museums and galleries but also in the streets building community. She believes that art is one of the most underutilized resources to make public decisions. We talked about how policies are typically made only with data analysis, but not with a human connection. Data is essential, yet, planning only with data is like having a

tunnel vision to the problem while missing the periphery, which is all the live experience of the community and the value of the social fabric, in words of Reanne.

Reanne highlights that addressing social problems cannot be done as a lone wolf. Collaboration is crucial; it is fundamental to work with other organizations, residents, local businesses, authorities, and so on. Also, it is essential to avoid the so-called "parachute" policymaking, which is a way to come to a community, do the activation, and abandon them. For this reason, Public Matters decided to work on Temple Street. Public Matters have worked long-time in the Los Angeles neighborhood of Historic Filipinotown. For instance, they had worked before with the Pilipino Workers Center, which serves workers and immigrants, and the Silver Lake Adult Day Health Care Center, which serves older adults, who didn't have a problem participating in the Slow Jams.

The Slow Jams took place in the street, where people were. It is an interesting alternative to regular community meetings. People in the street could participate, share their stories on tables covered with brown craft paper, dance in the crosswalk with provided cardboard props, among other activities to engage the community, and collect stories.

Public Matters did Slow Jams on Temple Street for Vision Zero for two years (2017 and 2018). In the second year, they were able to focus more intentionally on building the capacity of local residents to advocate for safer streets. In particular, they worked closely with Padres en Action, a group of parents whose kids attended Vista Charter Middle School and Camino Nuevo Charter Academy in Historic Filipinotown. Public Matters would have welcomed the opportunity to continue to work with these and other community members (there’s always more work to do!). On a bright note, the parents continue to work for safer streets, building on the knowledge and skills from our engagement with them. It is a long game, and we needed more time to engage with the constituents and build capacities together, not only with the residents but also with the authorities, Reanne stated.

Regarding the authorities, Reanne mentioned an interesting point. Not investing in outreach and community-engaged planning has a high cost. For instance, when the City of LA installed road safety strategies on the west side, neighbors and conservative advocates backlashed the project. The price of managing this crisis was extremely high, not only the money installing and removing the improvements, but also the political cost. If the authorities invest more in public engagement, they will win more supporters to the projects, and the improvements would be less likely to be backlashed.

To make a real community-engaged planning process, Reanne states, activations in the streets are only the tip of the iceberg. Her point here was that it is important to build capacity, not just among the residents who could benefit from more content knowledge of traffic safety, but also among staff from municipal agencies (planners, engineers, policy folks), who could benefit from being more skilled at translating their work for regular (not policy or engineering) people and more skilled at listening to their constituents. Through multiple engagements, the different

groups can more or less share enough common vocabulary to exchange expertise, so that they can work together to develop responsive, effective solutions. This way, they will defend the projects instead of being indifferent or even against them.

When I asked Reanne about the process of changing a street, she told me that we should not be afraid to fail. Higher tolerance to risk will lead us to provide solutions, even if we fail. If we learn from the experience, we can "fail forward." There will always be conflicts and backlashes, she claims, but we need to be prepared to face the opposition with an excellent immune system.

To illustrate this process, during the interview Reanne and Daisy Villafuerte, Advocacy and Engagement Manager Los Angeles Walks, came with a metaphor. Changing a street is a slow process, like cooking on a crockpot. You need to prepare all the ingredients and let them interact with each other, the chemistry blends, but also maintain their original attributes to a certain degree, we need to be patient and then we have dinner. Authorities, residents, community-based organizations, and the opposition are the ingredients, and the dinner is a safe street for everyone.

Finally, Reanne envisions in twenty years the streets of LA with multiple modes of expression, roads not only for cars. Nowadays, LA does not have places for gathering; there is an overrepresentation of private interests. "I imagine vibrant streets with a different relation with public space," Reanne concludes.

Los Angeles Walks

(E. Crotty, personal communication, 2020, January 28)

In the introduction of this document, I have already written about Los Angeles Walks in the section "Client Overview." In a few words, LA Walks is a pedestrian advocacy group dedicated to making walking safe, accessible, and fun for all Angelenos. Besides being the client of this project, the work of LA Walks is essential to understand the theory of change from a car-oriented LA to a walkable one. In other words, they fight to switch from "Nobody walks in LA," like a song by the 80s band Missing Persons, to #EveryBodyWalkInLA, the official Hashtag of LA Walks. More importantly, this organization works with residents from underserved communities in LA to train them and mobilize them towards safer streets. I had the chance to interview the former Executive Director of LA Walks, Emilia Crotty, who is an anthropologist from NYU with a Master's in Public Health at Hunter College.

Emilia started in LA Walks as the Program and Policy Manager coordinating the Vision Zero Alliance of LA, which was a network of organizations that works in partnership with the City of Los Angeles to end all traffic fatalities and severe injuries by 2025. This task had a lot of coordination challenges with other organizations. Therefore, LA Walks preferred to invest efforts into how to build people’s power and have their support working with community-based organizations and coordination with the South California Families for Safer Streets. Emilia states

that this task is fundamental because, without the help of the people, Vision Zero will not have the desired impact.

Despite the Vision Zero Alliance of LA disappearing, Emilia claims that all those efforts helped to establish and raise funding for community-based organizations. Also, these connections between organizations helped to learn from each other and build a network.

Talking about the challenges of the Vision Zero policy, Emilia states that there was not excellent communication between the authorities and the organizations. LADOT wanted more credit than they deserve, while the organizations were not allowed to talk with other jurisdictions like the council members. Also, council members have too much power, which makes it very difficult to change the streets.

Emilia's point of view about the Vision Zero policy of LA sums up in two words: not enough. She appreciates the efforts of the City of LA, especially the Dignity Infused Community Engagement Strategy (DICE) by LADOT. Nevertheless, the results are not precise, Emilia suggests to invest more in community engagement, focus on small wins, and communicate them. Some examples of these small wins could be the pedestrian scramble crosswalks next to MacArthur Park, the improvements on Cesar E. Chavez Avenue, and the project My Figueroa.

Emilia also participated in the Temple Street Slow Jams project leading some outreach strategies. She mentioned that LADOT had ambitious plans for the street, like a protected bikeway and a road diet. Nevertheless, council members were not interested. The case of Mike Bonin resonated all over the city. Bonin is the councilmember on West LA that was almost recalled by the residents for installing road safety improvements. Now, even if council members support road safety projects, they are afraid to lose their jobs. At that time, Emilia claims, people against road diets, ordinarily white, wealthy, homeowners, were more organized than people fighting for better streets. We lost a road diet on Temple Street. Finally, Emilia added that the hope is in organizations like Padres en Acción, they have the life experience, and their efforts and support are critical to making a safer street.

Emilia ends the interview talking about a holistic approach towards vision zero. Making safer streets for pedestrians is not enough; we need a multimodal approach connecting active mobility with public transit. One big win would be to have more bus-only-lanes, she claims, with more transit riders, we would have more support to make the first and last mile safer for pedestrians.

LADOT

(K. Ocubillo, personal communication, 2020, February 14)

LADOT's mission is to lead transportation planning, project delivery, and operations in the City of Los Angeles. They work together and collaborate to deliver a safe, livable, and well-run

transportation system in the city and region (LADOT, n.d.-a). I had the opportunity to interview Kevin Ocubillo. He is a Transportation Planner at LADOT and works in the community engagement strategy of the Vision Zero Policy, as well as in the activation programs for the People Streets, Play Streets, and Great Streets policies.

I asked Kevin about the biggest wins of Vision Zero; he told me that first of all, LADOT has a robust data analysis of crashes on the Streets of LA. The so-called “High Injury Network” is a data analysis that spotlights streets with a high concentration of severe injuries and deaths, with an emphasis on those involving people walking and bicycling. Kevin states that making policy based on data is hard to argue with the science behind and transparency. Based on that data-driven policy approach, the City of LA has strategically selected 40 corridors to make a redesigning. Everything from flashing beacons to intersection tightenings, Kevin added.

Kevin talked about the importance of an equity approach regarding road safety policies, cause fatalities and severe injuries often coincide with neighborhoods that are poor and with people of color. Also, the pedestrian, which is the most vulnerable user of the street, is the one that is suffering the most. That said, Kevin claims that “the behavior change needs to be focused actually on the ones who are causing the deaths, which are people driving, the problem is not the pedestrian.”

I was very interested in the Vision Zero Dignity-Infused Community Engagement (DICE). This program is a cross-sector effort to center community members in the Vision Zero planning process from the beginning, weaving all perspectives and lived experiences into the technical planning process (LADOT). Kevin describes this program as a way of empowering residents with the knowledge to understand their built environment. And then to also decide for themselves whether or not it is something they want to advocate for now. According to Kevin, "we [the LADOT] found that people are very interested in making the streets safer [...] It's more than just going to a community meeting and telling people this is what's going to happen. But it's really empowering them". In a few words, LADOT gives all the necessary tools and then the community engages and takes the decisions. "DICE is really looking to build the capacity for people, leverage the expertise of community-based organizations," Kevin added.

Additionally, DICE works with community-based organizations that train the residents. This way, people get in contact with someone that speaks like them, look like them, and are part of the same demographic characteristics. CBOs can help to translate all the proposals and technical jargon from LADOT to the needs of the residents, paraphrasing Kevin.

Kevin highlights that DICE is a new program that has been in place for about a year. LADOT is still learning from the experiences in the neighborhoods where DICE has worked, such as The Valley, the West Side, but especially South LA, where DICE has worked the most. He explained that CBOs and residents are absolutely critical to change the streets; it’s a team effort, he declares. Kevin brings up an analogy about a car, where LADOT is the one that provides the car, the residents are the one who drives, and CBOS is the co-pilot.

Kevin also gave examples of how people helped to change the streets, for example, the successful case of Sunset Triangle Plaza, a space recovered for pedestrians. It used to be a car-oriented space and now is closed to motorized vehicles and is a place for gathering. The community was vital to make a pilot and then work to make it permanent.

Another example mentioned by Kevin is the Rainbow Halo, which is an artistic intervention to commemorate people who died in traffic crashes. In this case, the SoCal Families for Safe Streets organization is critical to work with the victims' families and install the Rainbow Halo in a post near the fatal crash. This halo projects a rainbow in the street with the help of the sun. Finally, Kevin finalizes the interview declaring that "Community organizing is the number one thing to make LA's streets safer and more equitable."

People for Mobility Justice

(R. Oxas, personal communication, 2020, February 13)

People for Mobility Justice (PMJ) is a Black Indigenous People of Color (BIPOC) collective in Los Angeles, whose mission is to seed critical consciousness about mobility justice across all communities. And their vision is: "People have the freedom and resources to move in public spaces with love and dignity" (People for Mobility Justice, n.d.). This time, I had the opportunity to interview Rio Oxas, the Building Power Director of PMJ.

PMJ goes beyond Status Quo, academia, and the authorities. Their fight is not only about a person hit by a car. It is also about a person criminalized in the streets and getting deported. Rio claims that the streets are the main arterial roads for every social movement that is out there. They added that everything is accessed through these roads: your friendships, your health, your education, your job, your fun, everybody has to touch the streets.

All in all, Rio believes that authorities design systems and roads to lock away people from resources, to keep people stuck in poverty. For instance, there is a high contrast between an affluent neighborhood in LA that has everything, and low-income folks have a hard time getting there. It's a pretty profound system of racism, Rio stated and gave the example of how freeways intentionally separate communities.

Then, we talked about Vision Zero in LA. Rio believes that the Vision Zero policy in LA is not enough. Rio acknowledges that in Sweden, the country where Vision Zero was born, this policy has worked. Nevertheless, Rio states, Sweden is a homogenous country with almost no diversity. On the other hand, LA is a highly diverse city that the Vision Zero policy in LA has to acknowledge. The authorities cannot take a Sweden Eurocentric design system of safety and superimpose it in a country like the United States. In the US, we are still seeing the colonial effects of slavery, of displacement of native indigenous people, and immigrant exploitation, Rio claims.

As I mentioned in the literature review of this project, PMJ is the author of D's strategies that challenge the conventional E's of road safety. I wanted to know the meaning of D's from the words of the authors. Above, I summarized the interview in this order: Decolonization, Decriminalized, Decongest, Dignify, and Dream.

Rio supports decolonization strategies parallel to a road safety policy. It is essential to start with the recognition of the indigenous people of Los Angeles, which are the Tongva, the Chumash, and the Tataviam. In this matter, Rio states that we cannot implement an urban planning infrastructure with a cookie cutter. That said, decolonization must be a fundamental piece of every urban planning project.

Then, decriminalization is a concept linked to extreme inequality in LA. For instance, Rio mentions the criminalization of houseless people living in tents that are displaced by the authorities in the name of ADA, so people with disabilities can access to move through the sidewalk. "How messed up is that," Rio claims, mentioning that houseless people are also suffering disabilities. Another example Rio gave me about criminalization is all the people that do not have money to take public transit and authorities kicked them out from the transit system. Then, Rio gave me an example of police officers making up rules like the mandatory use of helmets by bicyclists to stop them, give them tickets, and asking for migration papers. All these examples illustrate the importance of decriminalization policies hand to hand with a road safety strategy.

Decongest is the concept related to the access to transportation and streets that support our full well-being and keep us alive. Rio declares that the authorities are now asking communities to walk and bike more while roads are not prepared. Walking and biking in high-income neighborhoods is not the same as walking and biking in low-income neighborhoods. Low-income areas usually are overpoliced. Also, the car-oriented system has not prepared the streets to walk and bike and start the decongestion of motorized vehicles.

Dignify has to be with the opportunities of low-income and historically marginalized people - such as houseless people, people with disabilities, the LGBTQIA+ community, people who work in the streets (sex workers, street vendors, etc.). These are people doing their best to bring food to their families. A road safety strategy has to respect and dignity in these communities. Also, people from these communities with the privilege to go to school should raise their voice and give back to their people.

The last D, Dream, has to be with the right of the right to self-determination of the BIPOC communities. Dream beyond imagination outside of the status quo. Rio gives an example of how society is socially anchored as a police state. Society believes that more policing equals safety when, in reality, this could be counterproductive. Rio gives the example that in the subway of Mexico City, clowns are helping to follow the civic culture rules in a friendly way, instead of police officers acting violently.

For instance, in 2018, in the subway of LA, a policeman violently arrested a teenage girl, just because she was putting her feet in the seat (CBS Los Angeles, 2018, January 30). A more dramatic example is the case of Cesar Rodriguez, a 23-year-old man killed after being pinned by the train in the blue line in LA in 2017. This fatality happened during an altercation with Long Beach police officers who had engaged him at the Wardlow station over his non-payment of the $1.75 fare (Sulaiman, 2018, August 15). These are an example of how the establishment solutions for safety are not working, and we need to dream of fixing the system. In conclusion, Rio states that: "going back to Vision Zero, it's not enough like we're not just talking about traffic collisions, we're talking about anybody who dies wrongfully because of a messed up racist system."

