Public Transport effect on Road safety

بر اساس مطالعات انجام شده در انجمن حمل‌ونقل عمومی آمریکا(APTA)

The Hidden Traffic Safety Solution: **Public Transportation**

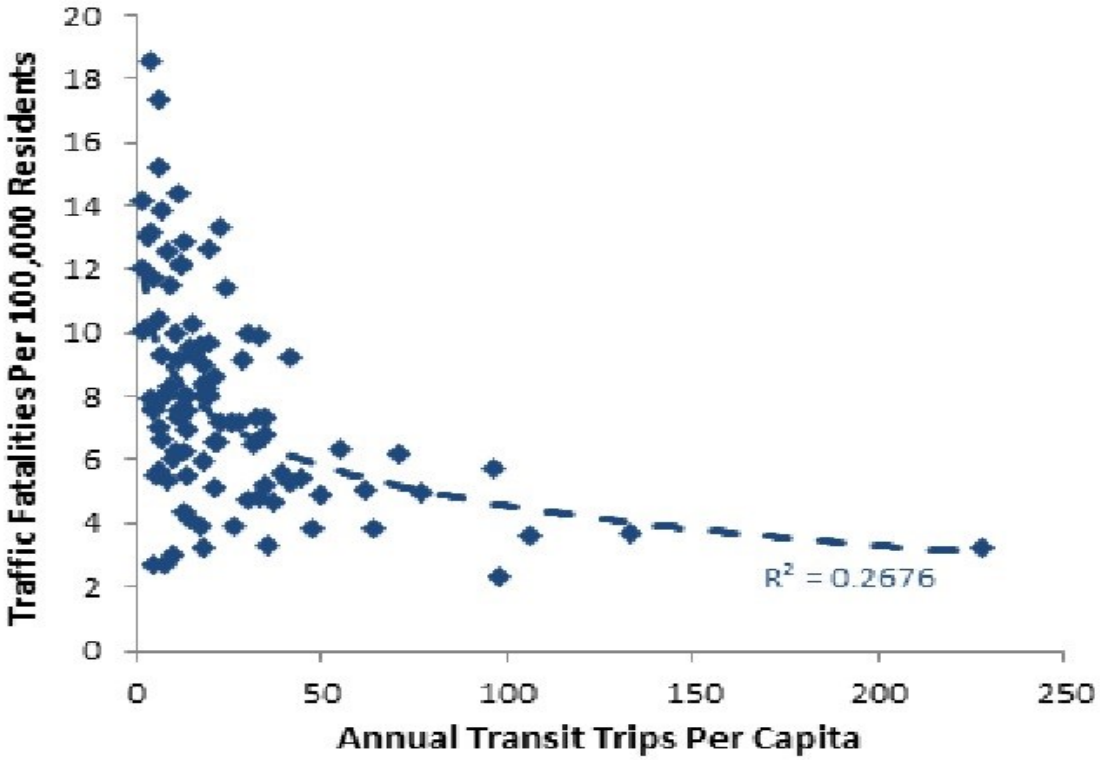
APTA

AMERICAN
PUBLIC
TRANSPORTATION
ASSOCIATION

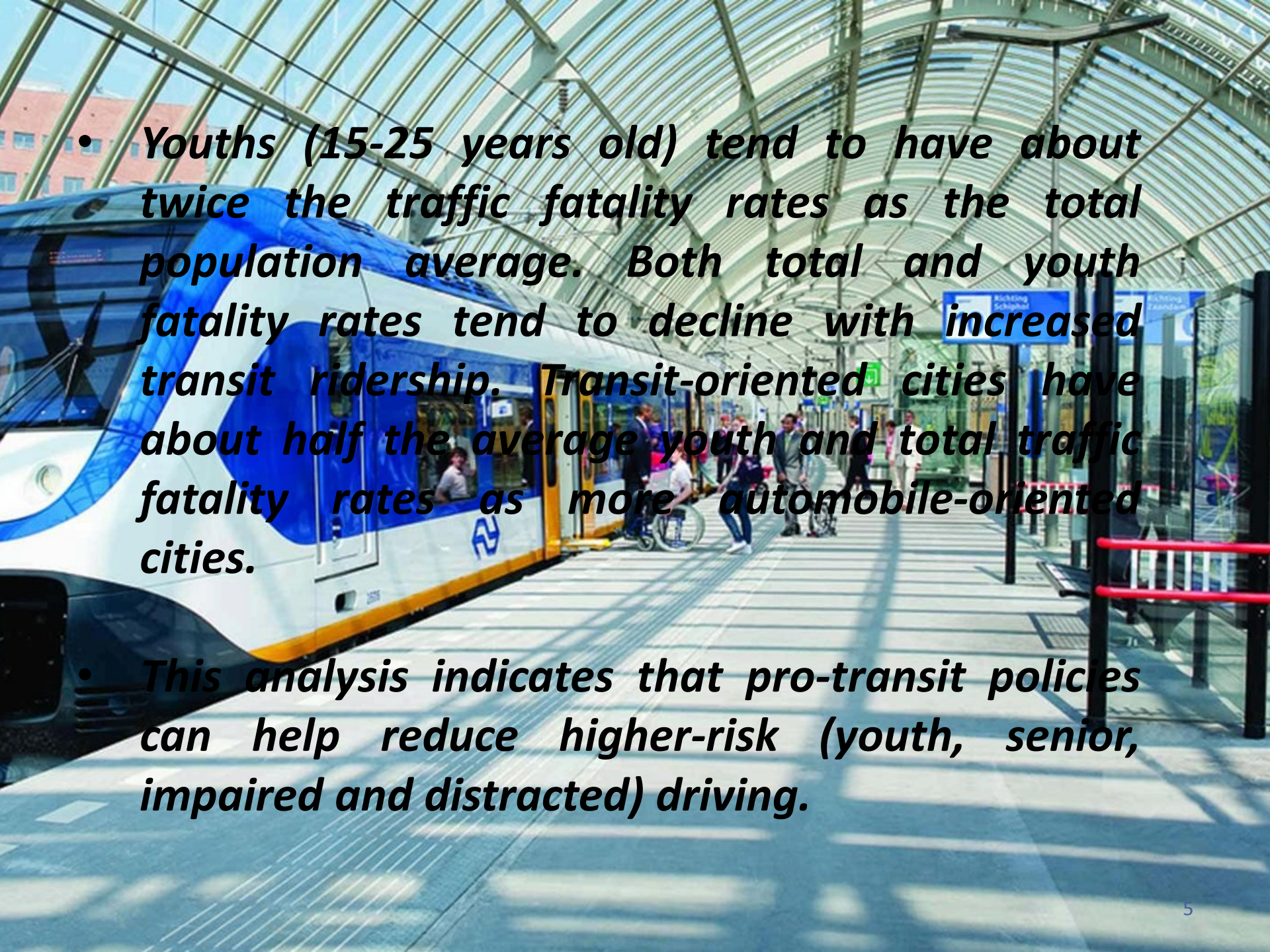
The hidden traffic safety solution: Public Transportation

