



# SafeD

## Safing the streets of San Diego

### Introduction

#### Overview

Team SafeD took part in the 2017 Design for San Diego (D4SD) Civic Design Challenge on Mobility. We focused on improving pedestrian and biker safety in popular nightlife areas of San Diego through targeting ridesharing services.

#### Background

The UC San Diego Design Lab, City of San Diego, and other organizations hosted the 2017 D4SD Civic Design Challenge on Mobility, a city-wide challenge to solve "complex... problems through design thinking and crowdsourcing". The City of San Diego is also pursuing a Vision Zero initiative with a goal of zero pedestrian deaths.

#### Role

*UX & Visual Designer*

#### Duration

*September - October 2017*

#### Team Size

*5*

#### Tools

*Sketch | Adobe Photoshop | R*

*[D4SD Website](#)*

### The Challenge

How do we create a San Diego where we all move freely?

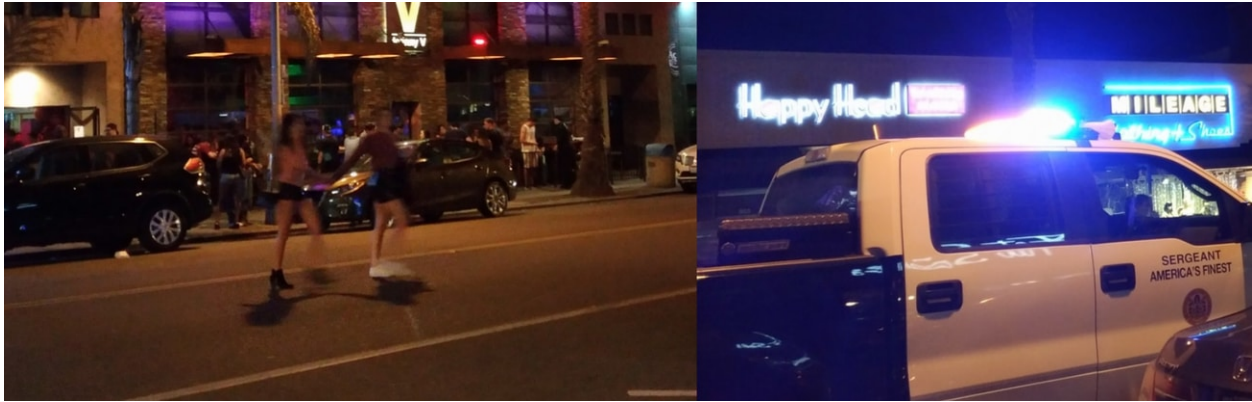


Figure 1. Jaywalkers (left) and police patrols (right) in Pacific Beach, a popular nightlife area.

## Getting Started

### Understanding the User

We gathered and consolidated data from online sources and fieldwork. SafeD started with *Circulate SD's Fatal Fifteen*, a list of the deadliest intersections in San Diego.



#### **Interviews: Local police officers, rideshare drivers, and nightlife employees**

**What We Learned:** Street infrastructure was unreliable and power outages were common. Pedestrian crossings reduced the number of accidents, but worked inconsistently. Nightlife citations were largely ineffective since many people were tourists (and inebriated!). Moreover, **rideshares** created safety hazards by blocking traffic and emergency service routes.



#### **Observations: downtown San Diego (daytime and nighttime)**

**What We Learned:** At its busiest, there were an average of **20 jaywalkers per 5 minutes**. Vehicle passengers were the most serious offenders as they hopped off illegally stopped **rideshares** and jaywalked confidently across the street to the nearest nightclub. Streets were irregularly shaped due to mixed parking types which increased the driving difficulty. Police regularly patrolled the area for drunken shenanigans. On test drives, we experienced jaywalkers passing within inches of us, dangerous inebriated behavior in intersections, and a power outage.