PMJ has also contributed to change the infrastructure of the streets in LA. For instance, one of the PMJ's first campaigns was the fight for a bikeway on 7th streets, which is now implemented by the City. Also, PMJ participated in the first and last mile community-based plan by Metro. Here, PMJ made sure that Metro acknowledges the structural racism in Los Angeles.

Now, when I asked Rio about the role of LADOT, they told me that LADOT, "while it is striving for equity in all their work, unfortunately, just is as all of our public agencies it is built on racism and the work to dismantle those foundations is tough, laborious, and direly needed". Also, community engagement processes shouldn't be led by the government. The leaders must be the genuine grassroots groups, and those groups must not be used by the authorities to cheer or parade their projects. "bureaucratic walls have to be torn down." Rio declares. That said, the community, no third parties, should be paid to lead these processes. Because communities have the live experience, they know every single bump and tree and bush, they walk in every single day in their neighborhood. Also, authorities require us to have tough conversations about racism, classism, homophobia, ableism, and so on. The agencies have to go through these extremely uncomfortable conversations first.

Rio shared their experience discussing with people that treat road traffic fatalities as an acceptable loss. Authorities and some residents feel the pressure to meet a required level of service for traffic flow and balance it with the "acceptable amount of traffic fatalities" in the name of a "greater good." Rio replies to them: "when did you think it was okay that people could die? What if that was your grandma? What is it that was your child? That would have been acceptable?

I asked Rio about the idea of banning cars for once and for all. They told me: yeah! Or at least to make it mandatory for all vehicles to use a governor that controls speed.

Finally, Rio showed me that road safety is not only about commuters, but it is also about people with whole life experience. It is fundamental to fight against systemic racism and classism in our streets while we are doing road safety policies. Rio concludes with some hope that "maybe the

new generation of urban planners and engineers can come into it with a different set of eyes with a different set of lenses, so they're not cookie cutting with the old-timers."

Ribeka Toda

(R. Toda, personal communication, 2020, February 18)

Ribeka Toda is a UCLA Master in Urban and Regional Planning alumna class of 2018. Her capstone is titled “Fast, Furious and Fatal,” (Toda, 2018a), a project about how the methodology to determine speed limits in California is not working to save lives in the streets. Ribeka also worked as an intern at LADOT, and in the Government of Mexico City, in both agencies, she helped with road safety strategies. Currently, Ribeka is a Senior Planner and Engineer at the consultant firm Fehr and Peers. In this interview, Ribeka is not representing any of the mentioned institutions, and she is sharing her personal opinions.

Ribeka states that one of the primary wins of the Vision Zero policy of the City of LA is the development of a toolbox of very easy to install changes in infrastructure, such as leading pedestrian intervals.

Nevertheless, talking about community engagement efforts, Ribeka thinks that the current structure is set up so that those who already have power, time, and money can speak up about projects. Therefore, these people are overly represented in community engagement. She claims that LADOT is aware that there has to be a lot more effort put towards creating equal opportunity for community input for projects. For instance, babysitting during community meetings could bring more parents to participate. Also, doing community outreach in the streets or supermarkets is essential, “instead of saying you come to us, we need to say we come to you,” Ribeka declared.

Then, I asked Ribeka about the 85th percentile methodology to determine speed limits in California. She claims that this methodology is affecting urban environments. This method assumes that drivers are reasonable, prudent, and will drive at a speed that is appropriate for a given street. "To set the speed limit, traffic engineers conduct a survey measuring the speed of the vehicles on the road and take the speed at or below which 85 percent of the vehicles travel" (Toda, 2018b, May 30). It assumes drivers are aware of all the complexities of an urban environment, such as pedestrians, traffic signals, squirrels, and more distractions. Ribeka thinks it's unfair to put that power in the driver's hands. This way, the government and road safety experts are supposed to think about the holistic health of everybody in a given environment. In this case, they are the ones that know what is better for everyone to save lives in the streets.

On the bright side, there is hope in this story. Ribeka showed me the report “Zero Traffic Fatalities Task Force” launched in January 2020, which is an official document by the California State Transportation Agency (CalSTA, 2020) that acknowledges that the 85th percentile methodology does not work in urban areas. The champion of this story is Laura Friedman, an

Assembly Woman that made this work happen in Sacramento. She helped to form the Zero Traffic Fatalities Task Force in the Assembly, and they recommend that California has to work for a better methodology to set speed limits. Then I asked Ribeka about when the authorities will implement this new methodology. Unfortunately, politics and bureaucracy can delay this a couple of years, but I agreed with Ribeka that with the help of the road safety community, this process could be faster.

The other significant possible change that Ribeka told me about was the change of the infrastructure guidelines of the Highway Design Manual of the California Department of Transportation (Caltrans). According to Ribeka, this manual does not specify the best practices for road safety in urban areas. It leaves its interpretation, which makes engineers nervous about implementing urban infrastructure. Whenever the 85th percentile is not “the Bible” anymore, Caltrans should update their official guidelines based on the National Association of City Transportation Officials (NACTO) guides. That day, engineers will feel more comfortable implementing new infrastructure based on a harm minimization method, instead of the speed-oriented approach based on the 85th percentile methodology.

Additionally, Ribeka recommends giving more power to the local authorities to determine speed limits. She mentions the example of Oregon, where local authorities in urban areas can set speed limits different to those in rural areas. She also brought up the case of Seattle, where The City Council voted unanimously to lower speed limits on residential streets to 20 miles per hour (Schmitt, 2016, September 27).

Then, we talked about the benefits of automated speed enforcement, also known as speed cameras. Ribeka told me that this kind of enforcement is not only efficient in reducing speed in the streets, but it will help to mitigate over-policing in communities of color and marginalized. Automated speed enforcement is a way to take unequal policing out of the equation. Unfortunately, speed cameras are illegal in California. This is another reason why it is crucial to advocate for new laws in California.

Finally, Ribeka highlights the importance of figuring out who your champions are at all levels of the government. Advocates and residents should talk with their council members and assembly members. Notably, the assembly members can change the law to have new speed limits, give more power to local authorities, improve the engineer guidelines, and make automated speed enforcement legal. Ribeka ends the interview claiming that: people can make laws just by finding the right people who will carry your message to Sacramento and fight for it.

Carolyn Vera

(C. Vera, personal communication, 2020, May 21)

Carolyn “Caro” Vera is a Transportation Planner in Los Angeles. She started being a volunteer at the advocacy group People for Mobility Justice. Today she works at the private consultant

Fehr and Peers, where Caro specializes in Vision Zero, community engagement, and active transportation planning. As a South Central native, she is committed to fostering solutions that improve underserved communities throughout Los Angeles.

Caro shared with me some wins of the Vision Zero's policy. For instance, the protected bikeway on Venice Boulevard and the recent funding approved for Avalon Boulevard. In the latter, she participated in a 35 days engagement marathon in South Central LA, a marginalized area of the City. According to Caro, this was the first time to do an actual equitable engagement conducted with residents on a large scale. As a result, 86% of residents approved the safety treatments coming. Avalon is arguably the most successful example of the program Dignity Infused Community Engagement strategy (DICE) (LADOT, n.d.-b).

Also, Caro mentioned the installation of the speed tables on Temple Street as a victory of Vision Zero. Even though the authorities did not implement the road diet, LADOT rarely installs speed tables. All in all, the money that LADOT has invested in community engagement in underserved neighborhoods is a triumph.

Caro claims that there is a historical lack of trust between Community Based Organizations and the government. It is essential to gain the confidence of the community. "If you don't have trust, you are not going to get far," Caro states. To build trust, Caro suggests that authorities and communities need to have a transparent conversation about historical harms. Then, work together, pay the CBOs, and respect the commitments.

Unfortunately, due to COVID 19, the program DICE formally ended in April 2020. The future of DICE depends on how this mentioned situation stabilizes. Before Coronavirus, the DICE program was ready to start engaging in the Broadway project (LADOT, n.d.-c).

When I asked Caro about the wins of DICE, she started mentioning all the people that had job opportunities thanks to this program. For the Avalon project, they hired a street team composed of seniors, people with records, people with mental struggles, hip hop dancers, local *eloteros*, street vendors, and so on. Then, the community-engaged process was a marathon of 35 days. The word “marathon” is inspired by the local artist Nipsey Hussle, who recently passed away. The Marathon was the name of his store in South Central LA. As a clarification, the Avalon road safety improvements have not been installed yet by the authorities, but they are coming soon.

I asked Caro about the future of DICE, despite the incertitude of the COVID 19 crisis. She told me some lessons of the DICE experience: keep hiring people locally, embrace the struggles that come, and work with CBOs and pay them. In the future, the City needs to have restorative sessions with the communities from the beginning, before LADOT starts the project. The City cares about safe streets, but it is also important to focus also on equity. Finally, Caro states: “it is possible to give CBOs ownership over the engagement strategy and have it worked out well. But again, the City needs to be willing to trust”.

Caro knows by experience that some underserved communities are more likely to welcome new projects because historically, they almost have never received investment. They need it because they walk and bike every day. The other conversation is about the gentrification that these projects could start, but Caro believes that if you involve brown and black people to plan the project, they will have personal buy-in and investment in embracing and using it. For instance, you can hire local artists to paint murals about Vision Zero. You can also build power and capabilities with residents that are not familiar with road safety policies.

V. Temple Street Case Study

In the preceding section, the interviews revealed great information about the political challenges towards safe streets in LA. Now, this section focuses on what community-based organizations in the City of Los Angeles can learn from others in terms of best practices to build power in their community towards safer streets for pedestrians. To answer this question, I am going to break down the case of the pedestrian improvements on Temple Street and compare it with similar projects in LA. This story is full of disappointments, hope, and hard-working advocates. In a few words, it is not an easy task to bring back the streets to the people after decades of car-oriented policies.

A Lost Battle?

Temple Street is one of the most dangerous corridors in the City of LA. The LADOT (n.d.-e) mapped this street into the High Injury Network (HIN), which represents 6% of city streets in LA (over 450 miles) that account for 70% of deaths and severe injuries for people walking. For this reason, Mayor Eric Garcetti launched the complete street program selecting six corridors to be fixed by the authorities between 2018 and 2020; one of these is Temple Street. Consequently, the City invested 9.1 million dollars on Temple St improvements.

Jonathan Temple, a mid-19th Century Los Angeles cattle rancher and merchant, developed Temple Street as a simple one-block long lane corridor. Today, Temple St. is an east-west thoroughfare that runs through Downtown Los Angeles parallel to the Hollywood Freeway or 101 Freeway. Many people drive through Temple street as an alternative to the 101 Freeway, this is why Temple street is known as the little 101, which talks about the dangerous speed and hostile motorist environment in the area.

According to the authorities, LADOT (n.d.-g) is “redesigning our streets to prioritize human life. The project will improve mobility and access along Temple Street for 1,200 senior residents and 14,000 youth and students.” Nevertheless, car-oriented residents in LA stopped the original project of a road diet, and now the remaining planned improvements are not enough to save pedestrian lives (Laker, 2020, February 3; Bliss, 2019b, November 25; Linton, 2018, September 26; Tinoco, 2018, March 22). All this, despite the extraordinary advocacy efforts by groups such as LA Walks, Padres en Acción and Public Matters.

The infrastructure project on Temple street is not a success story for the pedestrians in LA. This story is a microcosm of the quasi-impossible task of transforming a car-oriented city into a people-oriented city. Nevertheless, in this section, I am going to mention successful pedestrian battles in Los Angeles, and then I will present an alternative proposal for Temple Street. A plan based on best practices of pedestrian infrastructure.

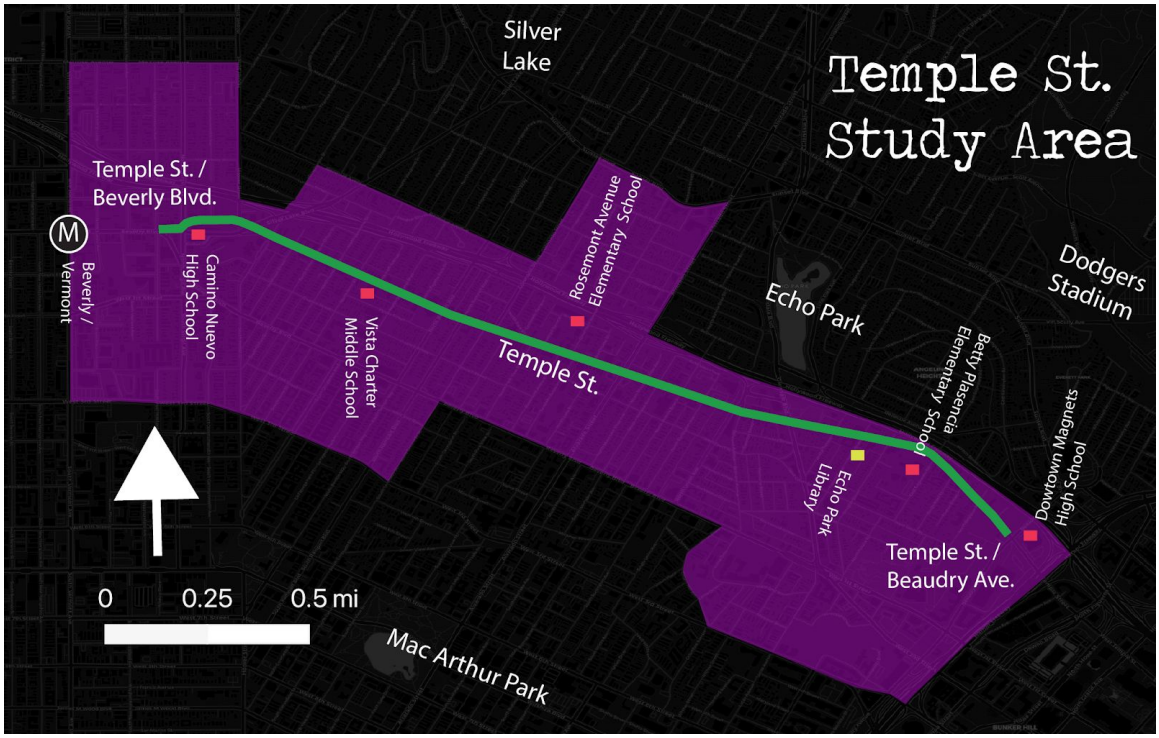
A Disproportionately Burdened Street

Study Area

The section of Temple street that I am going to analyze it is based on LADOT's criteria to make the official improvements. This segment starts in the east at Beverly Ave and ends in the East at Beaudry Ave, which represents 2.3 miles. The Council Districts that overlap are number one and number thirteen, represented by the councilmembers Gilberto Cedillo and Mitch O'Farrell, respectively. Then, the neighborhoods of this zone are Westlake in the west and Echo Park in the East. It is essential to mention that this specific part of Westlake is also known as Historic Filipinotown or Rampart Village.

