



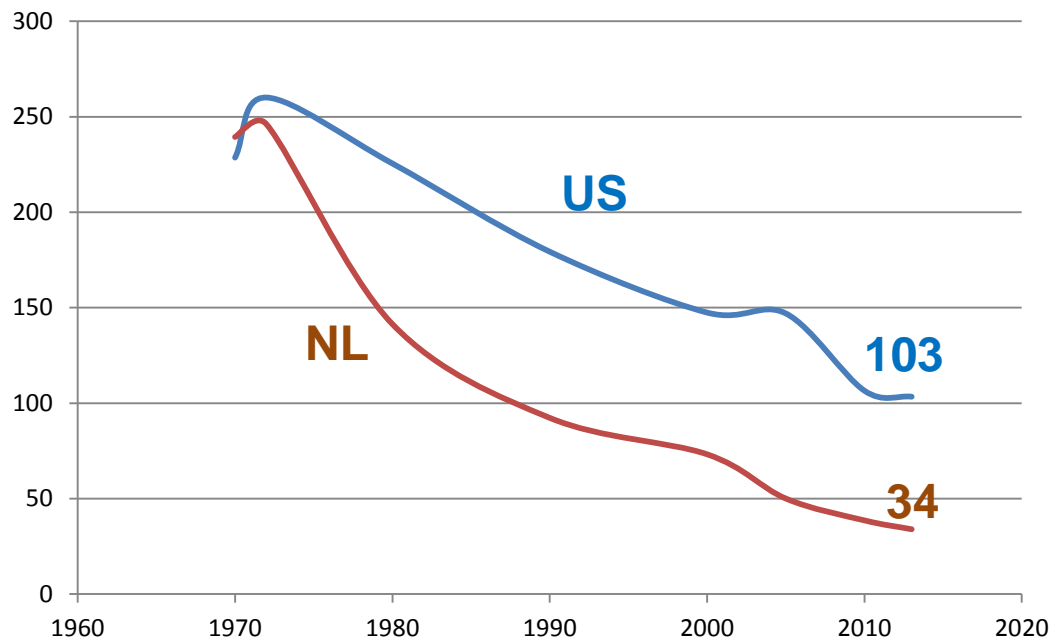
The Dutch “Vision Zero” Program
for Traffic Safety:
What Has It Meant There?
How Would It Apply in Boston?

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If the US had the same traffic fatality rate as Netherlands, we'd save 20,000 lives a year

Traffic deaths per million population



Another important indicator of safety

Participation by vulnerable and safety-sensitive users

	NL	US / Boston
trips made by bicycle	27%	0.7% / 2%
Female share	55%	30%
Children walking or riding to school	Nearly all	10% / ?
Age 65-80 regularly using a bike	most	few

“Sustainable Safety” or “Systematic Safety”

- Dutch traffic safety program proposed in 1991, adopted by agreement between all levels of government in 1997
- Same principles as Sweden’s Vision Zero (also adopted 1997)

How does it differ?

Traditional Approach	Systematic Safety
Identify and remedy “black spots”	Don't wait for tragedy to happen; apply known safety principles systematically <i>If it can happen, it WILL happen</i>
Responsibility for safety rests with the user	The road owner is also responsible for safety

Overarching Principle:

A System Adapted to Humans

- ... who are vulnerable
- ... who make mistakes

Mistakes should not lead to serious injury or death

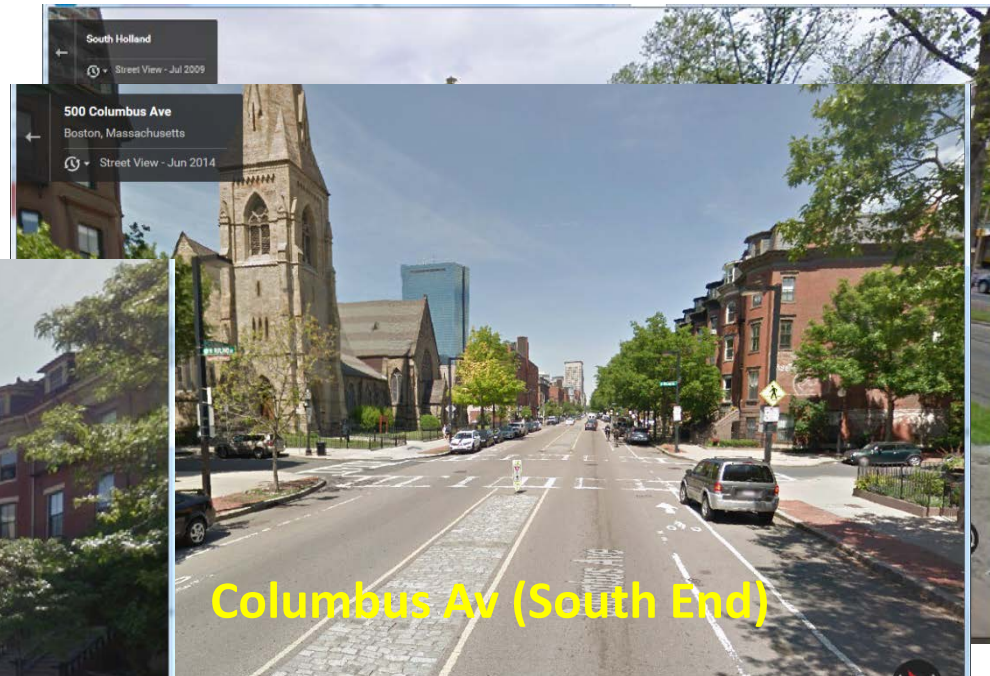
If our traffic system were a private industry, it would be shut down tomorrow for gross violation of industrial safety standards

