

# NC STATE UNIVERSITY

Katie McCracken, MID Candidate

Dr. Sharon Joines, Committee Chair

Bryan Laffitte, Committee Member

# SIGNAL

Service Design and Product Design for Social Innovation

## SUMMARY

The purpose of this study is to expose the extent of the applicable factors perpetuating emotional and mental strife between citizens and police officers to design for gaps in understanding. A human-centered, ethnographic approach was used to study the traffic stop experience. Interviews with thirty-six police across five states were conducted as well as five ride-a-longs.

The intent of this product is to serve as non-verbal communicator through shared visual expectations enabling reduction of the police officer's suspicion and fear, building rapport between the police and community, and creating a safer environment within a traffic stop. Finally, there was an educational pamphlet inserted at the local DMV including topics like police culture, lawful behavior expectations within a traffic stop, laws, rights, and reasonable consequences for unlawful behavior. Observations and additional information will be gathered from a follow up survey with citizens. The results of the study demonstrate the need for education among all communities.

## RESEARCH QUESTION

How can the influence of product design and service design be applied to improve safety and minimize cultural divides within reoccurring interactions where risk assessment is known to be high by police officers?

## SUB-QUESTIONS

Within the context of a traffic stop, how can service design enhance a product through education to de-escalate cultural tension and maximize safety for all parties?

How is America educating the public about the behavior police expect within a traffic stop?

How is the public educating themselves about the role of a police officer?

How is the disparity between the public opinion and the reality of police performance measured?

What does safe, compliant behavior look like to police?

What factors inhibit drivers from presenting this behavior within a traffic stop?

## REFERENCES

Mark H. Moore and George L. Kelling, "To Serve and Protect: Learning From Police History," The Public Interest, 7, Winter 1983.

Raymond, M. Lee. "Doing Research on Sensitive Topics," London; Newbury Park, California: SAGE Publications, 1993.

Swann, William B. "Self-Verification: Brining Social Reality into Harmony with the Self," Research Gate at University of Texas at Austin (December 1982). <https://www.researchgate.net/publication/6069628>

## PROBLEM SCOPE

In 2016, New York City alone spent **228.5 million dollars** on police misconduct. Property taxes that would otherwise be used for schools, recreation centers, fixing roads, and other problems are instead being spent on lawsuits and settlements over police neglect and abuse. The community is left feeling stripped of their dignity, devalued, and holding contempt for the systems in place that are meant to protect them.

### Deaths



Over **2,000 people** have been shot and killed by police in the last two years

Over **110 officers** were fatally shot in the last two years

### Affected Demographic



Black males are **7x more likely** to be shot by police than white males

North Carolina is the **4th highest** officer fatality rate in the U.S. in 2017

### Key Factors



**Twenty percent** of those civilians were **unarmed**

Traffic stops are the **third most dangerous** activity for police

## MAPPING CULTURAL PRACTICE

### Phase 2: Cultural Practice Analysis

**Anthropological Analysis**  
Social Practices Analysis  
Value mapping with 25 people

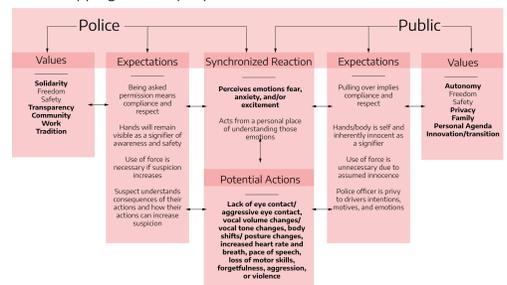
**Semi-Structured Interviews**  
39 Police across five states  
20 drivers within North Carolina

“How do you feel during a traffic stop?”

"I feel afraid. First, because I am unsure what I did to be pulled over, and second, I am scared I am going to get killed, because I look, move, or breath wrong. I just don't know what the expectation is..." - Driver, 37

"Doesn't matter how calm the officer is. I am panicked. Like a deer in head lights. I freeze up and that's it. I don't know how to speak, or do much other than say 'yes, sir.'" - Driver, 25

"We hope for the best, but expect the worst as we approach a vehicle. We look for calm breathing, visible hands, and asking for permission to build rapport with us." -Officer, 32