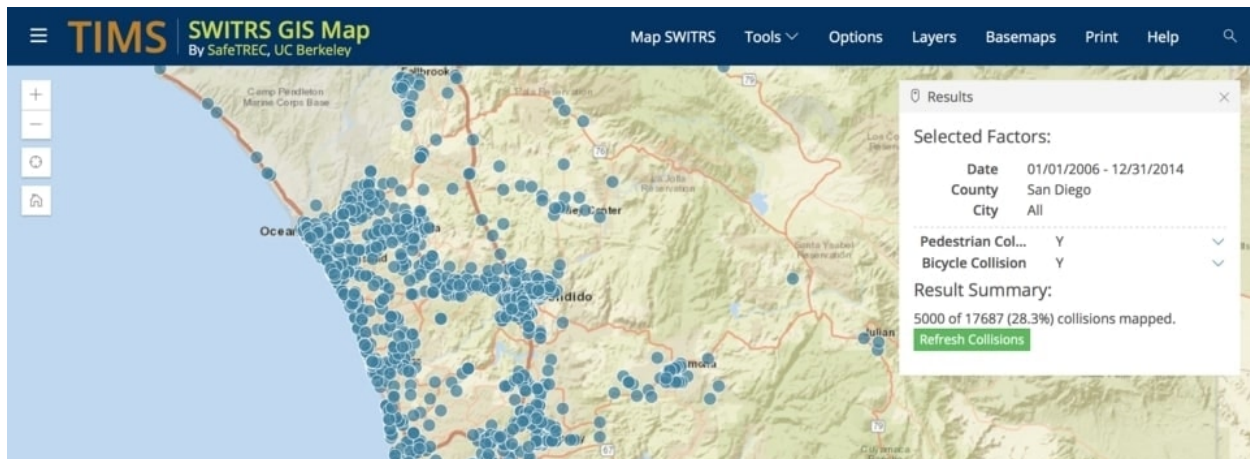


Figure 2. Data points from TIMS in the Greater San Diego area. Each point marks a vehicle collision involving a pedestrian or bicyclist.

### Connecting the Dots

Besides researching online articles, we also used TIMS (*Transportation Injury Mapping System* by UC Berkeley) to analyze pedestrian and bicyclist collision data around Fatal 15 intersections.

Most collisions in popular nightlife areas occurred on **Thursdays and Fridays between 9pm to 3am**. This was corroborated by [an article](#) stating that most jaywalking citations in San Diego were handed out on **Thursday nights around 11pm** in nightlife areas. We used this data to support our observations and highlight the severity of the problem.



Figure 3. A small infographic displaying the statistics from TIMS, observations, and online articles. Used in the final poster.

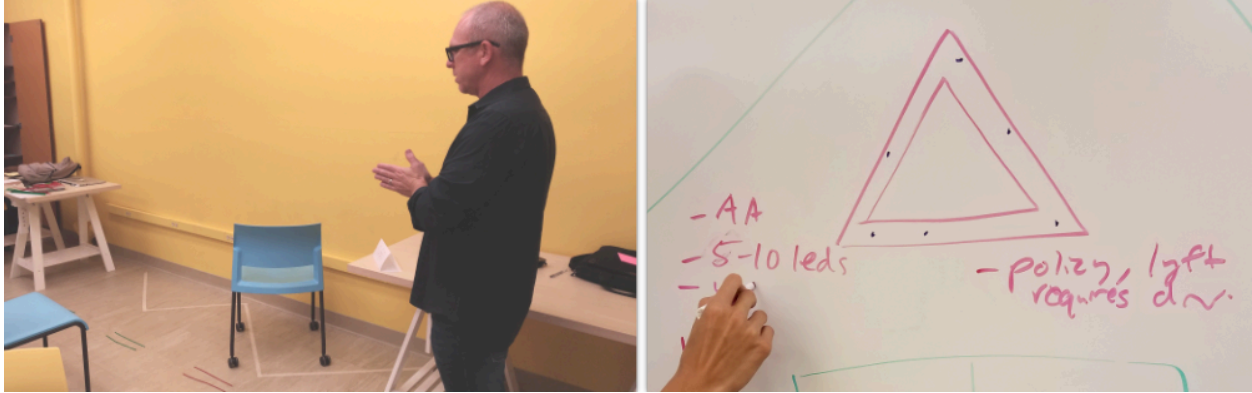


Figure 4. (Left) Our loading zone prototype modeled by chairs, pipe cleaners, and masking tape, critiqued by Scott Robinson. (Right) A sketch of a possible lighting system that could be attached to rideshare vehicles. It is triangular to mimic the “warning” signal already found in cars.