- Public transportation is one of the safest ways to travel. It is ten times safer per mile than traveling by car
- Public transit-oriented communities are five times safer because they have about a fifth the per capita traffic casualty rate as automobile-oriented communities
- crash rates tend to decline as public transit travel increases in a community

Traffic Fatalities Versus Transit Ridership for U.S. Urban Regions



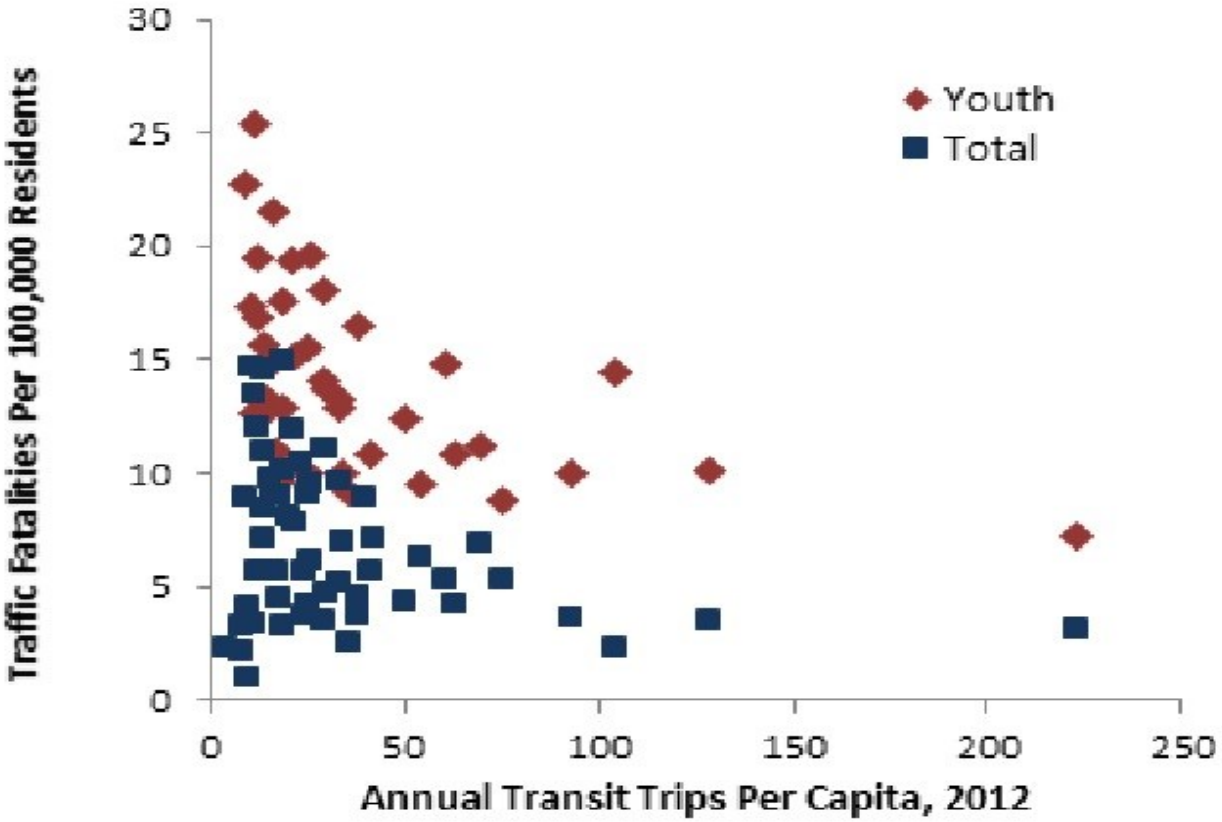
This graph illustrates the relationship between per capita transit ridership and total (including pedestrian, cyclist, automobile occupant and transit passenger) traffic fatalities for 101 U.S. cities.