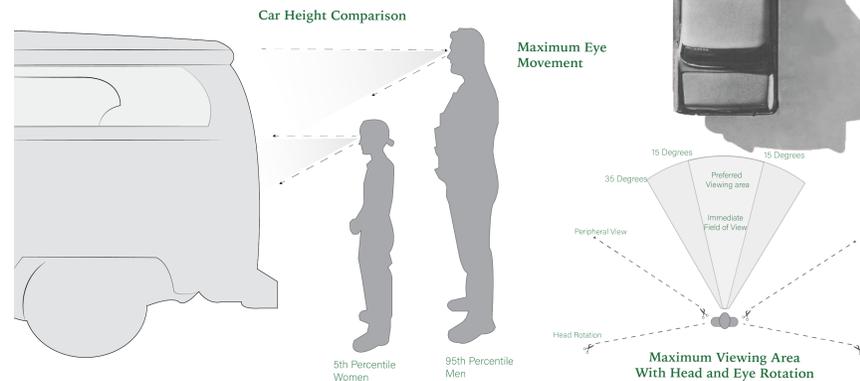


## SYNTHESIZING POLICE EXPERIENCE

### Phase One: Identifying Opportunities

**Police Shadowing**  
Five different observational interviews with police  
What factors effect police perception of a driver when controlling a traffic stop?

“We are trained to look for a person's hands. If hands disappear, we perceive that as a threat.” -Durham Officer, 31



## OPPORTUNITY MAPPING

### Developing from Environmental Cues

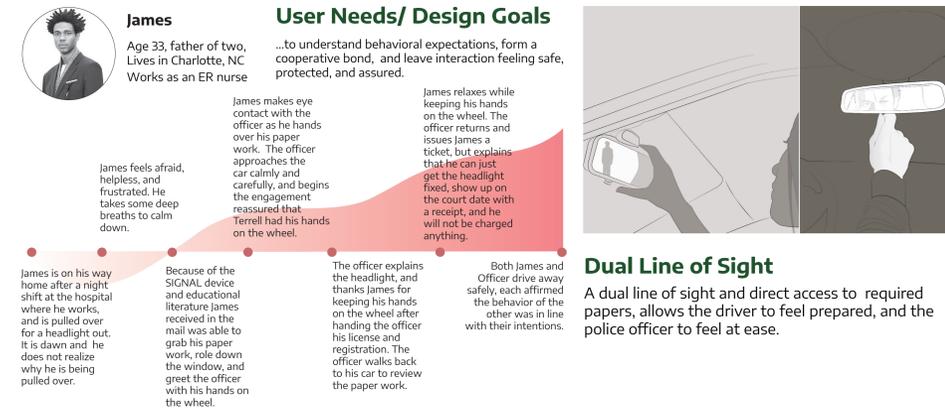
Most drivers keep their registration in the glove box for convenience and security. What is an ideal location to create a visual of synchronistic intention to suspend suspicion?



### Design Criteria

- Enable co-operation
- Considers multiple users
- Discrete and secure
- Sustainable for paperwork
- Within arms reach
- Allows dual line of sight
- Does not obstruct safety
- Does not obstruct officer

## USER JOURNEY MAP



## DESIGN DEVELOPMENT

### Phase Three: Prototyping

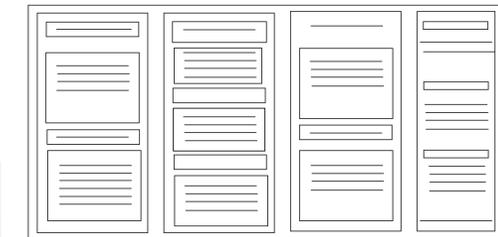
**Orientation and Form Strategy**  
Factors: size, shape, material, security features, cost analysis fluidity

Brand	Shape	Size
BMW	Trapezoid	8 inches
Ford	Round Rectangles	9.5 inches
Nissan	Rounded Rectangles	8-10 inches
Toyota	Upside-Down Trapezoid	12 inches
Honda	Rounded Rectangles	8-10 inches



### Next Steps

**Education Strategy**  
Factors: literacy scale with target users, layout design, branding, sponsorship  
Is it engaging? Is it thorough? Is it clear?



### Design Criteria For Educational Pamphlet

- Expectations of driver behavior within a traffic stop
- Expectations of police
- Proper protocol and options if they are not followed
- Miranda Rights- explanation and break down and how it is used
- What the process for a DUI and traffic violation
- What to do in the unlikely incident of an arrest