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# Congestion in Malta: the implications on Climate Change

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## Congestion in the Malta

Malta is an island state with an area of just 316km<sup>2</sup> with a population of 417,432 (NSO, 2014a). Malta developed economically at a stable rate of increase since the early 90s.

This economic growth has also reflected on its demographic and land use patterns. Population growth has slowed down in the last two decades mostly because of a fall in the birth rate. Mobility patterns of the population have changed significantly.

Since the early 90s, Malta experienced a rapid growth in motorization and a decline in public transport use and in active mobility (walking and cycling). This is most evident in the national modal split (Figure 1).

Other factors that contributed to the growth in motorization are:

- Increase in Household Income
- Increase in Car Ownership and Car Use
- Inappropriate coordination between transport and land use
- Inadequacy of public transport services
- Road Infrastructure
- Cost of private transport

Malta has 9.5% of the total network heavily congested when compared to the EU average of 1.7%. Peak hour congestion is a major problem in Malta, when compared to other European Member States (Table 1).

The two districts with the highest Congestion Index (showing the average seconds of delay per km) are the Northern Harbour and Southern Harbour regions (Figure 2). Figure 3 shows the geographic extent of congestion on the main road network.

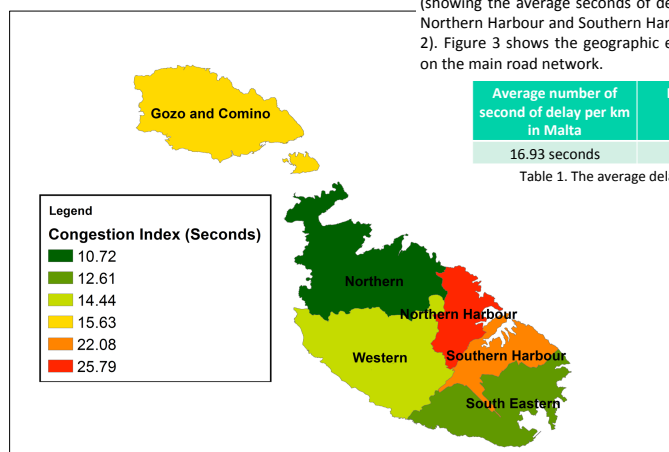


Figure 2. Congestion Index Per District showing average seconds of delay per km

Average number of second of delay per km in Malta	European Average
16.93 seconds	5.74 seconds

Table 1. The average delay per km compared to the European average

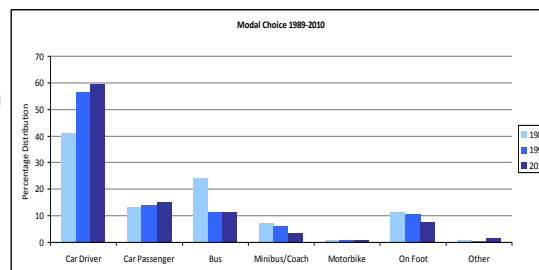


Figure 1. Modal Split for Malta 1989-1998-2010 (Transport Malta, 2011)

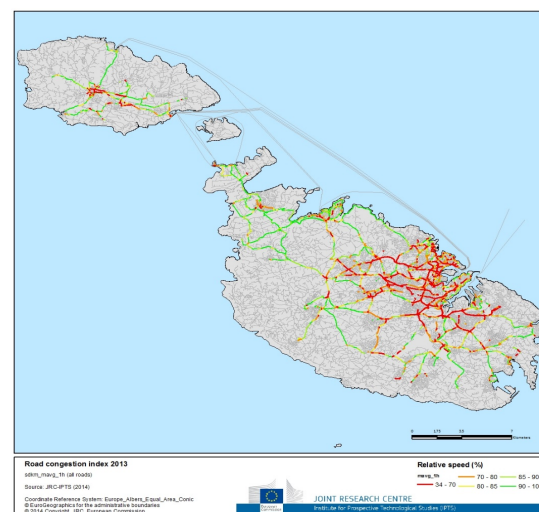


Figure 3. Road Congestion Index 2013 for Malta (JRC, forthcoming)

## Congestion and Climate Change External Costs



Figure 4. External Costs of Transport by Category in 2012 (€ millions)

For Climate Change, external cost calculations are often based on estimated avoidance costs rather than damage costs. Road transport in Malta dominates CO<sub>2</sub> emissions and are therefore very relevant for estimating climate change effects. The emissions for 2012 were derived from the estimated average annual emissions for vehicles and modified to account for average km per year, applicable for Maltese commuters (7,800km). The average emissions were estimated at 1,785 kg per year and based on the total number of vehicles (291,975) the total kg for all cars per year was derived. A central value of €90 per tonne was applied. The total abatement (or avoidance) cost of climate change in 2012 was estimated at €46.8 million.

## Key Recommendations of the Study

- An effective public transport service is a key component to encourage modal shift and reduce the external cost of transport.
- Road pricing and paid parking, supported by complementary educational, environmental and planning measures, could prove effective in reducing the impact of transport.
- Studies are needed to investigate the policy on land use and how this affects transport patterns and future development.

The study found that in 2012 congestion was the biggest contributor amongst the five chosen determinants (Figure 4). The two sources of direct congestion costs were (i) the opportunity cost of time wasted and (ii) the cost of wasted fuel whilst delayed in congested traffic.

Based on a total number of commuting trips of 624 per car owner per year for 25 minutes each, the total number of hours commuting by car was 260 hours per year. Based on an assumed average speed of 30 km per hour, the total number of kilometres was estimated at 7,800. Using the average seconds delay per km for the Northern Harbour and Southern Harbour Regions (23.94secs), the lost hours per commuter/driver per year was estimated at **52 hours**. With diesel and petrol-powered vehicles totalling 115,332 and 176,643 respectively, the 2012 value of fuel wasted for a total of 52 hours (€1.44 per litre for unleaded fuel and €1.38 for diesel) added up to €25.8 million. The increased cost to business was the result of the product of the hours lost due to congestion, the factor cost representing value of time, and the number of commercial vehicles. The increased cost of doing business was estimated at €32.4 million. The cost to commuters was also factored in. The value of time lost was taken as the non-working time value. Cost estimated at €59.7 million. The total cost of congestion was estimated at **€117.9 million**.

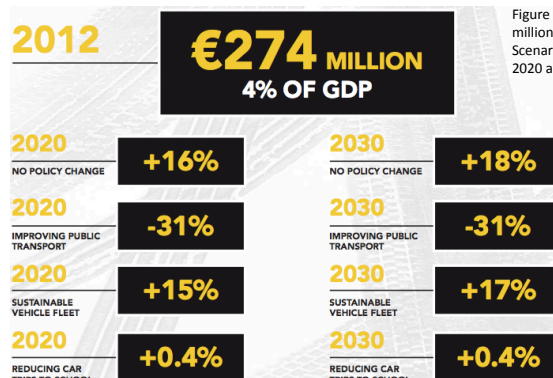


Figure 5. Projected External Costs (in millions) based 2012 for No Policy Change Scenario and three Policy Actions for 2020 and 2030.



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