- *Youths (15-25 years old) tend to have about twice the traffic fatality rates as the total population average. Both total and youth fatality rates tend to decline with increased transit ridership. Transit-oriented cities have about half the average youth and total traffic fatality rates as more automobile-oriented cities.*

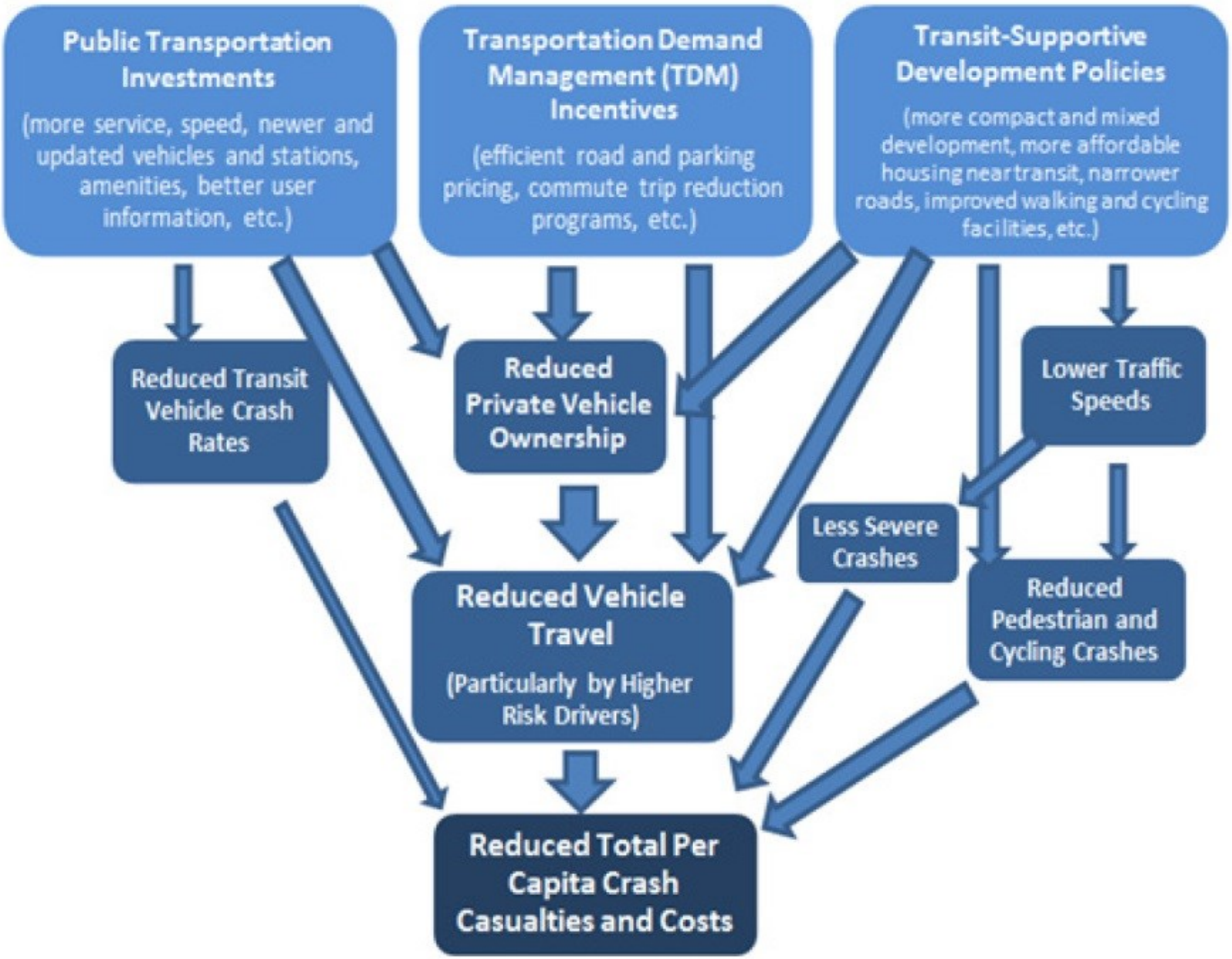
- *This analysis indicates that pro-transit policies can help reduce higher-risk (youth, senior, impaired and distracted) driving.*