Now, to delineate the study area, I made a polygon out of the 11 census tracts that surround the mentioned 2.3 segments of Temple Street. The neighborhoods that surround the study area are vital parts of Los Angeles. To the east, we have Downtown LA, in the north Silverlake, and to the west Koreatown. These are the densest neighborhoods of LA (LA Times Maps, n.d.). Above, I am going to present the demographics of these 11 census tracts that besiege Temple Street. This map shows the polygon of the study area:

Figure 19. Temple Street Study Area

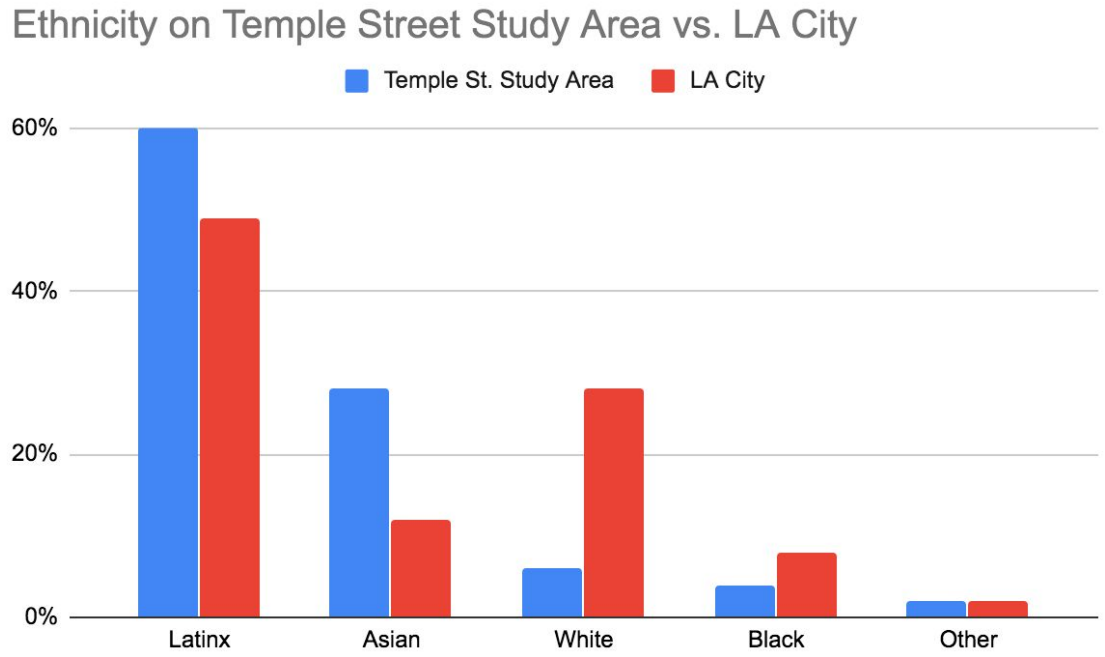


Map created by Jorge Cáñez, May 2020
The green line represents the segment of Temple St. for this study case

Demographics

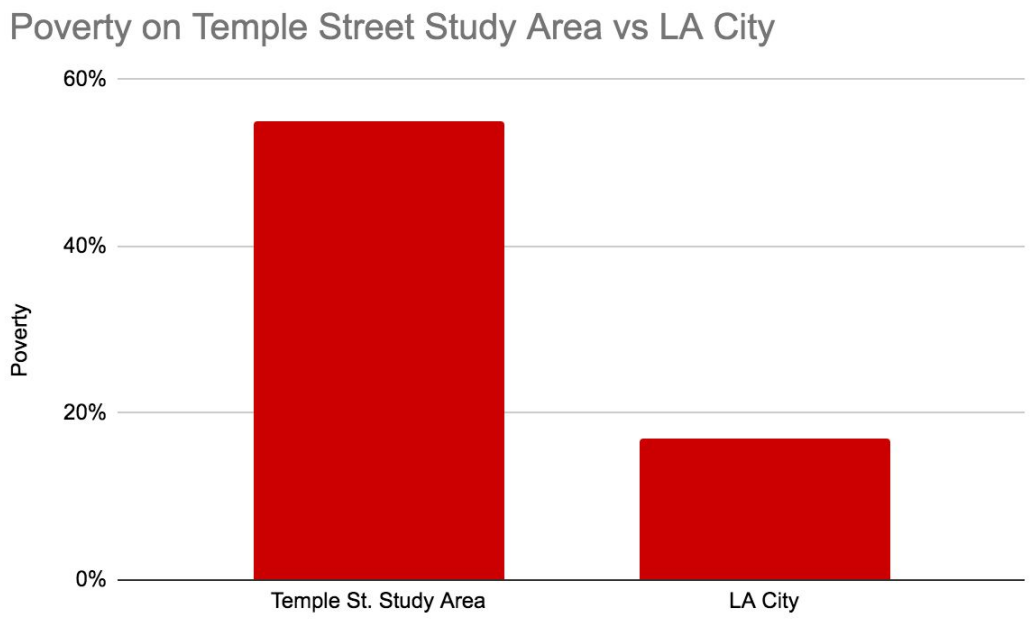
With a total population of 41,687, this area is 60% Latinx, 28% Asian, 6% White, 4% Black and 2% other (CalEnvironScreen 3.0, 2018). It is worth mentioning that 27% of households live with linguistic isolation, which means limited English speaking (CalEnvironScreen 3.0, 2018). Also, 55% of the residents live in poverty (CalEnvironScreen 3.0, 2018) with an income per capita of 32,066 (US Census Bureau, 2017), and 31% suffer from housing burden (CalEnvironScreen 3.0, 2018), which are low-income households with a high burden of housing costs. Also, 12% of the population are children below ten years old, and 8% are elderly above 65 (CalEnvironScreen 3.0, 2018).

Figure 20. Ethnicity on Temple Street Study Area vs. LA City



Source: (ACS, 2017 for Temple Street Study Area and ACS, 2018 for LA City)

Figure 21. Poverty on Temple St. Study Area vs. LA City



Source: (ACS, 2017 for Temple Street Study Area and ACS, 2018 for LA City)

Now, in our study area on Temple St, six out of the 11 census tracts belong to the highest percentile of the CalEnviroScreen index, which means that the population living in that area are part of the 10% of residents that are more vulnerable to multiple sources of pollution in all California. Meanwhile, LA City, as a whole, is right below the average score, which means that the pollution burden in LA City is slightly better than the rest of California (CalEnvironScreen, 3.0).

Another vital point to consider in our study area is the number of schools located on Temple Street. These are all of them: Downtown Magnets High School, Edward R. Roybal Learning Center, and Camino Nuevo Charter Academy. Also, Los Angeles Public Library's Echo Park Branch Library is located on the corner of Temple Street and Douglas Street.

Transportation Analysis

Regarding traffic density, our study area is highly disproportionate compared with the rest of LA. Experts calculate traffic density by dividing traffic volumes by the total road length; our study area around Temple St. has a score of 1850, while Los Angeles City has a rating of 1539 (CalEnvironScreen 3.0, 2018). The proximity to the 101 Freeway and the central location of Temple St could explain this difference.

The study area on Temple Street has several transit options. The Metro bus local line 10 goes all along Temple Street in the study area. The Metro Local Bus 92 touches our study area from Beaudry to E Edgeware. There is also the Dash Bus line Pico Union / Echo Park that runs on

Temple Street from Union Avenue to E Edgewater, all inside our study area. The other bus line that touches our study area is 693, which only runs in Temple St. from Coronado to Rampart. Now, the nearest train station is Vermont / Beverly on the red “B” line, which is 0.3 miles to the west from the intersection of Temple and Virgil. The second nearest station is Westlake / MacArthur Park of the red “B” and purple “D” lines, which is located one mile away to the south from the intersection of Temple and Alvarado. There are 29 bus stops in the study area, but only seven have a bus shelter, and 16 have at least a bench. In total, there are 13 bus stops without anywhere to sit and 22 without a shade structure (go to the Appendix to see details).

There are no bikeways along Temple Street in our study area. There is only one perpendicular street with a bike lane (class 2), which means that only painted stripes separate the cyclist from motorists. Then, Rampart is another perpendicular street that intersects Temple St. with a bike route (class 3), which is a “bike-friendly” street shared with motorists (LA County, n.d.). Along the corridor, inside the study area, there are practically no bike racks. I just found four outside of the restaurant The Park’s Finest BBQ, and three outside Tamales Alberto. Finally, in the study area, there is only one Metro Bike-share station located in Vendome St. and Beverly Blvd (Metro, 2020, May 1).

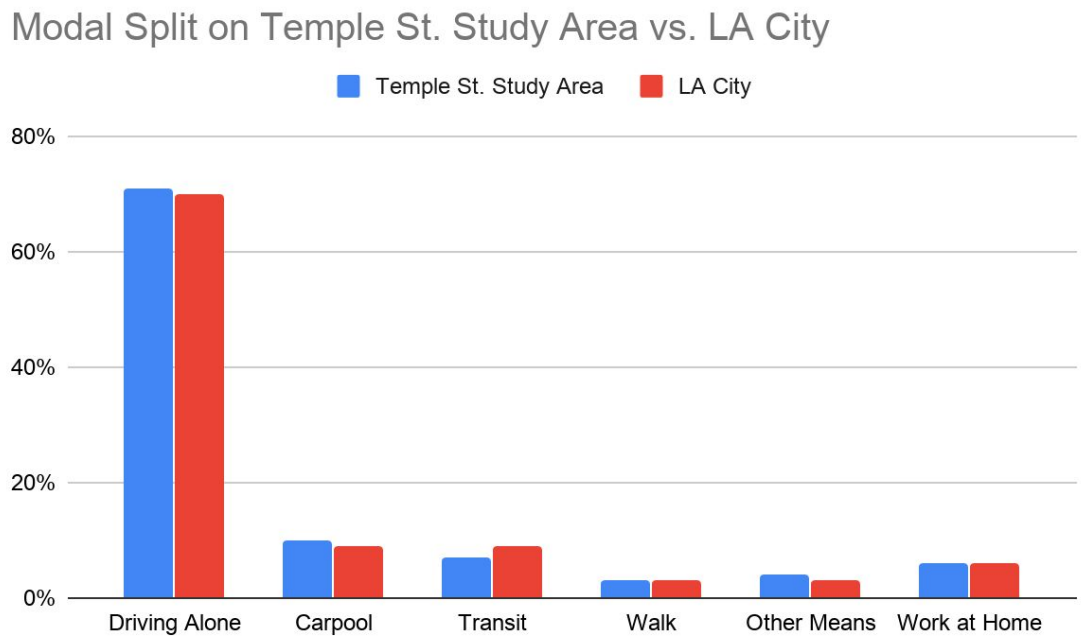
The pedestrian conditions on Temple Street are dangerous and hostile. On the one hand, there are wide sidewalks accessible for people with disabilities. Also, the index WalkScore (n.d.) describes this area as "Very Walkable," which means that people can accomplish most errands on foot. On the other hand, Walk Score does not measure other factors like road safety, public spaces, greenery, and active ground floors. About this last one, Temple Street suffers from the same hostile pedestrian experience as the majority of the street in LA. It is usual to walk next to parking lots, strip malls, gas stations, and blind walls, which means that there is not vibrant façade activity. It is annoying and miserable to walk in this car-oriented street (ITDP, 2017 & Speck, 2018). Despite this pessimistic panorama, there are a few active ground-floor businesses in the corridor, but these are like a few bottles of water in a desert. Also, there are some desire lines without crosswalks along the corridor, especially in front of schools, the street design forces pedestrians to walk to the intersections, mid-block crosswalks could solve this problem. I will share in this document the complete infrastructure proposal in the section "Space for a Complete Street."

Fortunately, residents in the study area can walk to Echo Park, one of the most iconic parks in LA, but to accomplish this task is necessary to cross the chaotic Hollywood Fwy, which could disincentivize people from walking to the park.

Next, another important factor in measuring the pedestrian conditions is the number of trees in the corridor. To analyze the tree canopy, I am using SpatialCover Tree Canopy, California. Which is a “high resolution (1 meter) tree cover data layer that provides baseline information on woody vegetation for California in multiple formats to support improved management of tree resources and carbon quantification.” (Earth Define, 2019) The eleven census tracts in our study area average 9% in the tree canopy index (ArcGIS, n.d.). This score is right below the

median on the mentioned scale for Los Angeles City, which means that it is essential to plant more trees in the area. Trees provide shade, control the temperature, sequester carbon, and protect pedestrians from motorized vehicles (Macdonald, 2017).
Finally, the transportation modal split in our study area is 71% of the trips to work are people driving alone, 10% carpool, 7% transit, 3% walk, 4 % other means, and 6% work at home (US Census Bureau, 2017). Interestingly, all this modal split data of our study area is very similar to the percentages of the City of LA as a whole. The only interesting difference is that in our study area, only 7% of the trips to work are by public transit, and in the City of LA is 9%. Additionally, the average travel time in the study area and LA City is practically the same: 30 minutes (US Census Bureau, 2017).

Figure 22. Modal split on Temple St. Study Area vs. LA City



Source: ACS, 2017 for Temple Street Study Area and ACS, 2018 for LA City

Road Safety

According to LADOT (n.d.-g), between 2009 and 2017, 39 people were killed or severely injured along Temple Street from Beverly to Beaudry. I did the same analysis using the data from TIMS (TIMS, UC Berkeley & SWITRS, 2008-2019), and it turned out that traffic violence killed five people and 39 were severely injured in the same segment. Four out of the five deaths were pedestrians, and the other one was a cyclist, thereby, nonfatalities reported of people in a motorized vehicle. From the 39 collisions that resulted in a severe injury or fatality, only four were not in an intersection. The intersection with more crashes of this type is Beaudry Ave with

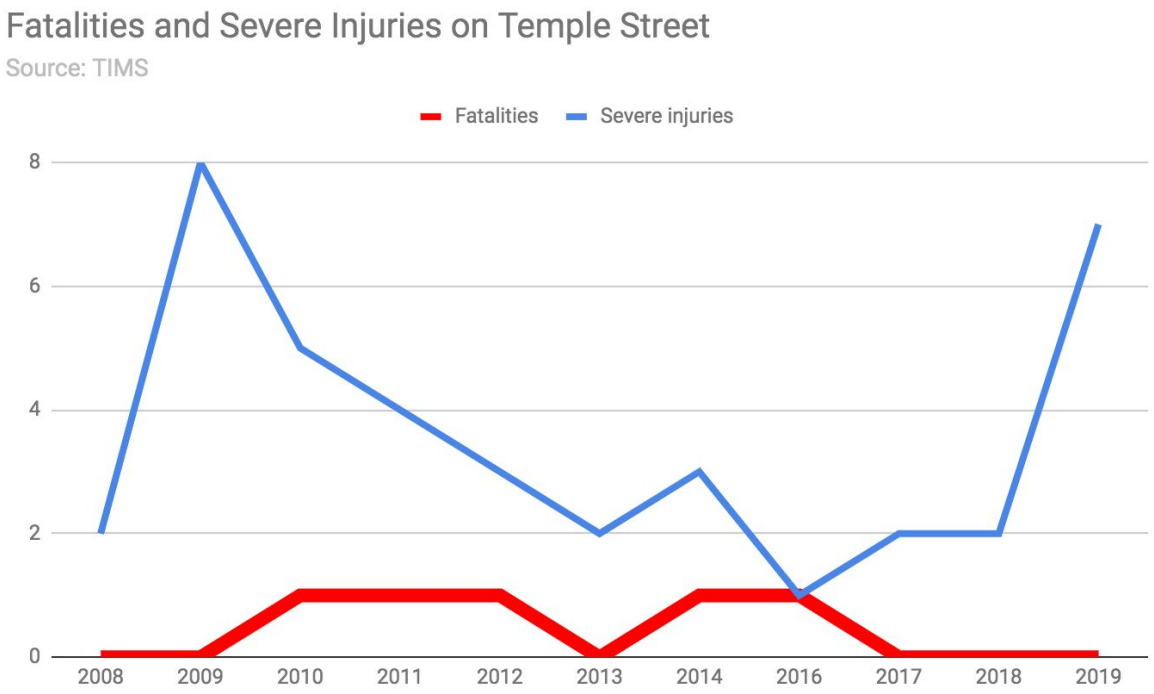
eight, followed by North Occidental Blvd. and Patton St. with three collisions of the mentioned type.

