

D6

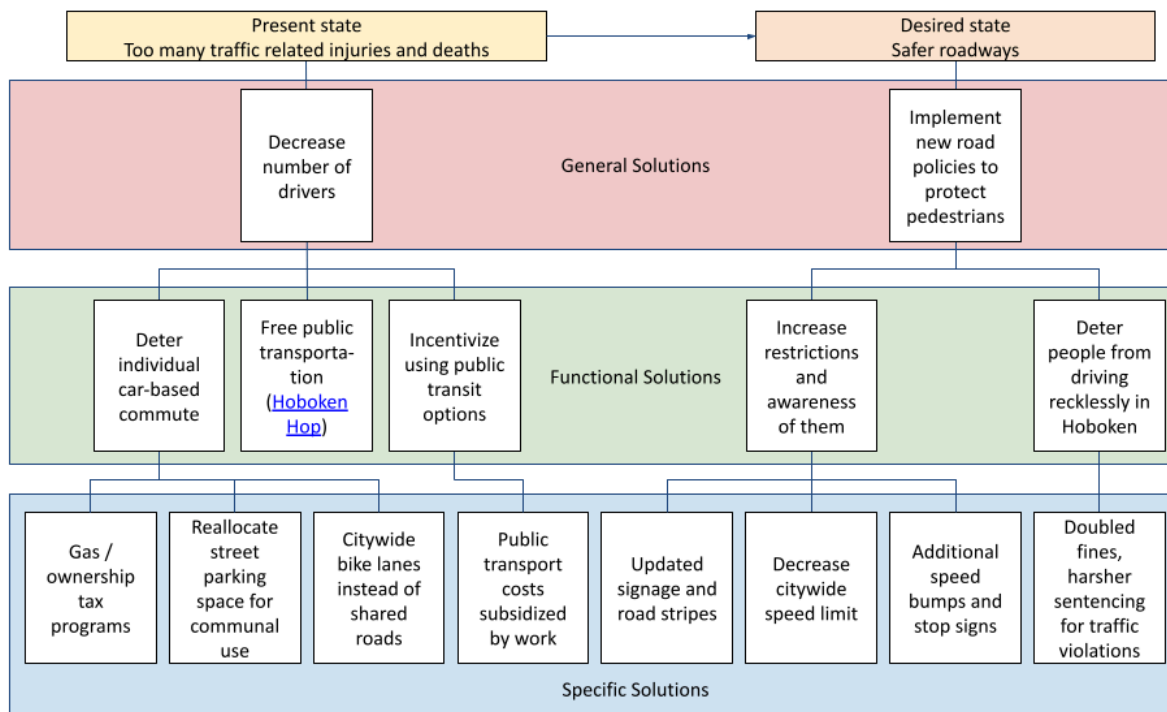
### Assignment 3

Zoe Casten, Victoria Beke,  
Alexander Beke, Jason Pinga,  
Alejandro Schnettler

## Traffic and Tribulations: How Hoboken Traffic Laws Have Impacted Road Safety Problem Formulation

1. Generate problem statements that focus on the function to be achieved by any viable design solution
  - a. Is there a change in traffic pattern as a result of this change (Hoboken reducing the speed limit to 20 mph city-wide)? If so, how does this affect things like commute-times and traffic related fatalities/accidents? Based on that information, is this reduction in speed limit worth it? How can these answers inform future policies on road-safety? Does the speed limit signage have an affect?
2. Apply a number of techniques and strategies such as the statement-restatement technique, the source/cause approach, the revision method, present state-desired state (PS-DS) strategy, and Duncker diagrams
  - a. Revision method
    - i. Laws are not necessarily permanent; this new speed limit could be reverted at any point in the future, so it may be helpful to either propose new policies to prevent traffic injuries/deaths, or develop a methodology to determine the efficacy of implemented solutions.
    - ii. Our primary findings from this project may be used to inform future policy decisions. The information and patterns we gather will be the feedback on how the new new speed limit has impacted road safety and traffic patterns in Hoboken. The results of this investigation may be used directly in informing any changes in policy, or in informing local politicians of the success of this law.
    - iii. Additionally, lawmakers and traffic experts can benefit from having a standardized method to analyze traffic data and use their findings to inform new traffic policies. During our investigation of the recently implemented speed limit law, we will document the ways in which we analyze the data and draw conclusions from it. This documentation will allow us to develop a step-by-step method of analysis alongside our knowledge product, providing a more long-term solution than just feedback on the current road laws.

b. Duncker Diagram/Present State Desired State



c. Checklisting—What's wrong with it? (Problems with the 20 mph citywide speed limit.)