Corollary 1: Target Speed Limits

	Target (maximum) Speed	Application Areas
<ul style="list-style-type: none"> • Where pedestrians cross the road • Where bikes are in mixed traffic 	20 mph	<ol style="list-style-type: none"> 1. Local streets 2. Crossings
Where vehicles meet at a 90 degree angle	30 mph	Intersections, signalized and unsignalized
Where vehicles pass in opposite directions	40-45 mph	Undivided highways

Corollary 2: Taking Responsibility for Speed Control

- 1+1 lane roads (road diet)



Photos from Google Maps

Corollary 2: Taking Responsibility for Speed Control

- 1+1 lane roads (road diet)
- Speed humps, chicanes



Corollary 2: Taking Responsibility for Speed Control

- 1+1 lane roads (road diet)
- Speed humps
- Short cycle, traffic-responsive traffic signals (*not* coordinated)



*Emphasis is on infrastructure,
not education or enforcement*

USA: Mother guilty of *vehicular homicide* for crossing this street with her son, 2011



1788 Austell Road, Marietta, Georgia (Source: Google Maps)

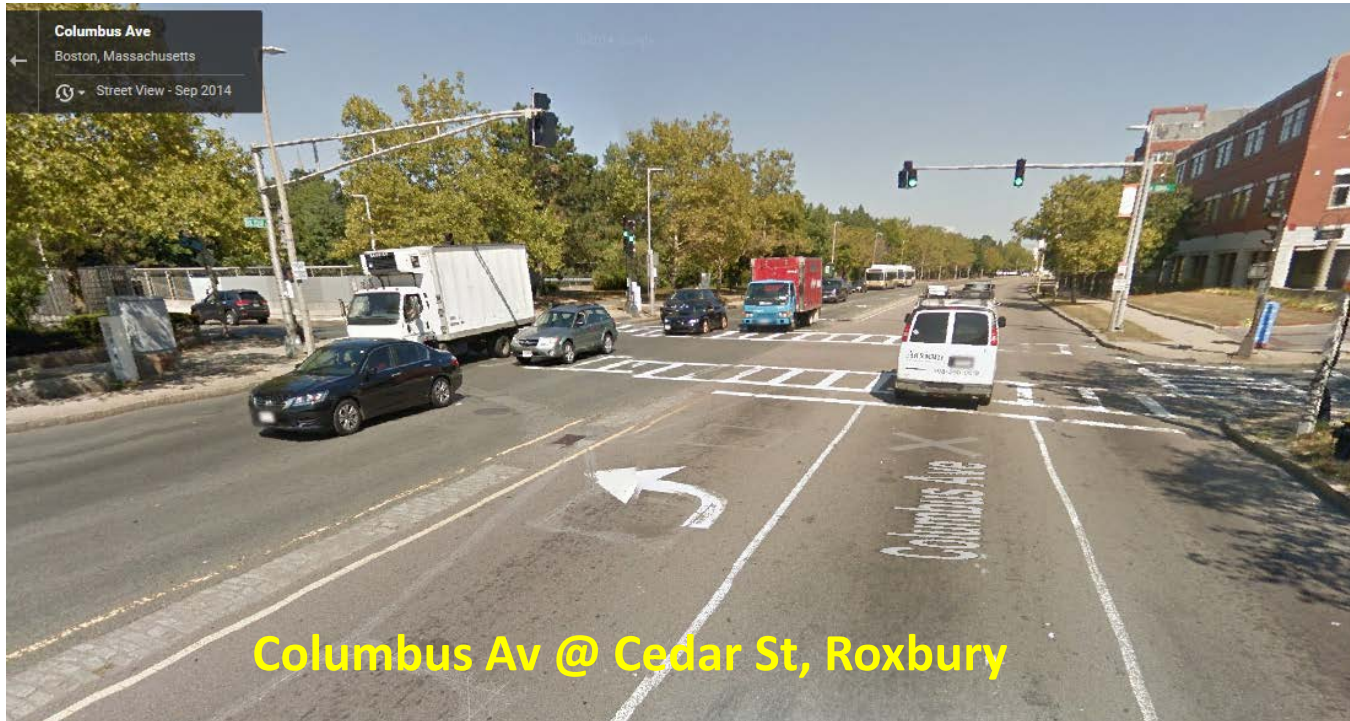
Corollary 3: Limiting Crossings to 2 lanes (preferably 1) at a time

Crossing Islands!!

