

# Improving Road Safety through Street Design

Across the globe, more than 1.3 million people die each year in road traffic crashes—roughly **one person every thirty seconds**. In a moment, lives are lost and families are changed forever. Many of these deaths are pedestrians, and many of them are preventable. Cities around the world have found that it is possible to reduce traffic fatalities through creating safe spaces for pedestrians, reducing vehicle speeding, and investing in sustainable transport options. This document provides an overview of the current road safety situation in Addis Ababa, and explains how road fatalities can be dramatically reduced through street design.

## Road Safety Challenges in Addis Ababa

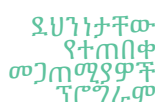
In 2016, more than **448** people died; **1,912** were seriously injured; and another 1,201 suffered slight injuries due to road crashes on the streets of Addis Ababa (Addis Ababa Police Commission, 2016). Each year, around 80 percent of road deaths in the city are pedestrians.

Only four percent of trips in Addis Ababa are made by car. Around 26 percent of trips are made by public transit, while **pedestrians account for 70 percent of total mode share**. Considering that all transit riders must also be pedestrians at some point in their journey, Addis Ababa's streets must be designed to accommodate walking.



Addis Ababa's current street design often encourages dangerous road behavior. By investing in people-friendly street design, the city can dramatically improve road safety\*

\* All graphics and images by NACTO - GDCI



Safe Intersections Program

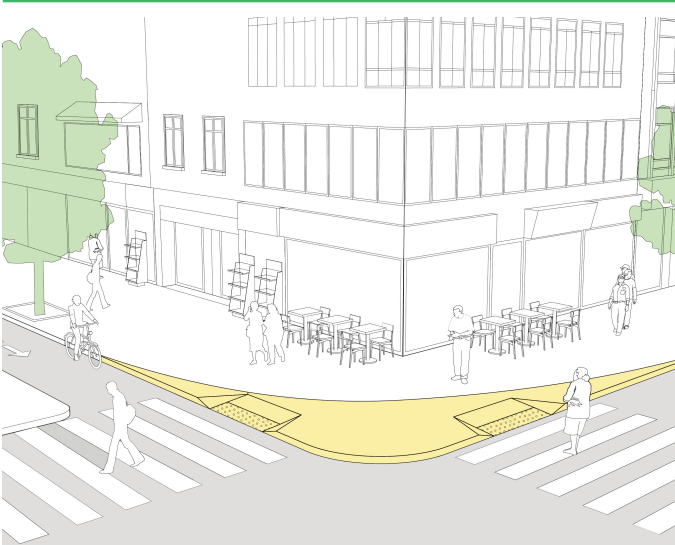


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# Design Strategies to Improve Road Safety

Street design in Addis Ababa has taken a car-oriented approach and has prioritized vehicle speed over pedestrian safety. Streets in the city tend to be wide with large turning radii. They lack sidewalks, crossings, and traffic calming features. Signal timings at major intersections sometimes exceed three minutes, encouraging dangerous road behavior such as speeding and jaywalking. Lane misalignment causes bottlenecks and unpredictable vehicle movement, while street markings and signage at and

## Reduce Corner Radii



Narrow corner radii reduce pedestrian crossing distances and slow vehicle turning speeds. Minimizing the size of a corner radius is critical to creating safe and compact intersections.\*

## Add Medians and Refuge Islands



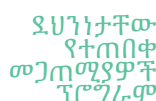
Raised center medians and pedestrian refuge islands can be used to reduce lane width for vehicles, even on relatively narrow streets. They can also be used to organize traffic at intersections or to block vehicle access.\*



At LeGare, the turning radii was reduced from 16m to less than 7m, still allowing for large buses to turn at safe speeds.\*