## Developing Our Strategy

### Defining the Problem Space

Clearly, jaywalking was a major roadblock for Vision Zero. We needed to consider the city's priorities while maximizing the safety of the streets and so, we refined our problem statement.

How can we improve visibility and traffic awareness for motorists and pedestrians in bustling nighttime areas of San Diego?

We focused on **ridesharing** (1) to minimize infrastructural changes, which can be expensive and difficult to implement, and (2) to increase the scalability of our solution as a natural extension for rideshare companies.

### Ideating

Noticing that **rideshares** were a major cause of interrupted traffic flow and jaywalking, we focused heavily on the idea of **loading zones** specifically for nightlife. After receiving feedback from design professionals [Dr. Steven Dow](#) and [Scott Robinson](#), we came up with something more mobile: a **vehicle attachable** to increase visibility, inspired by folding stop signs on school buses. We further refined this to a more convenient **lighting and reflector system (the VisiLite)** for greater generalizability.

## The VisiLite

### User Testing

We tested the VisiLite with rideshare passengers and in our target areas during nightlife hours. However, our prototype seemed ineffective and counterproductive to our goal of safety. Passengers did not notice the words at first glance, and if they did, it was eye-catching to the point of distraction.



*“I noticed the light but didn’t see the words. I only noticed it when I was about to step out of the car.”*

*“I’ve already checked that there are no cars so, I just go walk ahead.”*

*“I wouldn’t have seen it if [my friend] hadn’t told me about it.”*

Figure 5. The first iteration of the VisiLite in action.

Though results were initially disheartening, we realized we didn't need to completely throw out the VisiLite. Based on our user feedback, we removed the cardboard cutout for a cleaner and brighter light, increasing the effectiveness and reducing the cognitive load of the projection.

## Putting It All Together

### Design Forward Summit

After testing, we settled on three core ideas to present at the Design Forward Summit.

#### Loading Zones



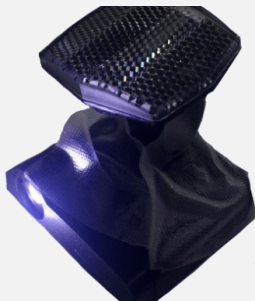
- Parking by day, loading by night
- Located in front of daytime businesses
- Equipped with LEDs and ground sensors
- Lawfully enforced by existing police patrols

#### Rideshare Notifications



- Simple and inexpensive
- Increases mindfulness with minimal friction

#### VisiLite



- Comes with reflector and self-contained light
- Simple and inexpensive
- Secure attachment, easy detachment
- Activated automatically by magnetic sensors
- Business potential for ridesharing companies

### The Results

In addition to having the best team name, we obtained the 3rd overall highest score (scored by the human-centered process, novelty, feasibility, and impact) out of 23 entries, though we were not selected as finalists. I created the poster design with team input on layout and content.



Figure 6. The final poster presented at D4SD.

Full resolution: [http://www.gracepchen.com/images/safed\\_poster.pdf](http://www.gracepchen.com/images/safed_poster.pdf)

Concept Video - <https://vimeo.com/239383318>

## Conclusion

### Contributions

- Conducted user interviews and observations
- Collected and analyzed data from TIMS
- Created poster/figures with creative input from team and adherence to D4SD guidelines

### Aftermath

After the D4SD ceremony, SafeD continued collecting user research, iterating and refining prototypes, and building an online portfolio. With the help of Donald Norman, SafeD consulted with a prototyping lab to discuss steps forward and possible use cases. However, we realized that our solutions were not feasible enough to compete with the existing market.

### Takeaways

While it was disappointing to leave the VisiLite unfinished, I learned the difficulties of designing under time constraints, even with the most enthusiastic team anyone could ask for. Despite the pressures of this project, the time we spent on user research was well worth the effort to gleaning insights.