Youth and Total Traffic Fatality Rates



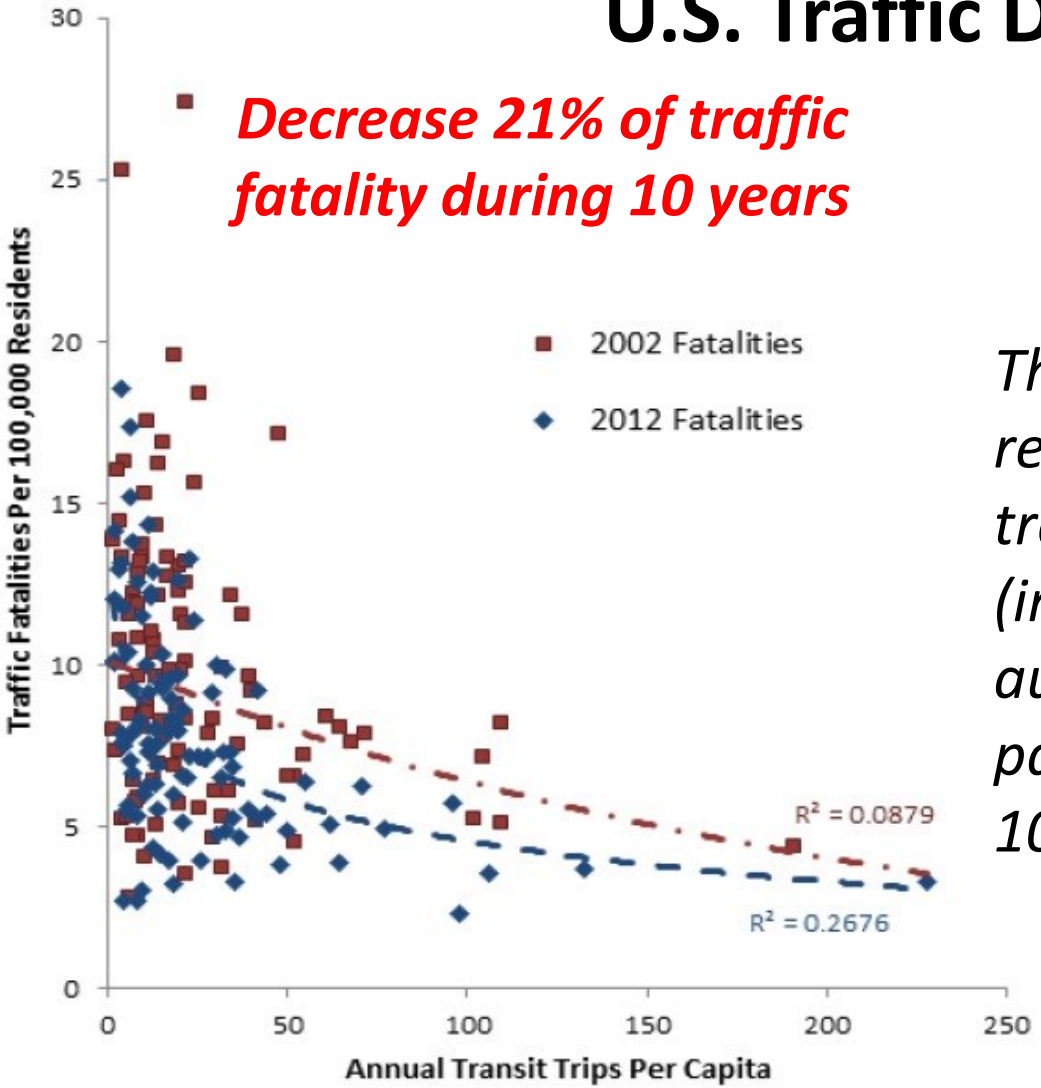
Transit-oriented cities have about half the average youth and total traffic fatality rates as more automobile-oriented cities.

Public Transit Traffic Safety Impacts



U.S. Traffic Deaths

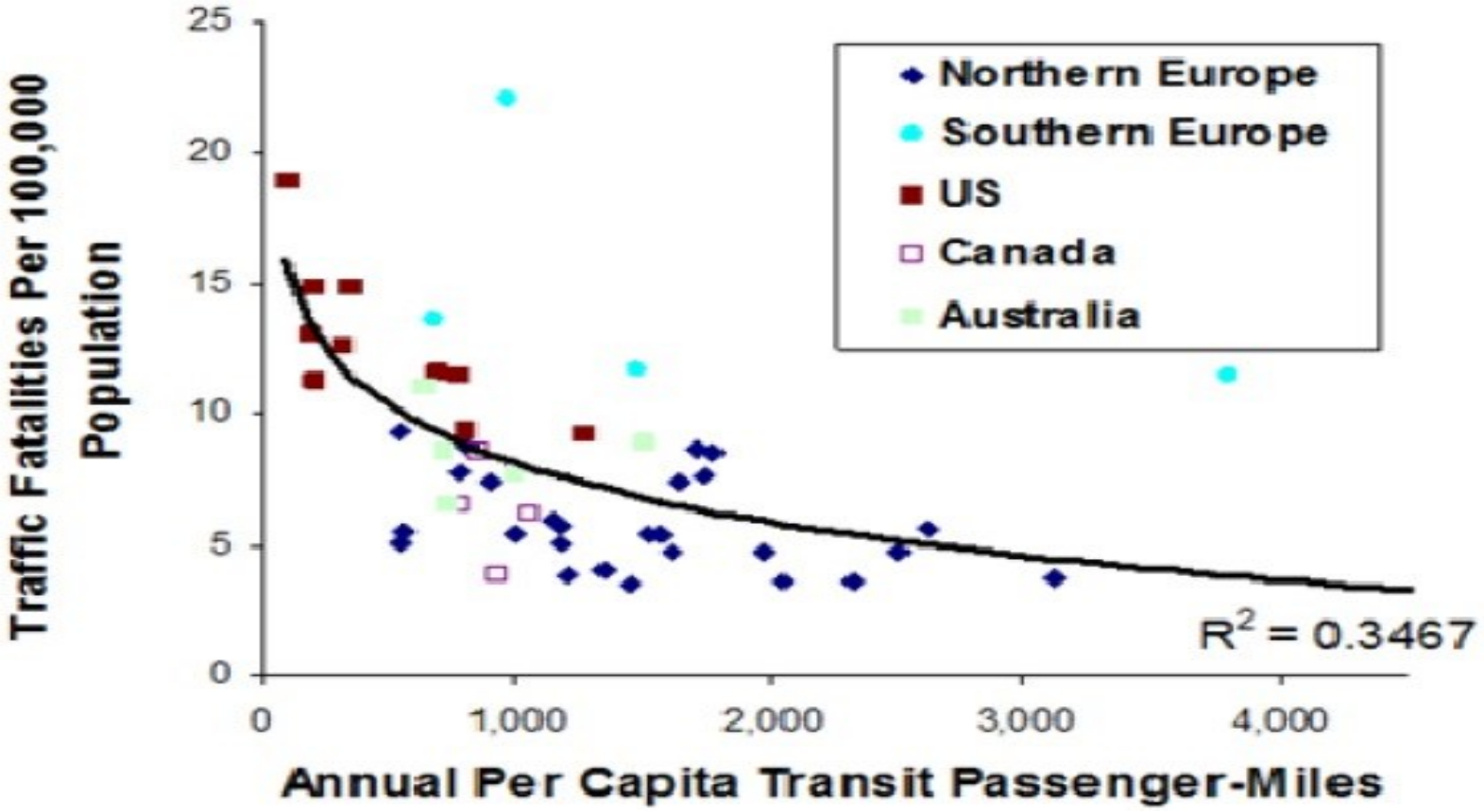
Decrease 21% of traffic fatality during 10 years