- i. Slows down traffic, potentially causing backups/gridlocks during busier times of the day.
  - ii. Not properly enforced—officers are not strictly enforcing the new speed limit, so drivers might not actually be following the rule.
  - iii. Cost of policing—if we were to strictly enforce this speed limit, how much would it cost to keep more officers on duty patrolling the city?
  - iv. Accidents caused by speed traps—if we do strictly enforce this, will drivers stop suddenly if they see a police car to avoid penalties? This can cause more accidents, which we have seen previously with [red-light cameras](#).
  - v. Speed limit signage is only at city limits—inattentive drivers might miss the sign on the way in when they enter the city.
3. Perform Kepner-Tregoe (KT) situation analysis to evaluate various aspects of a situation in terms of three criteria (timing, trend, and impact), thereby determining what is known, which tasks should be performed, and in what order these tasks should be completed
- a. Situation analysis (SA) — timing, trend, and impact in high, moderate, or low level of concern/urgency. Determine what we know, which tasks should be performed, and in what order

Timing: Ongoing situation; traffic injuries are a persistent problem and Hoboken joined the [Vision Zero](#) initiative in 2019. Hoboken City Council submitted their [Vision Zero Action Plan](#) in March of 2021, and is working to completely eliminate traffic related injuries and deaths by 2030 by implementing new traffic policies and awareness campaigns.

Urgency: Moderate urgency. The Vision Zero Action Plan is to be implemented over the course of 10 years, and we are already through our third year. We still have time to see this plan through, but there is very little room for error and due to the potential for loss of life, it is imperative to have an ongoing focus on these issues so as not to fall behind in these efforts.

Trend: From [2014 through 2018](#), there were 376 traffic-related injuries and 3 traffic-related deaths; all 3 of these deaths were pedestrians. New reports on traffic-related injuries and deaths in Hoboken will be published every 5 years, but so far, there have been [zero traffic-related deaths since the end of 2018](#).

Urgency: Moderate urgency. We have already gone about 4 years without a traffic-related death, but we do not yet know the number of traffic-related injuries since Hoboken adopted Vision Zero policies. We expect to have a downward trend in injuries and deaths, but we do not yet know how steep that trend will be.

Impact: Since the beginning of Hoboken's involvement in Vision Zero, there have been no traffic-related deaths. However, we do not yet know the injury statistics, which are set to be released after the end of 2023. The impact so far of the policies implemented appears to be positive, but we are interested specifically in the impact of the lowered citywide speed limit. The positive impacts we are hoping to see is a significant reduction in car accidents and traffic-related injuries and deaths in Hoboken. The negative impacts we may expect include heavier traffic patterns due to the stricter road laws. However, the potential positive impacts appear to outweigh the negative ones because loss of life and being put in harm's way is much worse than the inconvenience of being stuck in heavy traffic.

Urgency: High urgency. Even though we are on track to meet the policy goals in our time frame, and even though we expect to have a decrease in traffic-related injuries and deaths, the problems here are injury and loss of life. Because of this, the consequences of failing to properly solve this problem are permanent and severe, and will leave a negative impact on the city.

4. Perform KT problem analysis to determine possible causes of a problem
  - a. Problem analysis (PA) — identity, location, timing, and magnitude.  
Determine the cause of the problem or subproblem

		Is	Is Not
What	Identify:	Too many traffic-related injuries and deaths—we need to prevent these	Punishment for traffic violations—while this is a deterrent, it is reactive, not preventative

Where	Locate:	Hoboken city roadways	Non-roadway pedestrian areas in Hoboken
When	Timing:	Different timings throughout the day, as well as during rush hour, especially when there is a high frequency of pedestrians	During periods of low traffic, while roads are blocked off
		Narrow roads and/or low peripheral visibility, short time interval between stop signal for cars and walk signal for pedestrians	No fatalities since 2018
Extent	Magnitude:	Within Hoboken city limits	Outside of Hoboken