# What is traffic congestion?

1. Traffic congestion is the result of cities having more drivers than in the past with outdated maintenance, planning, and infrastructure that is not able to handle the needs of public roads.

<https://www.trafficsafetystore.com/blog/4-ways-cities-are-using-smart-technology-to-control-traffic-congestion/>

1. In simple words, congestion occurs when demand for road space exceeds supply.

However, it hasn’t always turned out this way in practice, and the reasons behind could be found in long-term effects of the induced demand. The term “induced demand” refers to the situation where as supply of a good increases, more of that good is consumed. This implies that new roads essentially create additional traffic, which in turn causes them to become congested all over again.

<http://theconversation.com/traffic-congestion-reconsidered-111921>

1. Huston example of induced demand:

<http://cityobservatory.org/reducing-congestion-katy-didnt/>

# Why traffic congestion happens?

* Parking as a congestion producer and time waster

<http://inrix.com/press-releases/cod-us/>

* Huston example of induced demand:

<http://cityobservatory.org/reducing-congestion-katy-didnt/>

* Uk car dependency increases

https://www.smartcitiesworld.net/news/uk-car-dependency-increases-3364

# What are the consequences associated with these problems?

* Parking as a congestion producer and time waster

<http://inrix.com/press-releases/cod-us/>

* Pollution in Europe due to congestion

<https://www.citylab.com/transportation/2016/09/london-has-europes-worst-congestions-says-a-new-study/499640/>

* "Though the total carbon emissions are still on a rising trend, the three cities have already achieved some emission reduction results compared with the business-as-usual scenario. Reductions have reached 0.95, 1.53 and 0.98 million tons in Suzhou, Chengdu and Harbin respectively."

<https://www.worldbank.org/en/news/feature/2018/11/16/reducing-traffic-congestion-and-emission-in-chinese-cities>

* Inrix calculated the economic cost of congestion across the US, UK and Germany at almost $461 billion in 2017 or $975 per capita. And there is another critical issue at stake: pollutants in vehicle emissions contribute to poorer air quality and premature deaths in cities around the world.

<https://www.smartcitiesworld.net/special-reports/special-reports/traffic-congestion-cutting-through-the-complexity>

* Reduced Productivity
* Reduced Emergency Assistance
* Noise Pollution
* Increased Accidents
* Air Pollution

<https://www.trafficsafetystore.com/blog/4-ways-cities-are-using-smart-technology-to-control-traffic-congestion/>

* Fuel Consumption & Pollution
* Road Rage
* Emergency Vehicles

<https://traveltips.usatoday.com/effects-traffic-congestion-61043.html>

# How cities address congestion?

* LONDON

In 2003, London implemented a Congestion Charging fee. The city is still underperforming.

London cars may now be moving “slower than a horse and cart” but that doesn’t necessarily mean the congestion charge was a failure. (<https://www.citylab.com/solutions/2016/10/traffic-in-london-is-out-of-control-what-happened/505454/>)

Is London running out of roads? <https://www.ft.com/content/40774fc6-76b5-11e6-bf48-b372cdb1043a>

* SINGAPORE

Car ownership is controlled through quota system introduced in 1990s. Car buyers bid for Certificate of Entitlement (COE) – the right to car ownership and usage of road space. Its cost is determined by demand and supply for vehicles, meaning that if demand is high, COE could become more expensive than the car itself. However, this measure showed some limitations. Many people felt that as long as they are paying such a high cost for driving, they should use their car as much as possible – hence the traffic congestion worsened.

<http://theconversation.com/traffic-congestion-reconsidered-111921>

* NEW YORK

Following the example of London, in 2021 New York will become the first US city to implement congestion pricing for select zones of Manhattan. The measure has been long discussed and disputed, with various proposals surfacing and dying regularly over the last 10 years. Why? Congestion charges are politically challenging to undertake, to say the least.

<http://theconversation.com/traffic-congestion-reconsidered-111921>

In the case of New York, congestion charging is intended to address several worrying indicators. As of 2018, average car speed has fallen to 4.7 mph, which is only slightly faster than walking.

* LOUISVILLE

The data and the traffic cam photos suggest that Louisville has demonstrated a powerful, fast-acting solution for reducing traffic congestion: charge a toll. It’s too bad they found out only after spending in excess of a billion dollars building new road capacity that apparently wasn’t needed or valued by those who travel across the Ohio River each day. Maybe other cities can learn from the Louisville’s expensive experiment.

* SUZHOU, CHENGDU & HARBIN (CHINA)

<https://www.worldbank.org/en/news/feature/2018/11/16/reducing-traffic-congestion-and-emission-in-chinese-cities>

* CONGESTION FEE DEBATE

<https://www.autonews.com/shift/fee-zones-cities-ease-traffic-congestion-spark-controversy>

* NORTHERN VIRGINIA

Northern Virginia in the US, meanwhile, consistently ranks as one of the most congested areas in the country. Because building new roads or expanding highways isn’t possible, it wanted to reduce travel demand and has been tapping into data supplied by mobility metrics specialists Streetlight Data since 2015.

Northern Virginia has been able to scan hundreds of congested road segments at different times and types of day to identify those with the highest volume of short trips and the most trips between specific origins and destinations. These segments can then be targeted for transportation demand management tactics such as bike lanes and other transit options.

"This data helped us understand the likely effects of 24 projects that were under consideration," said Keith Jasper, programme coordinator, Northern Virginia Transportation Authority. "The origin-destination information was incredibly useful for understanding behavior in and between activity areas."

<https://www.smartcitiesworld.net/special-reports/special-reports/traffic-congestion-cutting-through-the-complexity>

<https://www.smartcitiesworld.net/news/virginia-taps-into-traffic-intelligence-2509>

<https://www.ericsson.com/en/blog/2018/6/we-need-three-dimensional-traffic-congestion-solutions>

* Tunnel LA
* Drones delivery

<https://www.gokid.mobi/four-ways-we-can-solve-city-traffic/>

* Ride Sharing and Ride Hailing Apps
* Implementing Adaptive Traffic Signals
* Drones to the Rescue?
* Carpooling

<https://www.trafficsafetystore.com/blog/4-ways-cities-are-using-smart-technology-to-control-traffic-congestion/>

* Adaptive Traffic Signals
* Real-Time Traffic Monitoring
* Smart Corridors <https://statetechmagazine.com/article/2017/09/smart-technology-makes-managing-traffic-breeze-transportation-departments>
* Cities Turning To IoT To Help Solve Traffic Congestion

# What is the connection with the SDG?

* "Though the total carbon emissions are still on a rising trend, the three cities have already achieved some emission reduction results compared with the business-as-usual scenario. Reductions have reached 0.95, 1.53 and 0.98 million tons in Suzhou, Chengdu and Harbin respectively."

<https://www.worldbank.org/en/news/feature/2018/11/16/reducing-traffic-congestion-and-emission-in-chinese-cities>

# How congestion is being measured? Who measures congestion?

# Critiques of measures? And political agenda behind indexes

* Against INDRIX

<http://cityobservatory.org/why-the-new-inrix-traffic-scorecard-deserves-a-d/>

<http://cityobservatory.org/cappuccino-congestion-index/>

The INRIX report only says, “The 2018 Global Traffic Scorecard not only analyzes time lost, but also the severity of congestion.” Yet I don’t find any measures of “severity” anywhere in the report.

<https://www.newgeography.com/content/006242-inrix-2018-congestion-scorecard>

* Methodological concerns

<http://cityobservatory.org/the-top-ten-reasons-to-ignore-ttis-urban-mobility-report/>