This graph illustrates the relationship between per capita transit ridership and total (including pedestrian, cyclist, automobile occupant and transit passenger) traffic fatalities for 101 U.S. cities in 2002 and 2012.

American Public Transportation Association, 2016

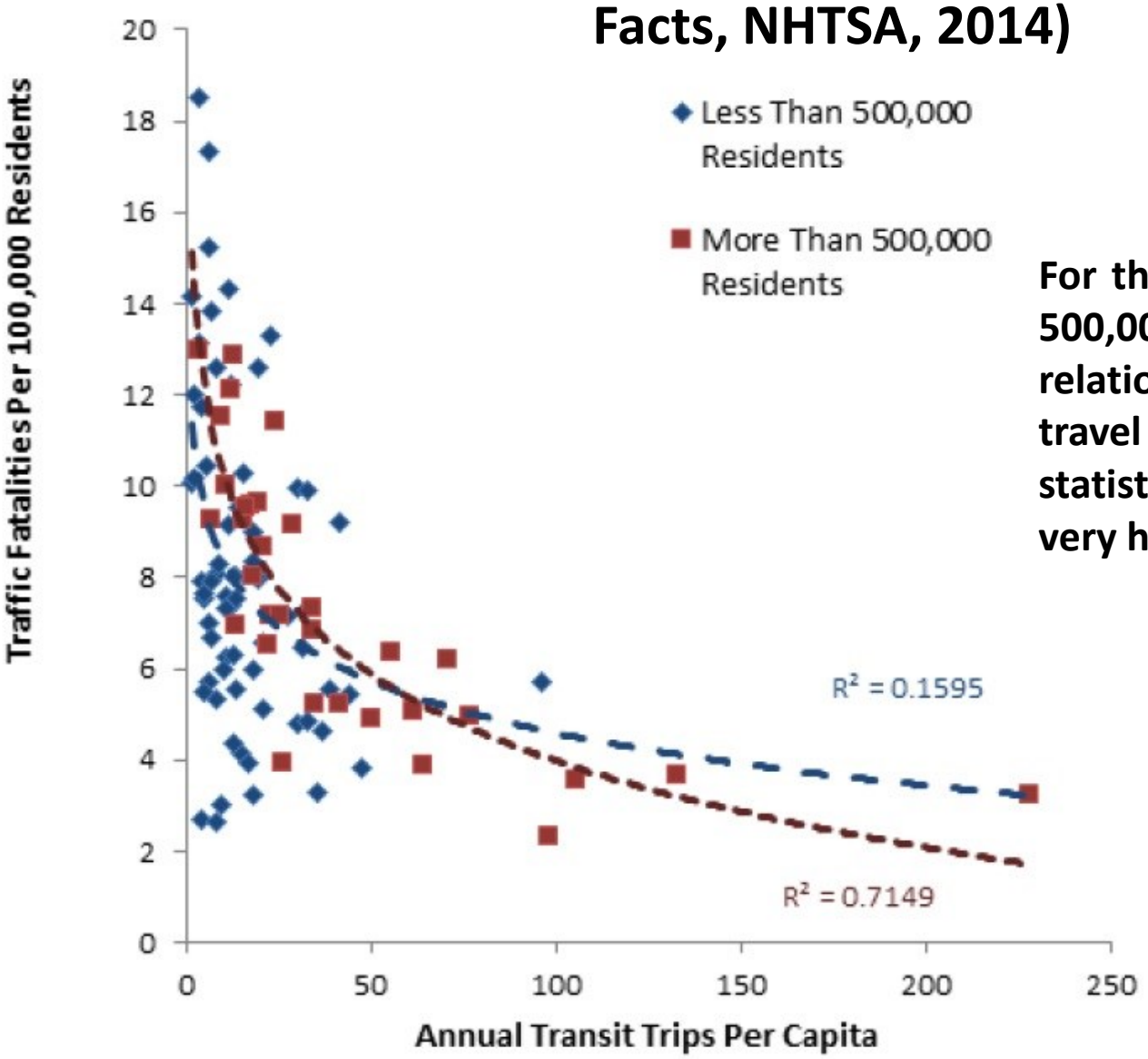
Traffic Fatalities Vs. Transit Travel



International data indicate that per capita crash rates tend to be lower in more transit-oriented cities. (Each dot indicates a major city)