Figure 23. Temple St. Fatal and Severe Crashes

Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)
The green points represent all fatal and severe crashes in the study area and the red points are those on the studied segment of Temple Street

Below, I present a graph with all the fatalities and severe injuries on the studied segment of Temple Street from 2008 to 2019. Since the year 2017, nobody has died, but in 2019 the severe injuries skyrocketed from one in 2018 to seven in 2019.

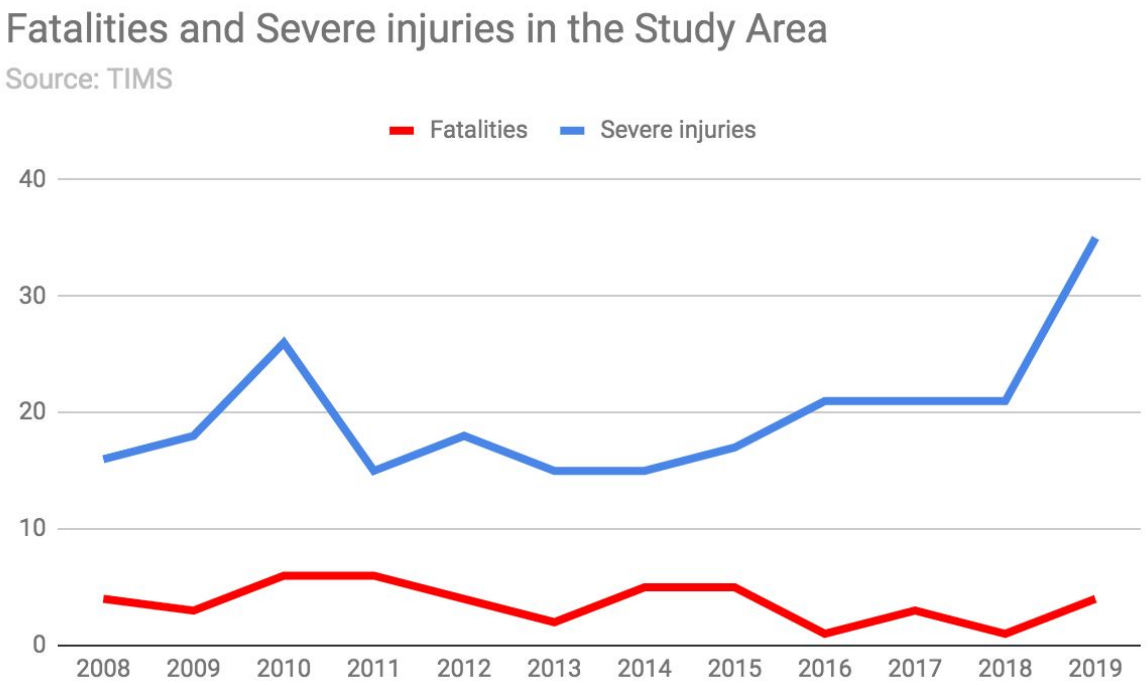
Figure 24. Fatalities and Severe injuries on Temple Street



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Regarding the study area, 44 people died between 2008 and 2019; 29 were pedestrians, one cyclist, four motorcyclists, and the rest ten inside a motorized vehicle. Also, there were 238 severe injuries. Above, I present the historical cases of fatalities and severe injuries in the study area. It concerns that in 2019 the severe injuries raised in more than ten figures since 2018. Also, there is not a single year without a fatality.

Figure 25. Fatalities and Severe injuries on Study Area



Source: (TIMS, UC Berkeley, & SWITRS, 2008-2018)

Now, let me quote LADOT (n.d.-g): “LADOT and the Bureau of Engineering have partnered on Temple St. to reconstruct failed portions of street and sidewalk and make critical safety improvements, such as improving signals and crossings to prevent deaths and severe injuries.”

This current project (LADOT, n.d.-g) includes 11 bus stops relocations, 64 crosswalk-continental, three crosswalk ladder, 59 intersection tightening, two speed feedback signs, one speed table, one traffic signal-conventional, and five traffic signal protected left-turn. All of these improvements are already installed, except two bus relocation, two intersection tightening, and one crosswalk continental. All this information is accessible and friendly to consult in the webpage Livable Streets of LADOT. Nevertheless, another document by LADOT contemplates one more speed table in the street. These are a total of two speed tables that LADOT already installed in early 2020. Also, by 2022 LADOT (n.d.-g) is going to introduce two new traffic signals, a protected left turn, and two crosswalks with flashing beacons. The diagram above summarizes the installation of the improvements and the exact location.

Figure 26. Temple Streets Improvements by LADOT

Source: (LADOT, n.d-j)

There is another project recently implemented in the ramp that connects Silver Lake Blvd. with Temple Street. Here, LADOT installed bollards and painted a reduced lane to slow down drivers and give more space to pedestrians while crossing this intersection.

In sum, it is too soon to evaluate the effectiveness of the improvements on Temple Street. All of these improvements are new. Some of them were installed a few months before the writing of this project. Therefore, it would be necessary to use the same methodology and compare the following years, although all these improvements have proven to save lives (NACTO, 2016; Speck, 2018; WRI, 2015; Smart Growth America, 2019; ITDP, 2018). Probably, it is not enough to reach zero fatalities and severe injuries. There is still not a safe space for cyclists in the street and not enough traffic calming devices. The speed limit on Temple is 35 MPH, but people usually drive faster (Álvarez, 2020, August 15). The most effective way to reduce this speed would be to force motorists to slow down with the right infrastructure. In the following section, I am going to analyze the story of the advocacy and political changes on Temple Street. Then, I am going to make a critic of the current proposal and make a new one.

Story of Advocacy and Political Challenges

The Activists

In September 2011, a motorist hit three sisters on Temple St. Sarai and her sisters were walking to Plasencia Elementary School, as they approached the curb, a 2000 Toyota hit them all, resulting in severe injuries for the three girls (Public Matters, n.d.-b). Then, in 2016, 26-year-old Tomas Brewer was riding his bike on Temple St. Suddenly, a drunk 22-year-old driver collided with a parked car, then spun around hitting Brewer, before crashing into a tree. Tomas was an avid skateboarder and a scriptwriter (Bikingin LA, 2016, April 15). Those dreams are overdue to a drunk driver. But primarily due to a street that does not protect him as a cyclist. These are just two of the more than 30 terrible stories that changed the lives of peoples and families in the last eleven years on Temple St.

Fortunately, people are fighting for a safer Temple St. Advocates, whose goal is to stop traffic violence in LA. There are several organizations involved in this story. Padres en Acción is a group of mothers in the area demanding road safety improvements on Temple Street for their kids, especially around the schools. Then we have LA Walks, Public Matters, Gabba Gallery, and the Pilipino Workers Center of Southern California. They organized road-safety cultural activations on Temple Street for one week in June 2017. This artistic way to raise awareness in the Street was called Slow Jams.

The story of Slow Jams on Temple St. started in the fall of 2016 when LADOT contracted Community Arts Resources (CARS) to carry out the Vision Zero Community-based Outreach around LA. Temple was one of the corridors selected for this task. Then, CARS contacted the organizations mentioned above to work together and make some road safety advocacy on Temple Street. These organizations came with the idea of the mentioned Slow Jams activations.

The goals of the Slow Jams were (Public Matters, n.d.-b):
1) Engage in local conversations and collect data on traffic safety conditions on Temple
2) Increase advocacy around safe streets
3) build awareness about forthcoming safety improvements from the City of Los Angeles' Department of Transportation and the Bureau of Engineering.

The Temple Slow Jams events took place from June 19 – 24, along a two-mile stretch of Temple St, between Beverly Blvd and Beaudry Avenue. These events featured a diverse range of art installations, Jeepney rides along the corridor, crosswalk choreography, community input tabling, merchandise distribution, and the creation of a mural inspired by the Vision Zero project. People were holding huge artistic signs with some messages such as "Temple St. is not the Little 101", "SLOW," "SUAVECITO," "DAHAN DAHAN." Other people used yellow parasols to protect pedestrians artistically. Also, artists painted murals with the legend "Slow Down," "Life is

not a race," among other road safety messages. The events reached 585 people, gave away 500 flashy lights, 170 all-weather umbrellas, 150 paper umbrellas, and more than 50 people made road safety comments on a giant butcher paper (CARS, 2017).

In the context of these events, Alissa Walker, a pedestrian advocate and resident of Temple St. stated: "Vision Zero is like a gun buyback program for LA's streets. It's a quick and effective strategy for taking the deadly weapon – the speeding car – away from people who are most at risk." (CARS, 2017)

Some concerns of the people organizing the Slow Jams were that the team felt they needed a lot more time for community engagement and relationship building, mainly when introducing a new concept and City initiative. Additional challenges include the lack of communication and coordination between City agencies, elected officials, and neighborhood councils, as well as conflicting messages around issues such as asking for permits (CARS, 2017).

Numbers collected by a professional survey company subcontracted by CARS (2017) show that 76% of respondents selected a rating of 8 or higher on a scale from 1 to 10 to express the importance of traffic safety campaigns like Vision Zero, within the Historic Filipinotown neighborhood. Similarly, on the same scale, respondents show the highest support for the need to slow down vehicle speeds in the Historic Filipinotown neighborhood, with 71% respondents selecting a rating of 8 or higher. Additionally, 76% support the idea of removing a lane of traffic in both directions to create a dedicated turn lane so cars could move more predictably and travel at slower speeds.

Figure 27. Slow Jams interventions

Source: Public Matters (n.d.-a)

More recently, in November 2018, parents at Camino Nuevo and VISTA Charter organized and hosted an Open House. Here LADOT discusses and develops strategies to make Temple St safer (Samaro, 2019, December 12). Then, on December 12th, 2019, Padres en Acción held another open house with LADOT to keep the discussion going. According to Padres en Acción, these open houses help to build capabilities among the community and, at the same time, give feedback to the authorities.

The Original Plan

There was an original official plan for Temple Street back in 2017-2018. This project was supposed to reconfigure driving lanes and add bike lanes on Temple St. Unfortunately, car-oriented anti-road diets neighbors in LA started to react, and backlash road improvements all around the City, and Temple St. was not the exception.

Anyhow, the original plan contemplated a road diet that would have shaved the number of lanes for cars from four to two. These improvements would be reduced to one lane for vehicles in each direction with a two-way center turn lane and one bike lane on either side of the street. I did not find any document from the government that guarantees that this was the original plan. Nevertheless, I found this image in an article from Curbed LA (Tinoco, 2018, March 22) that has LADOT's logo, and one can assume that this was the original plan before the backlash. It looks that the authorities erased this plan from their website and uploaded a more conservative one.

Figure 28. Temple Street road diet original plan

Source: (Tinoco, 2018, March 22)

This original plan tackles the speed of cars by reorganizing the street with less space for motorized vehicles. That factor alone makes it safer for pedestrians and cyclists (Bliss, 2019a, June 3). The class two bikeway would bring a safer road for cyclists; now, it is hazardous and stressful to bike on Temple Street.

The Backlash

The Anti-road-diets Car-oriented Angelenos

One would like to think that every single Angeleno will value more policies that save lives instead of the convenience of the car-oriented status quo. There is evidence that well-designed bikeways and pedestrian infrastructure would bring the City of Los Angeles closer to achieving Vision Zero's goal. There is no question about it, and many prestigious organizations support this idea (NACTO, 2016; Speck, 2018; WRI, 2015; Smart Growth America, 2019; ITDP, 2018). However, some Angelenos oppose these kinds of projects in the name of the car-oriented built environment. This opposition comes typically from localized groups that are not willing to assume small changes in their neighborhood for the benefit of the whole City. Also, these groups protest against road diets in other parts of LA, even if they do not live there, simply because they don't want to see less space for cars in the streets where they drive.

Keep LA Moving (KLAM), is arguably the primary opponent of road diets. They are an organization of car-drivers that do not want to negotiate any inch that pedestrian and bicycle projects could take away from car space in the street. Keep LA Moving has stopped many active transportation plans in the past, their modus operandi is to strike terror among the residents about the new road safety projects and then force Council Members to stop the plans or even dismantle the improvements already installed in the streets.

For instance, in 2017, KLAM threatened to recall Council District Mike Bonin for his traffic safety initiative in Playa del Rey, where the authorities ceded and removed the improvements. Another project backlashed in Bonin's district was the Vista del Mar road diet that provided access to the beach. The City of LA received two lawsuits, and the authorities restored the lanes. Finally, Mike Bonin published a video apologizing to his constituencies and announced the restoration of the lanes for cars (Mike Bonin, July 26, 2017).

Lastly, also in Bonin's District, the project enhancements on Venice Boulevard are at stake. The authorities could remove a protected bikeway and pedestrian improvements. A movement called "Restore Venice Blvd" was making flyers and propaganda videos claiming that: "The City sold a one-year 'pilot project' to the community to beautify Venice Blvd. and increase customers for local businesses. Instead, they stole lanes from motorists to make Venice Blvd. 'safer' - when there hasn't been a pedestrian or cyclist death here since 2008" (Restore Venice Blvd., n.d.).

Unfortunately, they did not date their publication. Still, I double-checked, and traffic violence killed a pedestrian in Venice Blvd and Electric Ave in 2017 (TIMS, UC Berkeley, & SWITRS, 2007). Finally, they go by the slogan: "WE DON'T WANT A 'GREAT STREET' - WE WANT A SMART STREET!". As a reference to the Great Streets program of the City of LA.