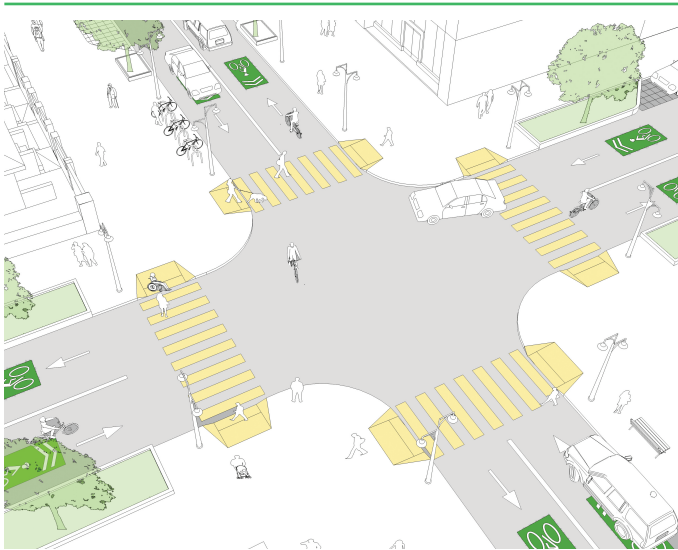
At LeGare, refuge islands have been used to provide safe spaces for pedestrians and reduce crossing distances for all.\*





around intersections are inadequate. Finally, a lack of dedicated transit lanes and loading areas creates unsafe conditions for transit riders, and adds to congestion. Simple design interventions can change the way pedestrians, cyclists, and motorists interact with the street environment. **The below strategies support safe street design and have been extracted from the Global Street Design Guide (GSDG).**

## Create Direct Pedestrian Crossings

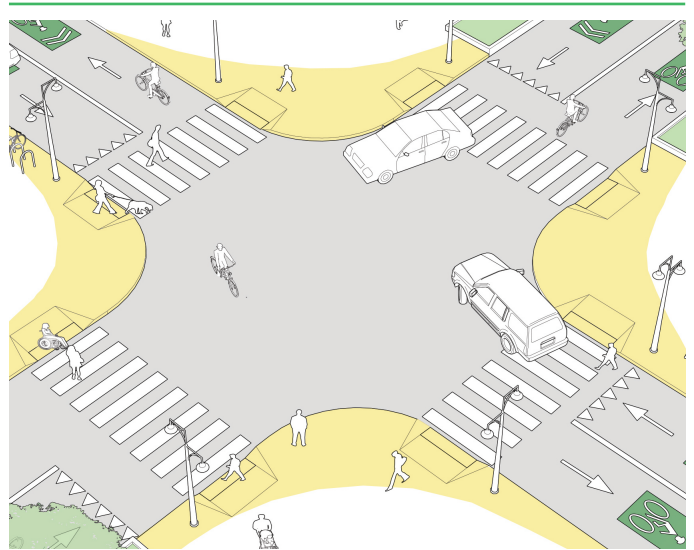


Pedestrian crossings should be aligned with pedestrian desire lines. Inconvenient deviations create an unfriendly pedestrian environment. \*



The transformation added additional direct crossings at each leg of the intersection, along with stop bars. \*

## Align Travel Lanes

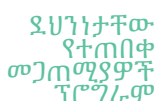


Compact intersections increase visibility for all users. Alignment of lanes coming in and out of an intersection encourages to manage efficient movement of traffic. \*



The lanes at LeGare were aligned to make vehicular movements more organized and reduce points of conflict. Reclaimed roadbed space was transformed to provide refuge for pedestrians.\*