American Public Transportation Association, 2016

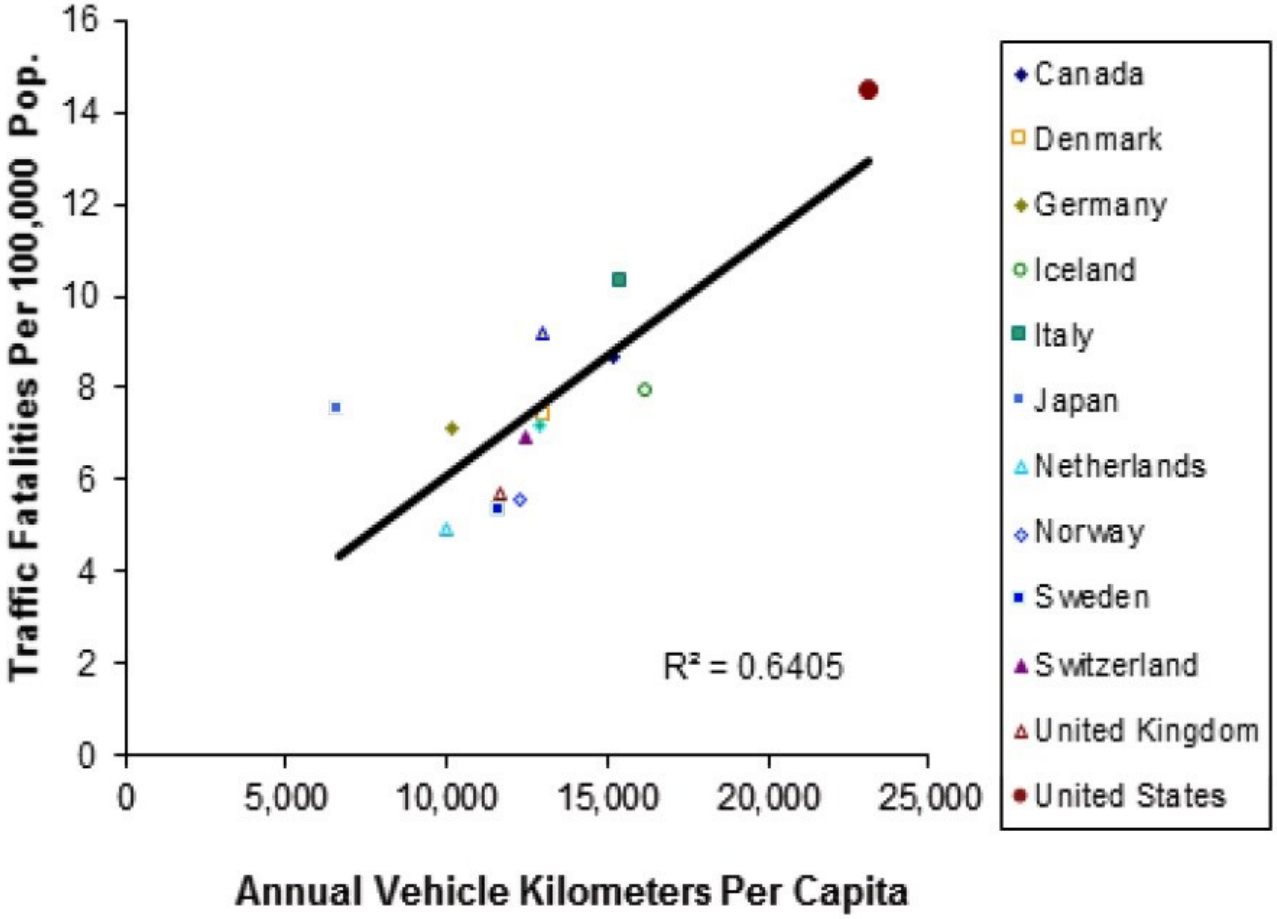
Transit Travel Versus Traffic Fatalities By City Size (Traffic Safety Facts, NHTSA, 2014)



For the 32 cities with more than 500,000 residents, the negative relationship between transit travel and traffic fatality rates is statistically very strong (R^2 is a very high 0.71).

American Public Transportation Association, 2016

Vehicle Mileage and Traffic Fatality Rates In OECD Countries



Among economically similar countries there is a strong positive relationship between per capita vehicle travel and traffic deaths. This can explain why the U.S. has the highest per capita traffic fatality rate, because we drive more than peer countries.

Comparing Strategies (Litman 2005)