KLAM works with "Keep the US Moving," a national organization that believes that "Speeding Most Likely isn't The Problem" of road safety, the real problem according to them, are distracted drivers and jaywalkers (Keep the US Moving, n.d.). They also state that "Road Diets can have serious unintended consequences" like more crashes, economic losses for local businesses, and block access to emergency vehicles (Keep the US Moving, n.d.). All these arguments go against the complete streets and road diet literature written by prestigious organizations like Smart Growth America (2019) and the National Association of City Transportation Officials (NACTO) (2016). These organizations have proven and justified the positive impacts of pedestrian and cyclist road safety interventions. It is vital to notice that on the webpage of NACTO, one can find the names, bios, and pictures of the staff, which is around 30 people. On the other hand, on the webpage of KLAM, one cannot find any name or person responsible for the organization. It took me some research to find out that they have a youtube channel, and in one of the videos, there is a representative called Chris LeGras, but I did not find more information about him.

The Backlash on Temple Street

After the anti-road diet residents almost recalled Councilmember Mike Bonin and sued the City, other Council Members have been more conservative with road safety improvements. In the case of Temple Street, a spokesperson for Mitch O'Farrell, one of the two Los Angeles City Council Members who represent this area, says that O'Farrell wouldn't support the road diet "unless there is significant, widespread outreach and support from immediate residents and businesses." (Tinoco, 2018, March 22). That is a real disappointment, especially taking into account that Mitch O'Ferrell is known for his love for cycling and as a climate change fighter. Gil Cedillo, the other councilmember of the area, has asked city staffers not to roll out road diets, traffic lane removals, and lane reconfigurations in his district unless he approves them himself (Rosenberg, 2012, October 25).

Unfortunately, authorities backed away from road diets due to the interference from Keep L.A. Moving. KLAM sent Karla Medelsohn to speak at the Rampart Village Neighborhood Council's forum on the Temple Street project (Linton, 2018, September 26). Additionally, Rachael Luckey, a Rampart Village Neighborhood Council board member, opposed the project saying the following statement: "I hate to use the words 'acceptable loss,' but we do live in a metropolitan city, and it's a dangerous world we live in," she says. "As far as Temple Street is concerned, I don't know that it is a crisis per-se. If we were seeing 20, 30, 50 people run over, I would be a lot more alarmed." (Tinoco, 2018, March 22). She was concerned about the increase of estimated travel times on Temple by a few minutes, regardless if someone dies or suffers serious injuries.

As Joe Linton wrote in an article in Streetsblog LA (Linton, 2018, September 26): “The city’s failure to reconfigure Temple Street is now cited in the international press as an example of L.A.’s failure to address its traffic violence epidemic which kills an Angeleno every 40 hours.”

I want to conclude this section quoting Matlock Grossman (Rylah, 2015, September 16), an eleven-year-old Angelino that stood up in a controversial council meeting discussing a road-diet on Rowena Ave, LA. On September 14, 2015, he claimed:

“Clearly there are motorists out there who are not mature enough to share the road without having the rules painted on the road to show who goes where. The road diet, by design, is meant to slow down cars because – motorists are the problem.

Even if there are zero bicyclists taking advantage of the bike lanes, it doesn't matter. The road diet effectively reduces collisions and the statistics prove this.

Stop bullying and victim-blaming the pedestrians and bicyclists as being the problem.

If motorists acted towards women or another group of people, the way you act towards cyclists, people would be horrified by your hateful words and violent actions.

I don't understand why driving a car makes you think you're more important than someone else. You're not.

It's whiny entitled behavior you wouldn't tolerate from a kid, why should I tolerate it from adults?”

Space for a Complete Street

The speed limit is 55 mph on the Hollywood Freeway (101). On the other hand, the limit on Temple Street is 35 mph. Both roads have only one block of distance, and drivers treat Temple Street as an alternative or as an extension of the 101. That is one of the main reasons motorists don’t follow the speed limit on Temple Street. The other reason is that Temple, as most roads in LA, was designed to maximize the flow of cars, instead of giving priority to other alternatives of transportation. Even though the speed limit is 35 mph, the street design gives all incentives to “step on the gas” and drive faster than the threshold. The improvements that LADOT has planned and implemented are not enough to reduce the speed of cars on Temple Street. Below, I present an infrastructure proposal that would force motorist vehicles to slow down on Temple Street. Also, this proposal will give a safe space for each user of the street.

Previously, in the transportation analysis section of this document, I criticized the current characteristics and the planned improvements by the LADOT on Temple Street. According to Smart Growth America and the National, Complete Streets Coalition: “complete streets are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the

street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations" (Smart Growth America, n.d.).

That said, the lack of reconfiguration of the lanes on Temple street, the decision to stop building a bikeway, the scarcity of bus shelters, and the shortage of traffic calming devices are the main reasons why Temple Street is not a complete street. Even with the planned improvements that LADOT will implement soon. I feel sorry to say this, but Temple Street does not honor the name "Complete Streets Program" by Mayor Eric Garcetti. These are nine million dollars from the people's budget that didn't materialize into the original noble idea of a safer street (LA Mayor, 2018, June 23).

For my proposal, I am basing my recommendations following the best practices of prestigious organizations and authorities. These are the National Association of City Officials (NACTO), the Federal Highway Administration Research and Technology (FHWA), Smart Growth America, the Institute for Transportation and Development Policy, the World Resources Institute, and the LADOT itself.

A Road Diet

A road diet is a powerful tool to build a complete street. "Road Diets have the potential to improve safety, convenience, and quality of life for all road users. Road Diets can be relatively low cost if planned in conjunction with reconstruction or simple overlay projects since applying Road Diets consists primarily of restriping" (FHWA, 2016, June 29). The FHWA (2016, June 29) defines a road diet as "conversion of four-lane undivided roads into three lanes (two through lanes and a center turn lane). The fourth lane may be converted to bicycle lanes, sidewalks, and/or on-street parking. In other words, existing space is reallocated; the overall area remains the same".

A study published by the journal Case Studies on Transport Policy proves that road diet benefits overwhelmingly exceed the costs. The authors found that the potential of saving lives does not compare with the small amount of travel time increased (Noland, Gao, Gozales, Brown, 2015). It is essential to mention that in some cases, the travel time does not increase. This increment will depend if the street has an Average Daily Traffic (ADT) above 20,000 vehicles (FHWA, 2016, June 29). For instance, in the case of Temple Street, the ADT is around 20,921 vehicles over Silver Lake Ave. (Tallahassee Bridge Inspections, 2006). In the original plan, LADOT calculated that a road diet on Temple Street could reduce time travel by zero up to 90 seconds (Tinoco, 2018, March 22) according to the segment of the Street; this sums four minutes in total from Beverly to Beaudry. In a few words, four minutes is nothing compared with the number of lives that we can save. LADOT predicts that a road diet on Temple St. will reduce collisions by 89% (Tinoco, 2018, March 22).

Besides, the City of LA Green New Deal (LA Mayor, 2019) has the goal to Reduce Vehicle Miles Traveled (VMT) per capita by at least 13% by 2025, 39% by 2035, and 45% by 2050. Hopefully,

this will lead to fewer vehicles in the streets, which means that road diets will not hurt travel times. Just as the famous metaphor used by many transportation planners, increasing lanes to ease traffic is like buying bigger pants to lose weight. We need a diet.

An example of a successful road diet in Los Angeles is Rowena Ave. This street has a similar road capacity as Temple Street. Rowena used to have four lanes for moving vehicles, and now it has three with an unprotected bikeway class 2 on each side of the street. According to data by the California Highway Patrol, pedestrians and bicycle collisions declined after this road diet. Also, between 2013 and 2015, there were zero crashes involving unsafe speeds (van Dyke, 2016, September 29). What's more, average speed dropped from 39 mph to 35 mph with no effect on overall traffic volume (van Dyke, 2016, September 29).

Street Segment Reconfiguration

Below, I present two proposals to reconfigure Temple Street. The Conservative one is the politically feasible option, and the Alternative one is what I think is the ideal improvement to protect all users of the streets. A car-oriented city like Los Angeles maybe is not prepared for the Alternative proposal, that's why I am making some concessions in the Conservative plan. Below I explain each project.

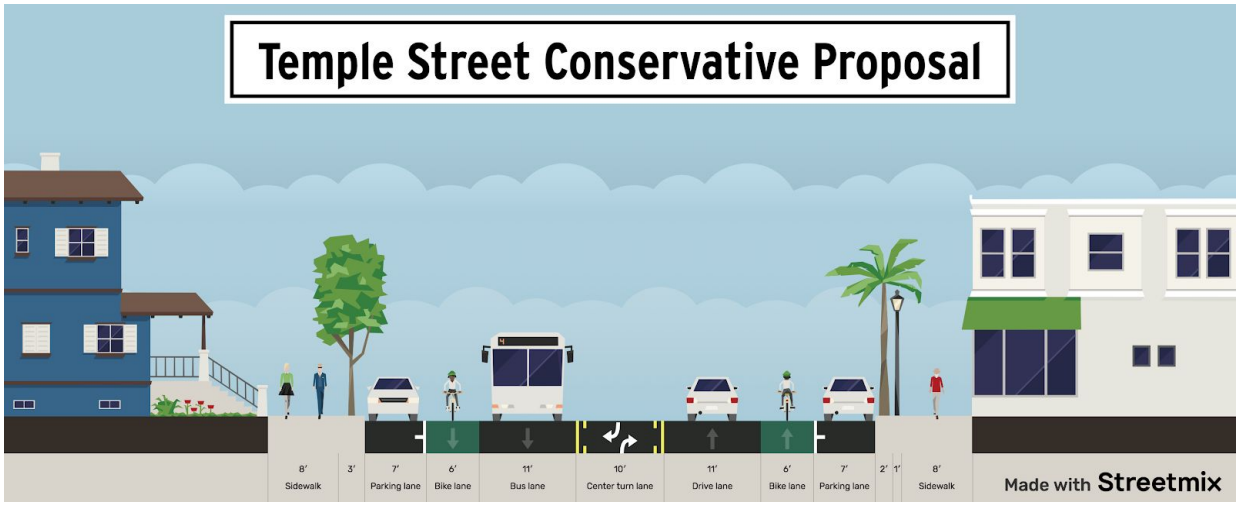
Figure 29. Conservative and alternative proposal for Temple St.

Source: Designs by Jorge Cáñez, May 2020, using Streetmix

This segment in the images is an example about how the reconfiguration would look in the intersection on Rampart Blvd. and Temple St. Which is very similar to all the legs from Beverly to Beaudry, the whole study area. Tempe Street, today, width around 82 feet, taking into account sidewalks. Then, the roadbed width is about 58 feet; this is the sum of two parking lanes of 7 feet and four travel lanes of 11 feet, two eastbound and two westbound. In a few words, as I already stated, Temple St. today is far for being a complete street. For this reason, I propose the following two reconfigurations. Let's start with the conservative one.

Conservative Proposal

Figure 30. Conservative proposal for Temple St.



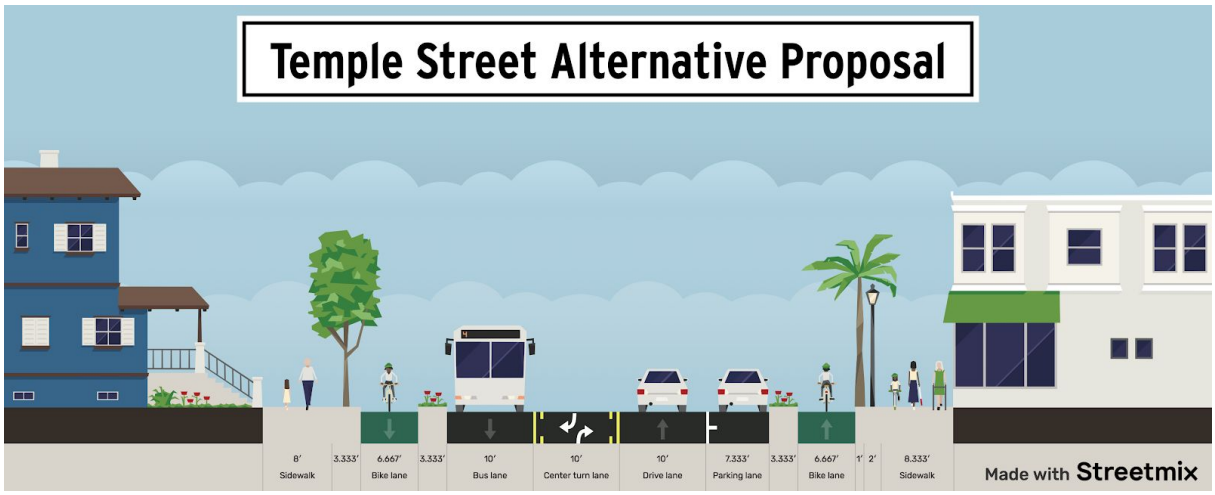
Source: Designs by Jorge Cáñez, May 2020, using Streetmix

- **Sidewalks:** Sidewalks: NACTO (2016) recommends eight feet without any obstacles on sidewalks. This way, the sidewalk is accessible for people in wheelchairs and any other type of pedestrian. Also, there is space to add more trees and pedestrian-oriented lighting. Thereby, pedestrians can see if there is an obstacle in the sidewalk and avoid injuries from a trip over (FHWA, 2012). Also, lighting up sidewalks is a great way to prevent crime in the streets (FHWA, 2012). On top of that, trees protect pedestrians from the roadway and, at the same time, slow down the motorists (MacDonald, 2007). Bus shelters, despite them not being in the image for technical issues, are highly recommended as long as one makes sure to leave 8 feet of clear walking paths. If there is no space for a bus shelter, make sure to give at least shade, wayfinding information, and a place to sit.
- **Parking lanes:** Here, I propose to maintain both parking lanes with the same original width, which is 7 feet. Although free parking is not a right, to take away parking lanes is a huge issue in a car-oriented city, residents and visitors would protest, and we want them on our side. That is why I propose to give this concession in the conservative proposal.

- **Bikeways:** A 6 feet class 2 bike lane on each direction is the NACTO recommendation width in this case. Class two bike lanes are not the safest alternative to cyclists, but at least now they have a designated space, and the stripping of this bike infrastructure helps pedestrians and motorists to be safer crossing the street (Bliss, 2019a, June 3; Taylor-Gratzer, 2016).
- **Travel lanes:** I'm taking away one of the driving lanes, and I leave two of them, one in each direction. I'm leaving the original size of 11 feet due to the public transit buses.
- **Center turn lane:** the center turn lane already exists on some parts of Today's Temple Street, but I am proposing to keep this lane along the whole corridor. Also, I recommend reducing the size of the turn lane to 10 feet to give more space for the bikeways and reduce the speed of drivers (Dewan, PTOE & Eng, 2015; Schmitt, 2015). A turn lane makes efficient use of a limited roadway area (FHWA, 2014, November 24). Here is essential to mention that in some cases, where there are conflicts between car drivers turning and people walking, LADOT (n.d.-g) recommends protected turn lanes, which have a dedicated left-turn signal (also known as left-turn arrow). At the same time, pedestrians and opposite traffic are stopped. This way, every user in the street is more protected by having their signal phase. LADOT already installed on Temple Street some protected turn lanes, as mentioned in the section "Transportation Analysis" of this document.