- NL, Germany, etc:
Never cross more than 2 lanes at a time
- Delft: never cross more than one lane at a time!
- So much easier for children; much better compliance from cars.



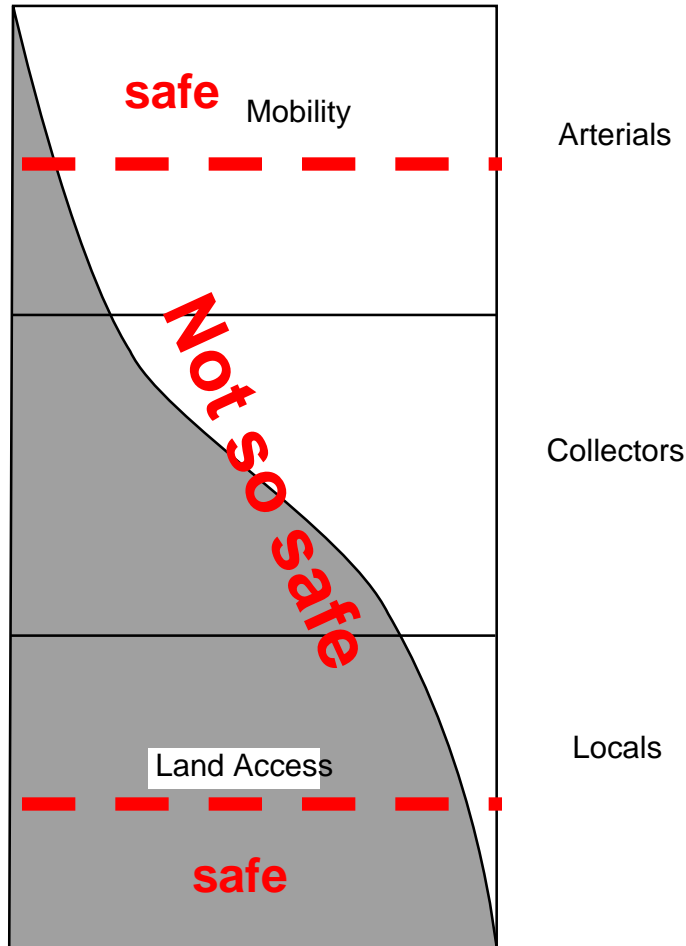
Corollary 4: Protected, not Permitted, Turns from Multilane Roads



Three Working Principles of Dutch Systematic Safety

1. Functionality
2. Homogeneity by Mass, Speed, and Direction
3. Recognizability

Principle 1: Functionality



- Try to steer each road to be either
 - Local street: get rid of thru traffic
 - Thru traffic street: limit driveways, parking, and segregate bikes

Harmony between ...

- Intended Use (Function)
- Design (Form)
- Actual Use



Examples

1. Crossing tables for sidewalks & cycle tracks
2. One-way street without bicycle contraflow
3. Bike lanes in commercial areas

Principle 2: Homogeneity

In a crash, it's better if the participants have a similar **direction, mass, and speed.**

- Physically separate bikes from traffic on main roads
 - Bike lanes OK only on 2 lane roads
- Roundabouts
 - Preferred intersection configuration



Principle 3: Recognizability

- The *self-explanatory road*
- Distinct designs and speed limits by road type
- Number of urban road types and speed limits reduced from 4 to 2
 - Local streets (20 mph)
 - Traffic streets (30 mph)



Local Access Streets

- 20 mph
- No centerline
- Brick pavement
- Keep thru traffic out
- In-street parking
- No crosswalks (usually)
- Bikes in mixed traffic (usually)
- Frequent stop / yield points



20 mph (30 km/h) zones



- Traffic calming **MUST** accompany 20 mph speed limit.
- National government provided 50% subsidy
- 70% of urban roads are now in 20 mph zones!

What has Vision Zero meant for urban Netherlands?

A proliferation of

1. Speed humps on local streets
2. 20-mph (30 km/h) zones
3. Crossing tables along main avenues
4. Crossing islands
5. Roundabouts
6. Road diets / road demotions
7. Cycle tracks in place of bike lanes
8. Bicycle contraflow on one-way streets