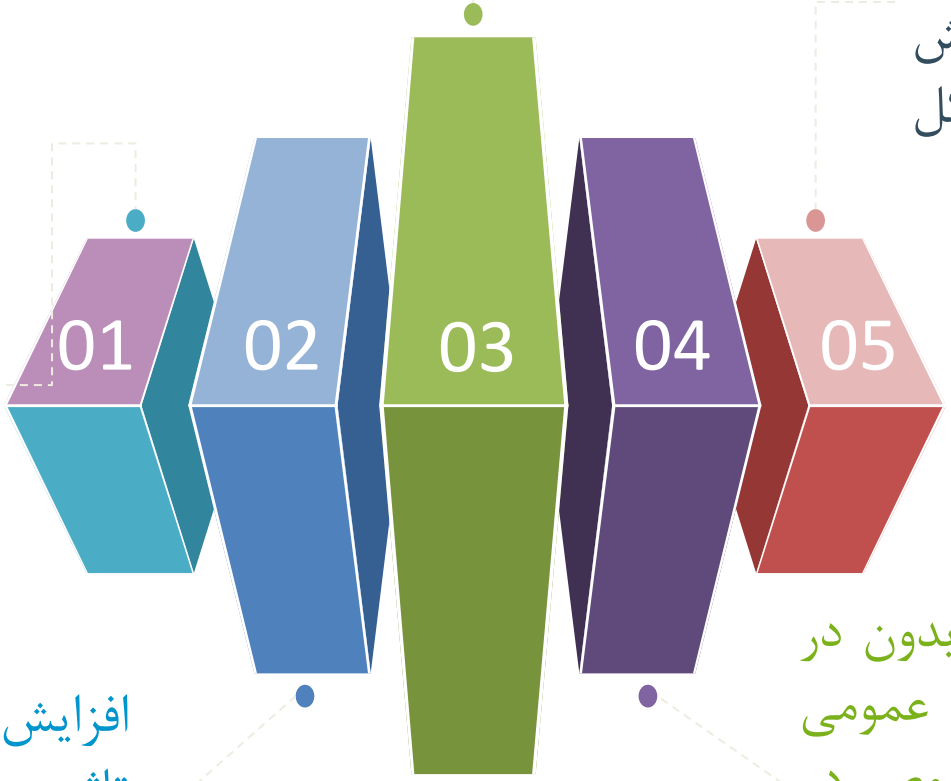
Benefits	Transit Encouragement	Transit-Oriented Development	Vehicle Safety Strategies	Roadway Safety Strategies
	more service, transit priority, amenities, incentives	Smart growth development policies	stronger bumpers, airbags, larger vehicles	grade separation, larger clearzones, speed reductions
Traffic safety	✓	✓	✓	✓
Congestion reduction	✓	Mixed[1]		Mixed[2]
Roadway cost savings	✓	✓		✘
Parking cost savings	✓	✓		
Consumer savings	✓	✓	✘	
Improved mobility options	✓	✓		
Energy conservation	✓	✓	✘	
Pollution reduction	✓	✓	✘	
Physical fitness and health	✓	✓		
Land use objectives	✓	✓		

جمع بندی

حمل و نقل عمومی به عنوان یک راه حل پنهان افزایش ایمنی حمل و نقل کمتر مورد توجه قرار گرفته است

افزایش ایمنی حمل و نقل عمومی می تواند بر روی تلفات بخش حمل و نقل عمومی و از طریق کاهش خودرو محوری بر تعداد کل تلفات تاثیر گذار باشد

با افزایش تعداد سفرهای حمل و نقل عمومی می‌توان تعداد کل تلفات حمل و نقل را به نصف کاهش داد



راهکارهای بهبود ایمنی بدون در نظر گرفتن حمل و نقل عمومی انبوه و ریل پایه به خصوص در کلان شهرها با محدودیت مواجه خواهند بود

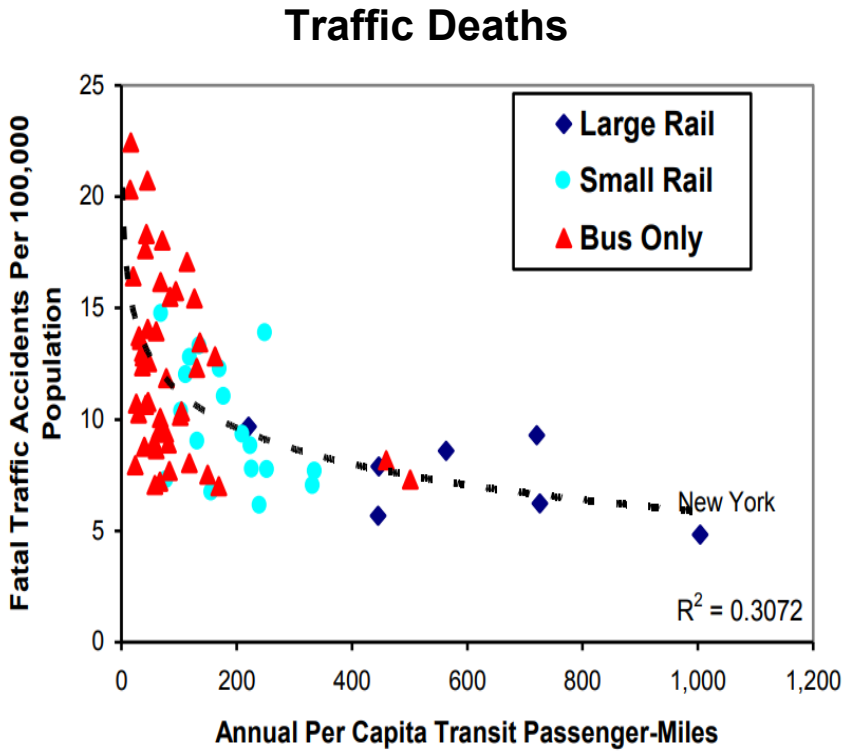
افزایش حمل و نقل عمومی تاثیر زیادی بر حذف رانندگان پرخطر و ایمن تر شدن راهها خواهد داشت