All in all, this Conservative proposal is very similar to the original plan that LADOT held back. This proposal would save a lot of lives and reduce collisions that can be reduced by 89%, and these improvements can prevent two people per year from being seriously injured or killed (Tinoco, 2018, March 22). Nevertheless, this is not enough; the ultimate goal is zero severe injuries and deaths; this is why below, I am proposing a safer alternative to win the pedestrian battle of Los Angeles.

Figure 31. Alternative proposal for Temple St.



Source: Designs by Jorge Cáñez, May 2020, using Streetmix

- **Sidewalks:** remain the same as the Conservative proposal. Nevertheless, here I would like to stress that there is a need to maintain the sidewalks and review all ADA ramps along the corridor until one person in a wheelchair can move from Beverly to Beaudry without any issue.
- **Bikeways:** Protected bikeways (class 4) are the best way to guarantee cyclist's safety (Bliss, 2019a, June 3; Taylor-Gratzer, 2016). In this proposal, I am giving 6.6 feet to cyclists in each direction, instead of just 6. More space leads to social cycling, one next to the other one, and also facilitates passing each other. The color green gives the cyclist a feeling of ownership and minimizes confusion with other standard traffic control markings (NACTO, n.d.-b). Also, people can use these cycle-tracks riding skateboards and micro-mobility devices like scooters. Then, there is a buffer between the cycle track and the rest of the roadbed (the width of the buffer is 3.3 feet). This recommendation prevents the invasion of motorists and dooring crashes (NACTO, 2016l).
- **Parking lanes:** in this case, I removed one out of the two parking lanes. That could be controversial with the residents, businesses, and visitors. Nevertheless, I propose parking meters to manage the shortage of on-street parking spaces, and it could also be a parking benefit district. That means that authorities will invest all the profit from the parking meters on improving the public space of the area (Shoup, 2018). Also, I augmented the size of the parking lane from 7 to 7.3 feet to maintain the symmetry of the whole street.
- **Travel lanes:** Here, I also took away one out of the four drive lanes, but this time I am reducing the size to 10 feet. This decision may be a conflict for large size vehicles like the buses in the corridor. Fortunately, 10 feet is the minimum recommendation for buses.

The reason why I am taking more space from the drive lanes is to give more space to cyclists and, at the same time, reduce the speed of the motorists (NACTO, 2016), which will be safer for every user of the street. Also, one can solve the bus stops between the protected bikeway and the sidewalk with bus bulbs, which provides an extension of the curb, raising the bikeway and making cyclists slow down. At the same time, pedestrians can get on the bus at the sidewalk level (NACTO, 2016).

- **Center turn lane:** remain the same as the Conservative proposal.

Despite the political problems that the alternative proposal could have, it would save more lives than the conservative plan. The hope remains on building more capabilities in the communities and sensitizing public opinion and political leaders about the need for these kinds of proposals. Step by step, more residents could support these alternatives, and more and more streets in LA could look like this alternative proposal.

Safe Intersections

Intersections are places of convergence, decision-making, and where multiple movements occur at once, meaning that they are settings prone to conflict. Their design plays a critical role in providing clarity to its users and safety (NACTO, 2016). Currently, the intersections along Temple St. favor the circulation of private motorized vehicles, while pedestrians, cyclists, and public transportation are most affected in waiting times and road safety conditions.

The Current Plan for Intersections

Currently, LADOT has done and keeps working on improvements to make safer intersections on Temple Street. In the Road Safety section above, I presented the infrastructure plans for Temple Street by LADOT. Additionally, in the LADOT webpage, ladotlivablestreets.org, one can find all the installed and planned infrastructure to make safer intersections. These are the improvements: 11 bus stops relocations, 64 continental crosswalks, 3 ladder crosswalks, 59 intersection tightening, two speed feedback sign, one speed tables (though there are already four installed), 1 conventional traffic signal (though there are two proposed in another official plan), and 5 protected left turn traffic signal (though there are seven in the other original plan).

In terms of transparency, I think that LADOT is doing a great job having all the information online of Temple Street at the Livable Streets webpage. This information is very accessible, and it comes with maps, images, and videos explaining the improvements. On the other hand, there is a contradiction between two official plans, or simply the webpage needs to be updated.

In terms of road safety, as I have stated through all this section, these improvements are not enough. What's more, an urban planner expert on pedestrian policies told me in an interview with an ironic tone, "which improvements?" (Anonymous, personal communication, 2019, December 18). One cannot deny that these efforts by LADOT are going to save lives. Nevertheless, it is not enough to guarantee a completely safe environment in the street towards

zero deaths and zero serious injuries. In the next section, I am going to propose how I think the intersections on Temple Street, from Beverly to Beaudry, could better tackle Vision Zero's goal.

A Proposal for Safer Intersections

To make safer intersections on Temple Street, and complement the LADOT plans, I will base my proposals on the Global Street Design Guide (NACTO, 2016), and the LADOT itself (LADOT, n.d.-g; City of LA, 2016a). First of all, I am going to describe each kind of infrastructure improvement that I will propose for Temple St. Then I will make the list of all the intersections and the enhancements that I recommend.

As a disclaimer, I am not mentioning the painting of the crosswalks; I am just going to state that these are unquestionable in every intersection, and yellow stripes near a school. Also, the lane narrowing mentioned in the section above about the street diet is fundamental for safe crossings, because motorists slow down all along the corridor thanks to the narrower lanes (Dewan., PTOE & Eng, 2015; Schmitt, 2015). Finally, I expect that every signal maintains a pedestrian leading interval, which gives priority to pedestrians and makes them more visible.

- **Raised crossings:** this is a pedestrian crosswalk at the level of the sidewalk; this is especially convenient for people with disabilities and people with strollers. At the same time, a raised crossing is a calming traffic device that lowers the speed of motorized vehicles minimizing the crashes. Research proves 30% reduction in all collisions, 36% reduction in fatal and injury collisions across all modes of intersection (City of LA, 2015b).

Figure 32. Raised Crossing

Source: (NACTO, 2016)

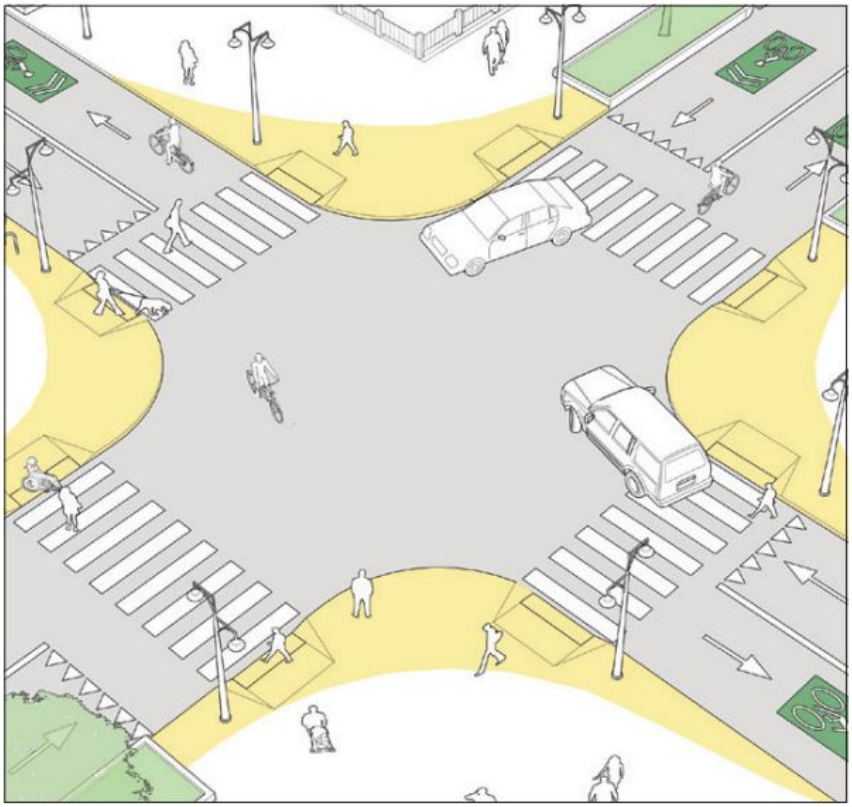
- **Traffic calming crossings:** this is a crosswalk in the middle of traffic calming devices such as a speed hump (NACTO, 2016).

Figure 33. Traffic calming crossings

Source: (NACTO, 2016)

- **Corner Alignments:** there are extensions of the sidewalks to align uneven corners and give more space to pedestrians with the tightest radius possible. This improvement increases visibility between users of the street and reduces crossing distances (NACTO, 2016).

Figure 34. Corner alignments



Source: (NACTO, 2016)

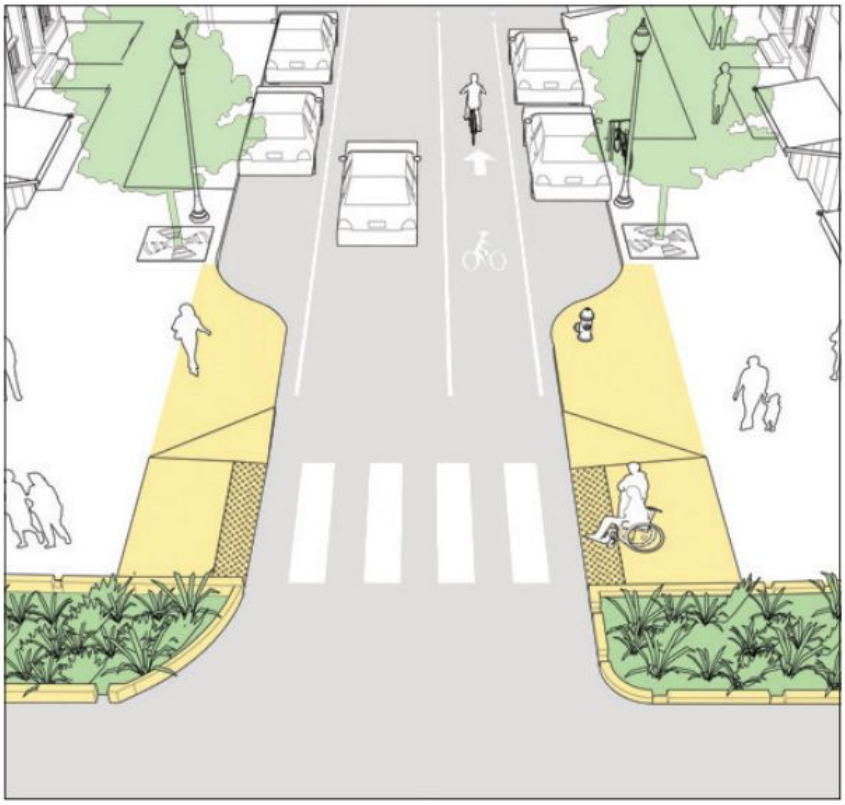
- **Slip lane removal:** Slip lanes allow vehicles to turn at higher speeds and reduce motorist and pedestrian visibility, creating potentially unsafe conditions for pedestrians. The removal of slip lanes avoids mentioned conflicts and extends more space for pedestrians (NACTO, 2016).

Figure 35. Slip lane removal

Source: (NACTO, 2016)

- **Bulb-outs:** Bulb-outs are extensions of the sidewalk into the parking lane. These should be installed whenever on-street parking is present to increase visibility, reduce the crossing distance, provide extra waiting space, and allow for seating or landscaping (NACTO, 2016). Research shows decreases in pedestrian crossing delay and increases in drivers yielding to pedestrians (City of LA, 2016a).

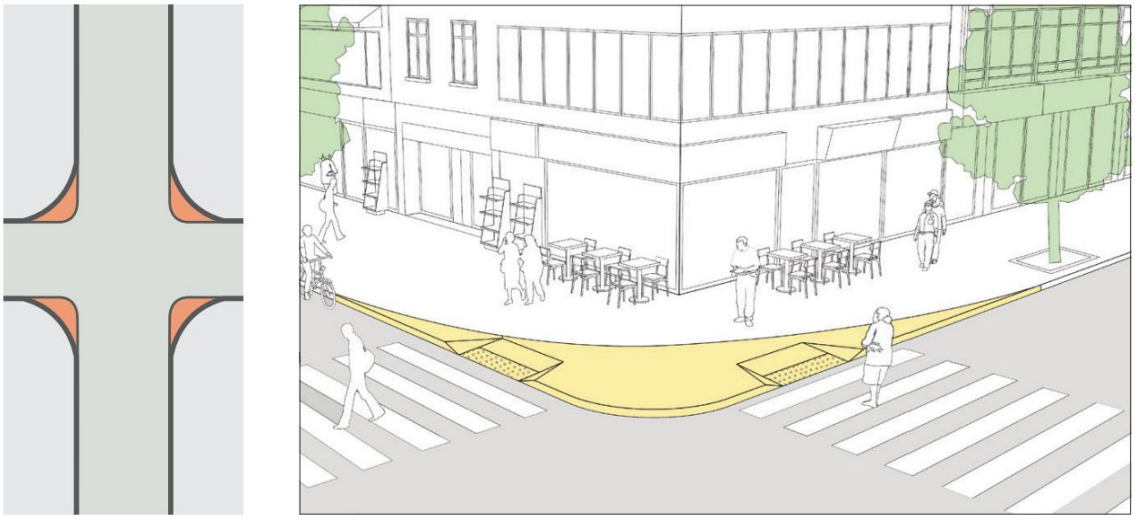
Figure 36. Bulb-outs



Source: (NACTO, 2016)

- **Corner Radii** (also known as intersection tightening): Narrowing corner radii reduce vehicle turning speeds as well as pedestrian crossing distances. Minimizing the size of a corner radius is critical to creating safe and compact intersections (NACTO, 2016).