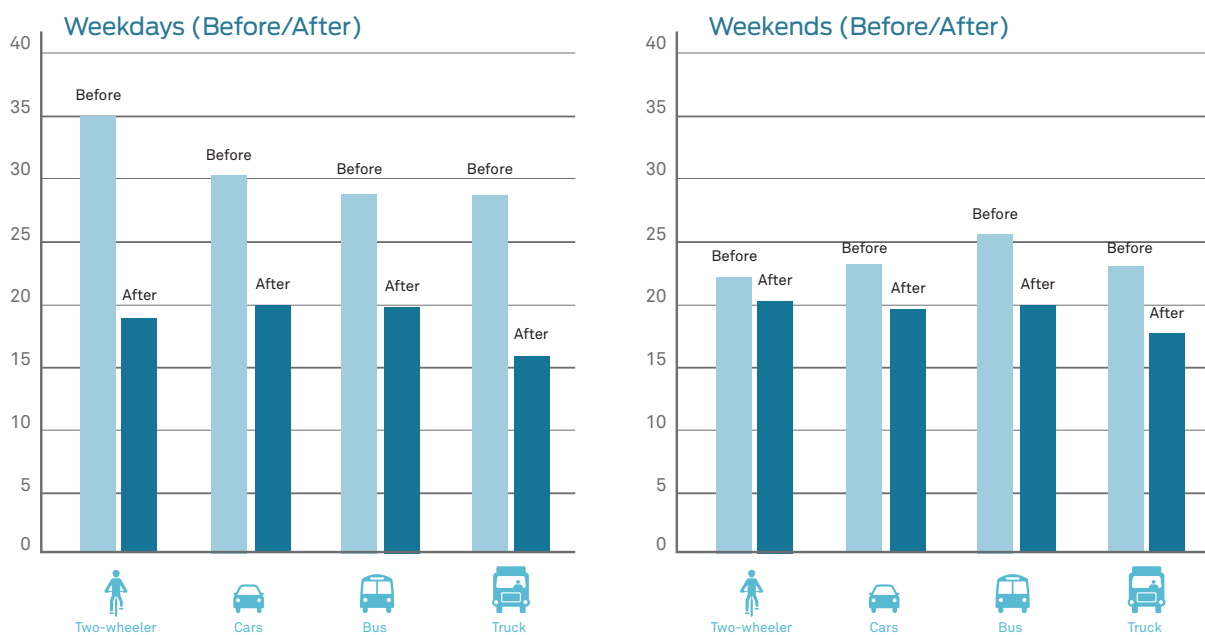
\* All graphics and images by NACTO - GDCI



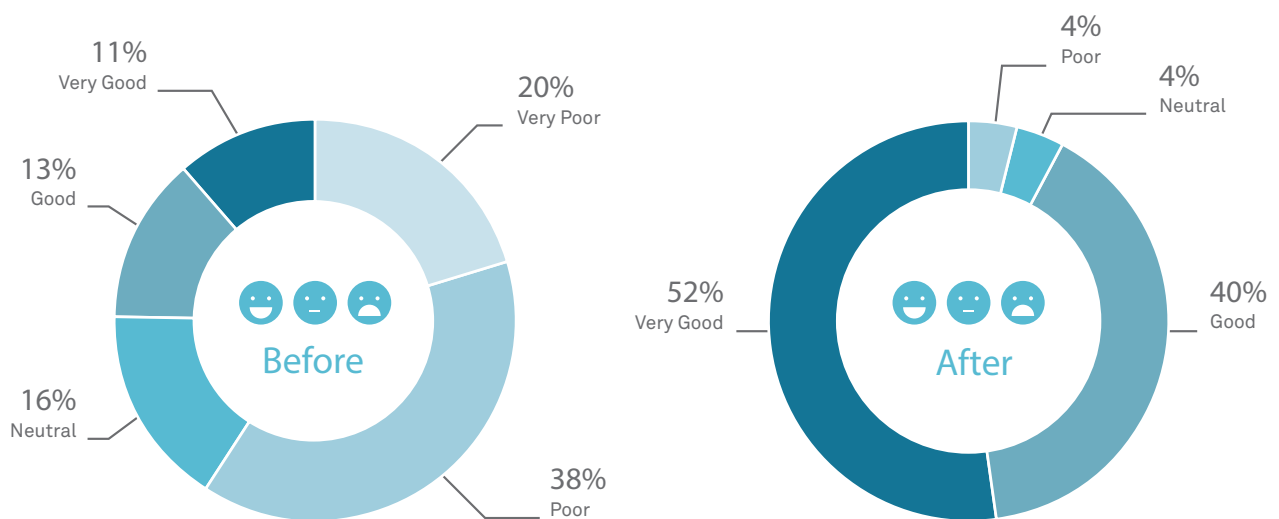
# Findings from the LeGare Intersection Transformation

Street design can improve pedestrian crosswalk compliance, reduce turning speeds, and increase user satisfaction. Findings from the LeGare intersection transformation show that street design can improve pedestrian crosswalk compliance, reduce turning speeds, and increase user satisfaction.

Studies show that the risk of death is below five percent for crashes at 20 km/hr or less. Tightened turning radii helped to reduce average turning speeds at LeGare from an average of 30 km/hr before, to an average of 18.5 km/hr after the intervention.



Observed average speed on right turn traffic before and after the LeGare transformation (Km/hr)\*



Road users' responses on the comfort, convenience, safety, and attractiveness of intersection before and after transformation\*

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