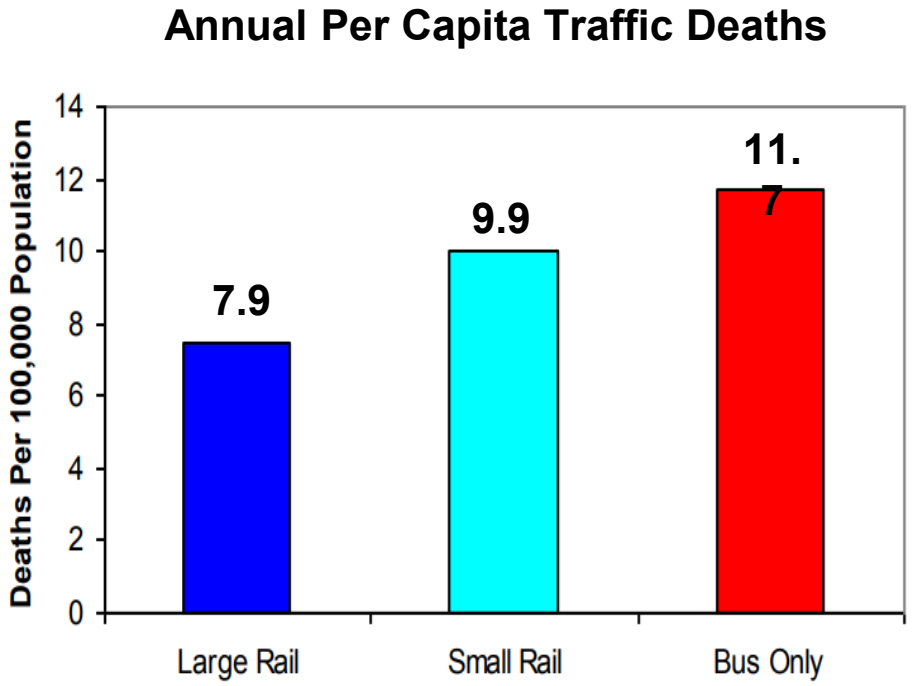
بررسی تاثیر حمل و نقل ریلی بر ایمنی

Impact of Rail transit on road fatalities in US

36% lower per capita traffic fatalities

$50 billion in annual savings

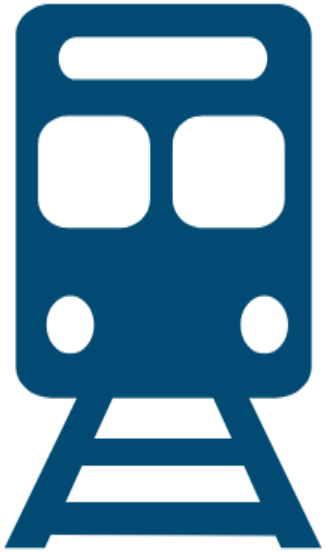




(NHTSA Data, Ewing, Pendall and Chen, 2002)

The impact of improving railway services on road accidents

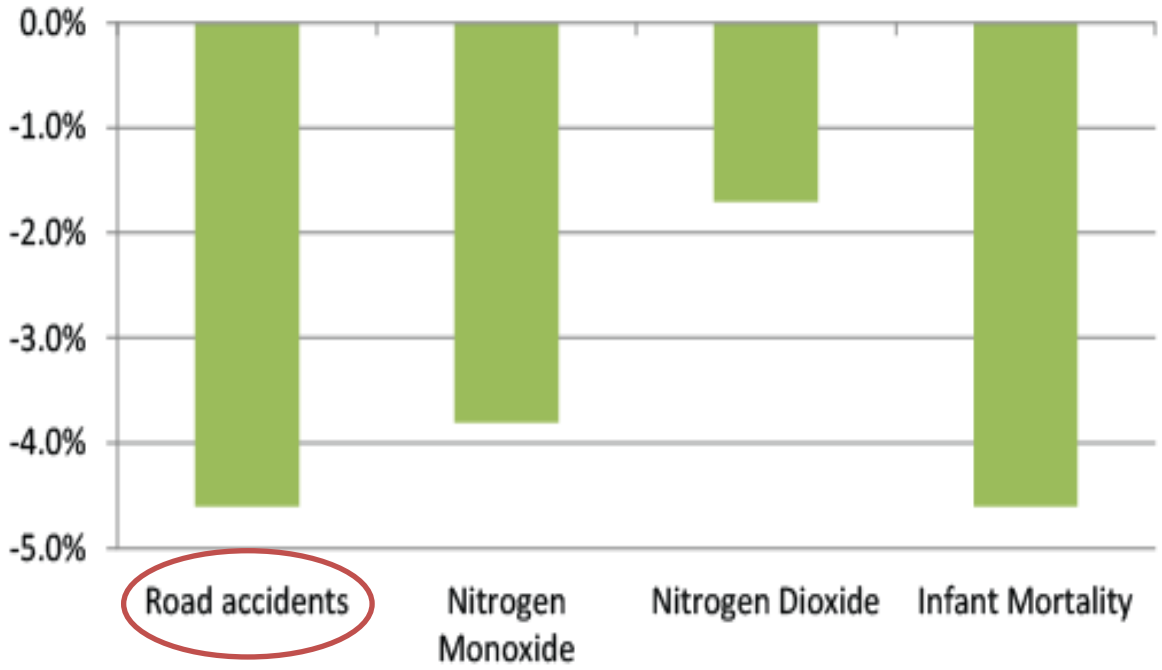
Expanding regional passenger railway services by 28%
between 1994 and 2004



- **Decreasing 13% in number of accident**
- **Saving 1105 million euro in one year**

University of Zurich, Department of Economics, 2013

- **frequency of service on 551 regional passenger lines in London**



10% increase in rail frequency

Centre for Economic Policy Research, London, 2013

Cost-Benefit on Plaistow NH –Haverhill Commuter Rail Line in US

Estimated total benefits for the project is $310.4 million breaking down as follows:

$155.3 million from a reduction in congestion

$87.8million in benefits to new users

$45.6 million from a reduction in car accidents (15%)

$11.3 million in benefits to existing users

$10 million in environmental benefits

$0.3 in pavement maintenance savings

HDR Company, prepared for the Rockingham Planning Commission, NH. (2010)