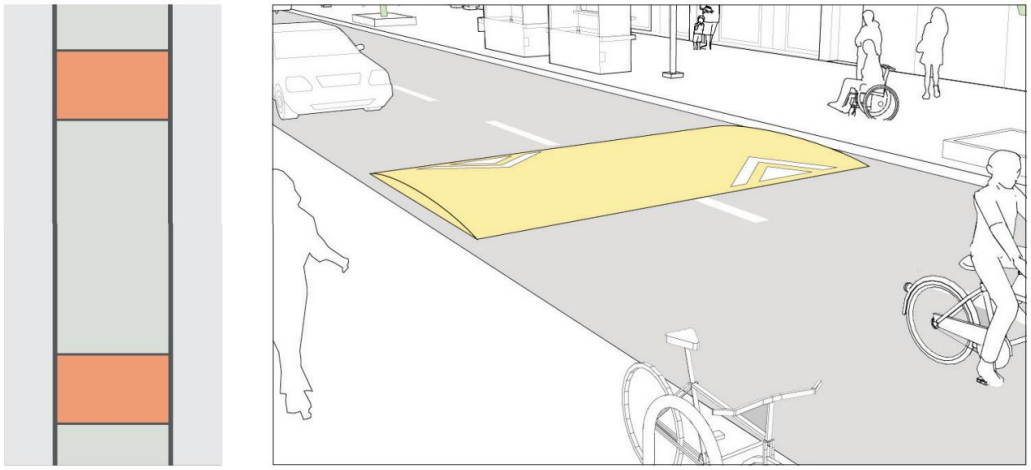
Figure 37. Corner Radii



Source: (NACTO, 2016)

- **Speed humps:** Speed humps are formed by raising sections of the road in a sinusoidal shape. The dimensions can be tailored to match the target speed of the street. They are typically constructed of the same material as the roadway but can be of different materials. Additional research included in the FHWA Crash Modification Factor Clearinghouse demonstrates a decrease of between 40% and 50% in all collision types after speed hump installation (City of LA, 2016a).

Figure 38. Speed humps



Source: (NACTO, 2016)

- **Speed Cushions:** Speed cushions are similar to speed humps, but have wheel cut-out openings to allow large vehicles like buses to pass unaffected while reducing car speeds (NACTO, 2016).

Figure 39. Speed Cushions

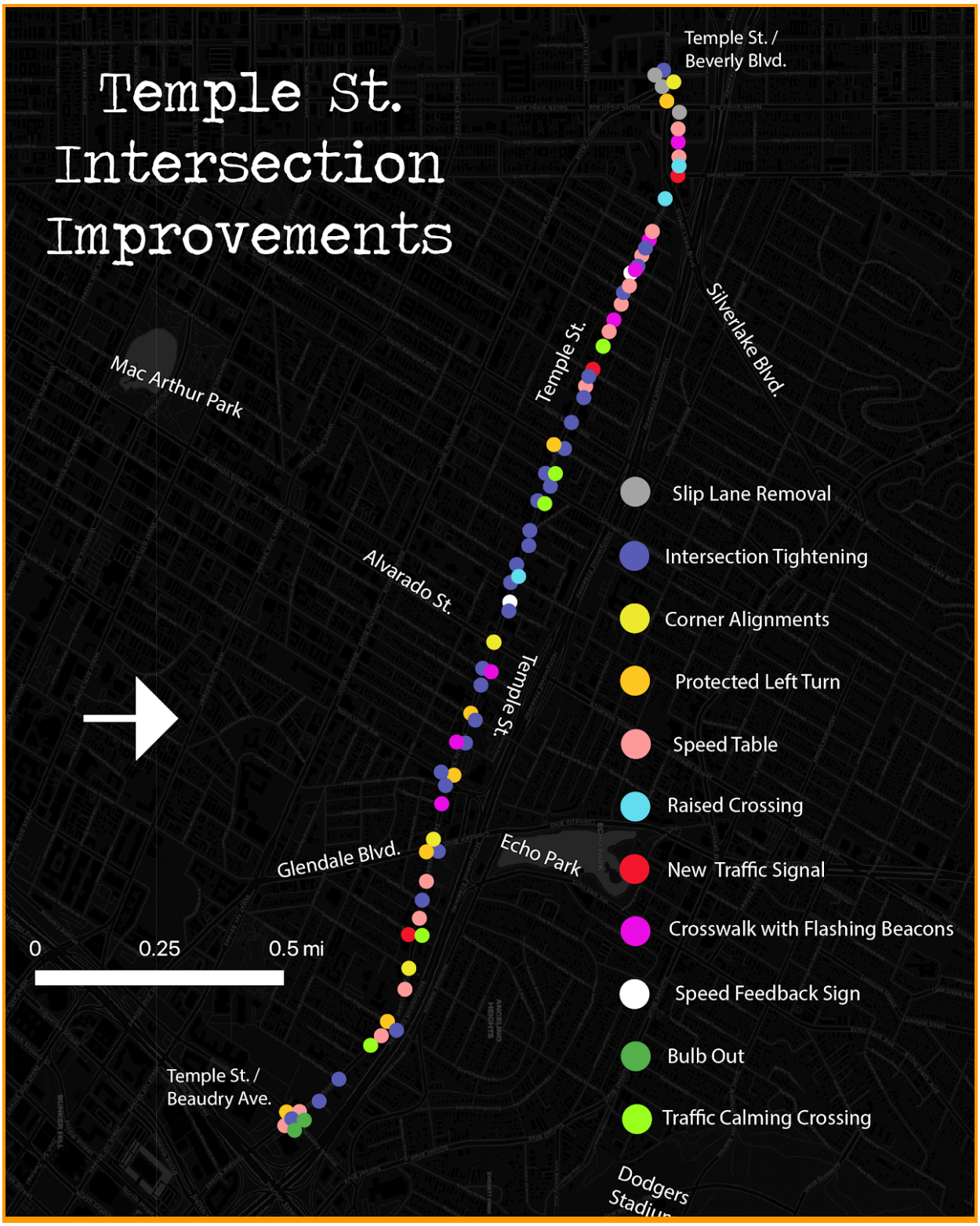
Source: (NACTO, 2016)

- **Accessible Pedestrian Intersections:** All intersections must meet the requirements of the American Disability Act (ADA). These guidelines require accessibility ramps, audible and tactile cues, among other possible requirements according to the type of intersection (NACTO, 2016).

To make the new proposal, I analyzed the collisions that resulted in severe injuries and fatalities for every user of the street from 2008 to 2019 (TIMS, UC Berkeley, & SWITRS, 2008-2018) on Temple Street. I address every one of these points with an improvement, especially the intersections with more points. These are Temple and Rampart with three, Temple and Patton with three, Temple and Laveta with two, Temple and Edgeware with two, and by far, the most dangerous intersection is Temple and Beaudry with eight points.

This map locates the proposed and existing amenities for safer intersections from Beverly Blvd. to N Beaudry Ave. This proposal complements the already installed and planned improvements from LADOT.

Figure 40. Existing and proposed improvements on Temple St



Source: Map created by Jorge Cáñez, May 2020
A digital version of the map can be found in this short link bit.ly/templepedestrian

To have a safer Temple Street from Beverly Blvd. to N Beaudry Ave., I am proposing the following infrastructure amenities:

- Three sliplane removals
- Five additional corner alignments
- Five additional crosswalks with flashing beacons
- Ten additional speed tables
- Two raised crossings
- Five calming traffic crossings
- One raised crosswalk with flashing beacons
- One additional protected left turn
- Two additional intersection tightening
- Two bulb outs

All these improvements should materialize into a safer Temple Street with not only fewer pedestrian casualties, but it will be also safer for every user of the street. Below I show two examples of modified images that represent how these improvements would look.

Figure 41. Proposed intersection on Temple St. and Hoover St.

Design by Erika Kulpa & Jorge Cáñez, May 2020
Here I propose a raised crossing, a new signal, and the protected bikeways

Figure 42. Proposed intersection on Temple St. and Beaudry Ave.

Design by Erika Kulpa & Jorge Cáñez, May 2020
Here I propose two speed tables before the intersection, corner alignments with the four corner radii, four slip lane removals, two bulb-outs in the north side, and the protected bikeways

As an additional final recommendation, authorities should extend these kinds of improvements outside of our study area, especially in the section where Temple St. converges into Beverly Blvd. If one continues from Temple into Beverly, it is a matter of three more blocks to make it to the Metro Station Vermont / Beverly. This way, one can guarantee the safety of pedestrians and cyclists getting into the station to make a multimodal trip. Eventually, all these improvements in the streets around Temple could create a safe pedestrian network.

Finally, the process to change the streets of LA needs many allies. Advocates and experts in the field will need to convince politicians. More importantly, it is critical to empower a new generation of constituencies that will fight to make sure that pedestrians, cyclists, and transit riders will have the priority in the configuration of the streets of LA.

VI. Discussion and Policy Recommendations

The street is a common good, which means that it is non-excludable but rivalrous. In other words, nobody owns the street, everyone has the same right to use it, but space is finite. Thus, only a limited number of people can use it at the same time. This rivalry is known as the tragedy of the commons (Ostrom, 1990). In a few words, when everybody looks after their self-interest, they overconsume commons. It is the job of politicians and urban planners to solve these conflicts, especially if people are dying in this tragic story.
After writing this project, I want to conclude with three simple principles to solve the tragedy of the commons in our streets:

1. **Every life matters:** the government has to design the streets to avoid any single severe injury and fatality. The only way to achieve this is by giving priority to the most vulnerable users of the streets following this hierarchy: pedestrians, cyclists, transit, freight, and at the bottom, cars (NACTO, 2013). There is not an acceptable number of fatalities and serious injuries. Road safety must be a relentless fight that will only end until we achieve zero deaths and zero severe injuries in our streets.

2. **Every social cost matters:** whoever produces negative externalities, like pollution and congestion, has to pay for them. We have to align the incentives to minimize the number of people producing negative externalities. For instance, cars may have to start paying for all the space they use in the streets with policies like congestion pricing (Manville & Goldman, 2017) and parking meters (Shoup, 2018). Authorities should use that money to offer a sustainable, affordable, accessible, and safe alternative of transportation, such as better sidewalks, bus lanes, protected bikeways, and so on. It is time to regulate the excessive freedom, and the lavish subsidies society has given to private motorized vehicles. This extreme freedom has deprived essential rights and freedoms of society, such as air quality, public spaces for recreation, high costs of land due to all the space given to cars, and, most importantly, our right to live without the fear of being killed in the streets. This last one is the primary job of a government; to protect the lives of the people.

3. **Every voice matters:** urban planners and politicians must listen to the concerns of every person and group. For this reason, outreach processes are fundamental. One cannot undermine anyone's opinion, from the militant car-oriented NIMBYs to the radical low-income anti-gentrification groups. Nevertheless, it is necessary to balance the voice of all backgrounds. People with resources and time tend to have more power in public decisions. It is time to design participation methods that include low-income and vulnerable groups throughout restorative processes. It is vital to have the representation of historically marginalized people in the decision-making process. An inclusive participation process that builds power and develops capabilities can help to balance

every voice.

Main Takeaways

The Numbers

- The constant increase in pedestrian fatalities and severe injuries are the main reason why LA is not achieving the Vision Zero's goal (TIMS, UC Berkeley, & SWITRS, 2008-2018). Pedestrian infrastructure should, therefore, be the most crucial element of the whole LA's Vision Zero initiative.
- In the City of LA, black people are only 8% of the population, but 20% of all pedestrian fatalities (TIMS, UC Berkeley, & SWITRS, 2008-2018).
- The neighborhoods in the City of LA that have more pedestrian fatalities and severe injuries in descending order are Downtown LA, Westlake, Hollywood, Van Nuys, Koreatown, and Boyle Heights (TIMS, UC Berkeley, & SWITRS, 2008-2018; LA Times, n.d.).
- Walking in a non-white and polluted census tracts increases the probability of being killed or severely injured by a motor vehicle in the City of LA. Meanwhile, median income, vulnerable age, and the number of cars in a household do not have a statistically significant relationship with pedestrians' road safety (CalEnvironScreen 3.0, 2018).
- In descending order, the three council districts with more pedestrian fatalities and severe injuries are eight, nine, and ten. The Council Members are Marqueece Harris Dawson, Curren D. Price Jr., and Herb J. Wesson Jr., respectively (TIMS, UC Berkeley, & SWITRS, 2008-2018).

The Politics

- The main political obstacles to implementing pedestrian road safety infrastructure are the backlash of neighbors and the lack of support by the authorities to organized citizens who demand pedestrian improvements.
- City council members have excessive power over road safety infrastructure. They respond to demands and threats of residents to backlash such projects, even when the City of LA and the LADOT support these improvements. There is a need to balance this power dynamic.
- People with louder voices, usually affluent car-oriented residents, jeopardize council members, who do not listen to the concerns of underserved people. This power dynamic of LA permits small groups of noisy stakeholders to hijack a conversation; they manipulate the narrative to make it seem convenient for everyone. It is vital to give more power to the people that fight for safe streets.
- New rules already approved in California will ease the transition from car-oriented streets to streets for the people. Instead of focusing on moving vehicles based on a Level of

Service (LOS), California will now focus on moving people based on Vehicle Miles Traveled (VMT). This metric is a revolutionary approach to measure the impact of an urban project. Now, cities in California can easily justify the implementation of pedestrian, cyclist, and transit infrastructure.

- The backlash on Temple Street is an excellent example of how difficult it is to overcome the car-oriented culture in LA. Despite the enormous efforts of pedestrian advocates, the authorities did not implement the original plan of a road diet. A politically powerful group against pedestrian and bike improvements convinced the Council Member and the LADOT to stop the project. In chapter five, I presented a pedestrian-oriented proposal for Temple St.
- Speed is the main factor to tackle if we want to save lives in the streets. State legislations like the substitution of the 85th percentile methodology and the legalization of speed cameras are necessary reforms. This legislation should prioritize the harm minimization approach over the maximization of traffic flow.
- The Highway Design Manual by California Department of Transportation (Caltrans) does not work for urban areas. It is necessary to update this manual according to the recommendations by the National Association of City Transportation Officials (NACTO).

The Community

- Organized CBOs in the City of Los Angeles have helped to implement the necessary road safety infrastructure that reduces injuries and fatalities of pedestrians; this is the case of Temple St. Nevertheless, political reasons can restrain these efforts.
- Art is a powerful tool for community-engaged planning. It helps to involve people from all backgrounds, create capabilities among a community, and sensitize public opinion and politicians about road safety issues.
- The fight is not only about a person hit by a car. It is also about a person criminalized in the streets and getting deported. The revindication of historically marginalized groups is a deeper problem where road safety is only one of the consequences. Vision Zero should also be a decolonial and decriminalize policy.

Policy Recommendations

In this final section, I present a proposal of several policies that can help to reach Vision Zero's goal in LA. I will start with the main proposal, which has to be with improvements to the Dignity-Infused Community Engagement (DICE) program of LADOT. Then, I will mention some complementary policies to the State of California regarding speed limits and official manuals to design streets.

How to improve DICE?

After analyzing the political obstacles towards safe streets, I conclude that what is missing in LA is a critical mass of residents that can balance this political conversation to make it more

politically feasible and less costly for the politicians to implement these measures and improvements on the streets. The LADOT's Dignity-Infused Community Engagement (DICE) program is a great idea to start the formation of empowered people fighting for safer streets.

Nevertheless, it is not clear the status of DICE and the plan in the following years. The only sure thing is that the program officially ended in April 2020. It would be necessary to revive and strengthen DICE despite part of the LADOT's team leaving the agency. It is still essential to institutionalize the program regardless of the person in charge, and even with the future conditions post the COVID-19 crisis. Below I present a packet of recommendations to DICE.

First and foremost, DICE should guarantee that the residents are leading the projects and not the government. The role of LADOT should be to provide information and tools to the residents and community-based organizations. The government should also pay for the hours of the residents leading the road safety projects in their communities.

Second, DICE already acknowledges the inclusion of vulnerable groups. Yet, it would be vital to have an action plan about how these vulnerable groups will participate. In LADOT's webpage, there is information about the vulnerable groups that organizers will include, but not about how to include them. Understandably, each community has different needs. Nevertheless, it is essential to prepare an action plan. For instance, how many translators does an event need? Where to find child-care services? How to give transportation services? How much food to provide? How to be prepared if older people and people with disabilities come to the meetings? How to guarantee that multiculturality and low-income residents participate? It is necessary to make a report that lists the needs of vulnerable people and the budget and logistics required to meet these necessities.

Third, more transparency is necessary. Despite the DICE web page's having useful information about the program, there is no information about the events and the outcomes. It is critical to track the activities, the organizations involved, and the progress. This information should be public on the webpage and in printed formats for those residents without internet access. Also, people should be able to continue participating via the Internet, telephone, and accessible formats to follow up on the projects.

Fourth, community meetings are essential, but they should not be the only space of participation. DICE should go to the streets, the markets, the parks, places of worship, and any other corner where the people are. DICE should not expect that people go to the meetings and events, DICE should go to the people.

Fifth, DICE should use art and sports as a way to involve people. This way, people will learn and participate in road safety issues while doing an artistic or sporty activity.

Sixth, communication could be the most potent tool of DICE. LADOT has to develop communication materials with persuasion strategies to convince residents to join the forces of

DICE. Also, LADOT should give residents the opportunities to be creative and make their communication pieces and artistic installations about Vision Zero. This way, members of DICE can learn about the benefits of road safety policies and spread the word with the community. Also, DICE members can use these materials to persuade people that oppose the implementation of bikeways, pedestrian infrastructure, and so on.

Finally, DICE has the potential to be the program that will make the streets of LA safe for once and for all. The Government of LA's budget must give the necessary resources to DICE. Also, DICE institutional design should be prepared to keep working and maintain trust with the communities regardless of the people in charge. These recommendations may guarantee that DICE will have a powerful impact over the years.

As a final thought, democratic mechanisms could be cumbersome to the implementation of pedestrian road safety infrastructure. Still, fortunately, those same democratic mechanisms can help a neighborhood to stop car-oriented projects such as highways in the middle of the city. Thus, changing the democratic arrangements is not the question. It is a matter of balancing power between Council Members, LADOT, and residents. The main political challenge is to empower residents that will fight for safe streets. Especially, give voice to the most vulnerable users of the roads. This way, the public opinion, and the constituency will pressure Council Members to build safer streets, and the opposition will be less powerful or even convinced to join the pedestrian revolution.

Speed Kills

State legislation is essential to save pedestrian lives. Sacramento has the power to reduce speed limits in California and to legalize Automated Speed Enforcement (ASE), also known as speed cameras. The California State Assembly has made some progress in eliminating the dangerous 85th percentile methodology. Fortunately, the California State Transportation Agency (CalSTA) has acknowledged, in a report by the Zero Traffic Fatalities Task Force, that the 85th percentile methodology does not work in urban areas (CalSTA, 2020). The state assembly should speed up the process to substitute the mentioned methodology and give more power to local authorities. This way, local governments can set speed limits according to their city context and apply the minimal harm methodology. Then, with the legalization of speed cameras, the enforcement would be more effective. Still, there is no better enforcement than changing the streets' geometry to force motorists to slow down, which is the following proposal.

A Pedestrian-oriented Street Design Manual

The State of California also has the power to change the Highway Design Manual of the California Department of Transportation (Caltrans). Caltrans should update their official guidelines based on the National Association of City Transportation Officials (NACTO) recommendations and other best practices. This way, California will have a new generation of engineers that will reconfigure streets to a human-scale, new roads that will save thousands of

lives. Also, coordination between the Federal, State, and City levels is necessary to be consistent in the roads' improvements regardless of jurisdiction.

Final Words

Vision Zero is not enough; this statement was mentioned frequently during the interviews of this project. One would love to see new pedestrian infrastructure in all the streets of LA tomorrow. Nevertheless, decades of car-oriented policies are challenging to revert from one day to the other. Doing base work with the communities and empowering them with capabilities is essential to start to gain terrain over the entitled car-oriented voices. And, who knows, maybe some of the car-oriented residents could change their minds and join the pedestrian battle of Los Angeles.

Finally, I want to acknowledge that I am finishing writing this project while the world is facing two pandemics. First, COVID 19 has opened the opportunity to implement temporal bikeways, wider sidewalks, and slow streets to avoid packed public transit and give more open space to the people (Lydon, 2020). This chance is an excellent opportunity in history to install road safety infrastructure for pedestrians and cyclists.

Second, people in the streets all over the world are fighting against racism. In this study, I discovered with statistics how the black community in the City of LA is the most affected due to pedestrian fatalities. Also, whiter census tracts have fewer pedestrian fatalities and severe injuries in LA. The discrimination is clear, and it is essential to face this problem while working toward safer streets.

I want to end this project by quoting Dr. Destiny Thomas, the transportation planner, behind LADOT's DICE idea (Thomas, 2020, June 8).

"Yet urbanist responses to Covid-19 seemed to ignore the inequities that cause this illness to be several times more deadly to Black people in the U.S".

"If we want to prevent unintended impacts as a result of our planning practices today, our solutions and responses to these crises (and the interlocking systems of oppression that they exacerbate) must be rooted in collective decision-making, with a special emphasis on those who experience and access "outside" from a disadvantaged position in society."

"This sector must no longer exist in service of white comfort, with no regard for the bodies that carry the burden of protest when Black lives are lost in the streets."

"If you want to ban cars, start by banning racism."

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Appendix

Acronyms and Abbreviations

- ACT-LA - Alliance for Community Transit Los Angeles
- APA - American Planners Association
- ArqMap - Is the main component of Esri's ArcGIS suite of geospatial processing programs
- ASE- Automated Speed Enforcement
- Ave. - Avenue
- BIPOC - Black Indigenous People of Color
- Blvd. - Boulevard
- BRU - Bus Riders Union
- CalEnvironScreen - California Environmental Index
- CalSTA - California State Transportation Agency
- Caltrans - California Department of Transportation
- CARS - Community Arts Resources
- CBO - Community Based Organization
- CBS - Columbia Broadcasting System
- CEQA - California Environmental Quality Act
- CHP - California Highway Patrol
- COVID 19 - CoronaVirus Disease 2019
- DCP - Department of City Planning
- DICE - Dignity-Infused Community Engagement
- FHWA - Federal Highway Administration
- GIS - Geographic Information System
- HDM - Highway Design Manual
- HIN - High Injury Network
- ITDP - Institute for Transportation and Development Policy
- KLAM - Keep LA Moving
- LADOT - Los Angeles Department of Transportation
- LA - Los Angeles
- LA Walks - Los Angeles Walks
- LGBTQIA+ - Lesbian, Gay, Bisexual, Pansexual, Transgender, Genderqueer, Queer, Intersexed, Agender, Asexual, and Ally community
- LOS - Level of Service
- NACTO - National Association of City Transportation Officials
- NIMBY - Not-In-My-Back-Yard
- NSC - National Safety Council
- NYC - New York City
- NYU - New York University
- OECD - Organisation for Economic Co-operation and Development

- PEO - Planners for Equal Opportunity
- PMJ - People for Mobility Justice
- PTOE - Professional Traffic Operations Engineer
- QGIS - Quantum Geographic Information System (software)
- RAC - Vision Zero Resident Advisory Council
- SafeTREC - Safe Transportation Research and Education Center
- SEMOVI - Secretaría de Movilidad de la Ciudad de México
- SGA - Smart Growth America
- St. - Street
- STATA - Statistics and Data Software
- SWITRS - Statewide Integrated Traffic Records System
- TIMS - Transportation Injury Mapping System
- UC Berkeley - University of California, Berkeley
- UCLA - University of California, Los Angeles
- UN - United Nations
- US - United States
- VMT - Vehicle Miles Traveled
- VZ - Vision Zero
- WHO - World Health Organization
- WRI - World Resources Institute
- YIMBY - Yes-In-My-Back-Yard

Definition of Key Concepts

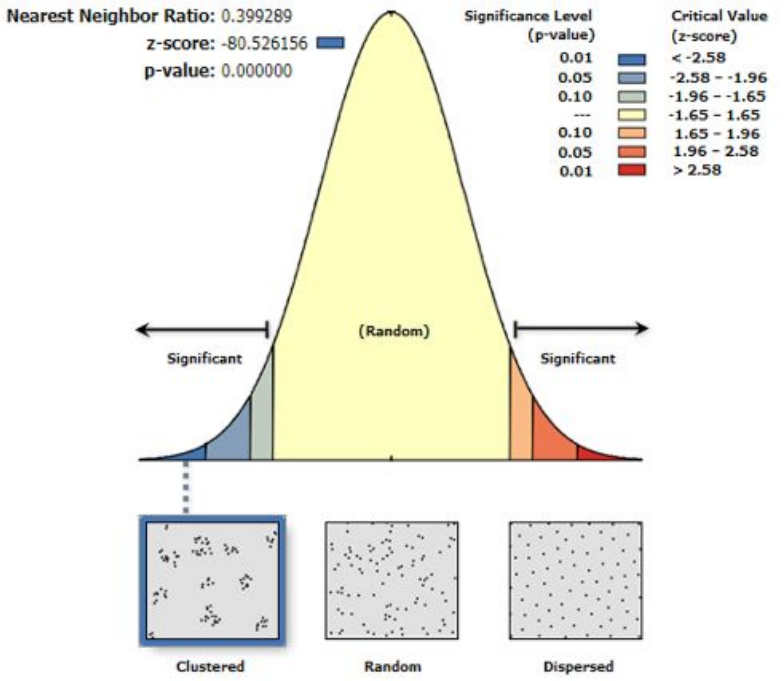
- **Community Based Organizations (CBOs):** A public or private nonprofit organization that is representative of a community or a significant segment of a community and works to meet community needs (U.S. Department of Health and Human Services). I am going to measure this by mapping and interviewing CBOs in Los Angeles.
- **Pedestrian road safety infrastructure:** engineering improvements to protect the physical integrity of any person walking in a certain road (own definition).
- **Empower (Co-power):** to give official authority or legal power to; to promote the self-actualization or influence of (Webster Dictionary). The word co-power, unlike empower, emphasizes an horizontal relationship of power, instead of talking about somebody giving power to someone in a vertical power relation (own meaning). I am going to measure this by analyzing the official tools of the government to do outreach strategies, as well as the non-official tools to change the streets.
- **Pedestrian fatalities and serious injuries:** this is going to be my dependent variable to make the analysis between level of income, pollution vulnerability, ethnicity, car ownership, and age vulnerability. The Model Minimum Uniform Crash Criteria (MMUCC) considers a pedestrian fatality to be the death of a person walking in the site of the crash or after 30 days. Then, the OECD defines a pedestrian serious injury as fractures, concussions, internal lesions, crushing, severe cuts and laceration, severe general

shock requiring medical treatment and any other serious lesions entailing detention in hospital.

- **Underserved community**: provided with inadequate service (Webster Dictionary). Especially low-income communities with certain burdens in an urban environment like pollution, noise, crime and road fatal crashes (own definition). I am going to measure this by level of income, using data from the US Census, and using the CalEnviroScreen, which is an index that identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution.
- **Ethnicity:** of or relating to large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural origin or background (Webster Dictionary). I am going to measure this by using the data of the US Census per census tract.
- **Car ownership:** in a car oriented city like Los Angeles, almost every single household has a car. Nevertheless, some census tracts have lower rates of car ownership. It will be interesting to analyze if there is a relationship of car ownership and pedestrian fatalities and serious injuries.

Hot Spots Map Average Nearest Neighbor Summary

Average Nearest Neighbor Summary



Given the z-score of -80.526155977, there is a less than 1% likelihood that this clustered pattern could be the result of random chance.

Average Nearest Neighbor Summary

Observed Mean Distance:	140.1524 Meters
Expected Mean Distance:	351.0047 Meters
Nearest Neighbor Ratio:	0.399289
z-score:	-80.526156
p-value:	0.000000

Dataset Information

Input Feature Class:	TheBaseBall1984
Distance Method:	EUCLIDEAN
Study Area:	2419732040.269518
Selection Set:	False

Regression Analysis on STATA

White Percentage

```
. reg kplussev white
```

Source	SS	df	MS	Number of obs	=	1,166
				F(1, 1164)	=	50.76
Model	950.442077	1	950.442077	Prob > F	=	0.0000
Residual	21795.0957	1,164	18.724309	R-squared	=	0.0418
				Adj R-squared	=	0.0410
Total	22745.5377	1,165	19.5240667	Root MSE	=	4.3272

kplussev	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
white	-.0320135	.0044934	-7.12	0.000	-.0408295	-.0231974
_cons	5.146057	.1856697	27.72	0.000	4.781772	5.510342

Pollution Vulnerability

```
. reg kplussev ces3
```

Source	SS	df	MS	Number of obs	=	1,166
				F(1, 1164)	=	113.27
Model	2017.06508	1	2017.06508	Prob > F	=	0.0000
Residual	20728.4727	1,164	17.8079662	R-squared	=	0.0887
				Adj R-squared	=	0.0879
Total	22745.5377	1,165	19.5240667	Root MSE	=	4.2199

kplussev	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ces3	.0790569	.0074283	10.64	0.000	.0644826	.0936312
_cons	1.193632	.3065458	3.89	0.000	.5921876	1.795076

Bus Stops Analysis on Temple Street

Bus Stop location (Intersection with Temple St.)	Routes	Eastbound (E) or Westbound (W)	Post	Bench	Bus shelter
Silverlake	10	W	X		
Silverlake	10	E	X		
Robinson	10	W	X	X	
Robinson	10	E	X		
Vendome	10	E	X		
Vendome	10	W	X		
Occidental	10	W	X	X	
Occidental	10	E	X		
Rampart	10, 603	W	X		
Rampart	10	E	X	X	X
Carondelet	10	E	X	X	
Parkview	10	W			
Rosemont	10	W	X		
Rosemont	10	E	X	X	
Alvarado	10	E	X		X
Alvarado	10	W	X	X	
Bonnie Brae	10	E	X	X	
Bonnie Brae	10	W	X		X
Belmont	10	W	X	X	X
Belmont	Pico Union / Echo Park	E	X		
Glendale	10 , Pico Union / Echo Park	E	X	X	X
Glendale	Pico Union / Echo Park	W	X		

Douglas	10 , Pico Union / Echo Park	W	X	X	
Douglas	10 , Pico Union / Echo Park	E	X	X	
E Edgeware	10 , Pico Union / Echo Park	W	X	X	
Boylston	10, 92	W	X	X	
Boylston	10, 92	E	X	X	
Beaudry	10, 92	W	X	X	X
Beaudry	10, 92	E	X	X	X