

# Summary

## **Growth of national passenger mobility flattens**

The number of kilometres travelled by residents of the Netherlands aged 12 years and older increased by 4 percent over the past 25 years. This growth primarily occurred during the 1980s and 1990s. From 2000 to 2011, the number of kilometres travelled increased much more slowly than previously, namely by approximately 4 percent. Since 2005, the increase in national mobility of persons has flattened, particularly with regard to car use. For all transport modes together, the past years have seen little change in the number of journeys per person and amount of time people spend travelling.

## **Flattening of car mobility is not structural per se**

It is unclear if the flattening in the growth of car mobility will also continue in the future: in 2011 the Dutch people again travelled more by car than in 2010. Given the recent flattening of growth and the current economic downturn there is a fair chance that coming years car mobility will only show a moderate growth of 1 to 2 percent per year. This development of car mobility will still fall within the bandwidth of the most recent forecasts from the Nationale Markt- en Capaciteitsanalyse (National Market and Capacity Analysis). In 2013, KiM expects a further decrease in congestion levels on the main road network due to road expansions. Thereafter, traffic volumes remain to increase owing to an improving economy and a slight decline in real fuel prices, and congestion levels will rise again.

## **Measures to prevent congestion on the main road network successful**

From 2000 to 2011, travel time loss due to traffic jams and congestion increased by 22 percent on the main road network. However, this period of time was marked by large fluctuations: from 2000 to 2008, travel time loss increased by 55 percent, followed by a fall and a rise in the years thereafter. In 2011, travel time loss on the main road network decreased by 18 percent compared to 2010, while at the same time traffic volumes rose by 3 percent. In analyzing the entire period from 2000 to 2011, increased traffic can be attributed to local changes in the numbers of residents, numbers of employed people, and car occupancy rates at certain places and times. These local changes are the primary factors behind increased travel time

loss. In addition to rising fuel prices and weather conditions, policy measures, such as implementation of peak hour lanes, road expansions and traffic management, have resulted in travel time loss decreases. The effects of these measures were particularly apparent in recent years.

Until 2010, the Amsterdam region, one of the three core economic regions, had the highest level of travel time loss: approximately one-third of the total for the entire main road network. In 2011, this share decreased to the same level of the Rotterdam – The Hague area (Zuidvleugel).

#### **Less growth in car mobility also apparent elsewhere**

The growth of national car mobility has not only flattened in the Netherlands, but also in other countries, particularly in the US, Australia, Japan, France and Germany. In countries with emerging economies, however, mobility is growing strongly.

#### **Car use: more 'solo', less 'multiple' passengers**

People in the Netherlands increasingly travel alone in their cars. The number of kilometres that Dutch people travel in the passenger seats or backseats of cars decreased by 9 percent over the past 11 years, particularly since 2005. The reason for this is due to the fact that more people per household have increasing access to cars. Car ownership rates among women have particularly increased, owing to higher employment levels, among other factors. Car drivers travelled a total of 10 percent more kilometres in 2011 than in 2000. This growth flattened starting in 2005. Rising fuel prices and the recent economic crisis had an additional dampening effect.

#### **Leisure time travel: less often but further away**

An increasingly larger share of leisure time is coupled with mobility. Leisure time mobility has increased sharply over the past 25 years, as incomes increased, car ownership rates increased, the costs of owning a car decreased, and the supply of leisure time activities increased. Meanwhile, the volume of the leisure time traffic stabilized. People travel less often, but they travel further distances. The latter is likely related to an increase in scale of the leisure sector and an increasingly more specialized offering of leisure time activities.

#### **Car ownership and drivers' license possession still increasing in the Netherlands**

The amount of time we spend on domestic travel is no longer increasing, which is a possible sign of a certain type of saturation. We do not see this reflected in the development of car ownership, however, which has slightly increased, whereas in other countries the ceiling has seemingly been

reached. The possession of drivers' licenses in the Netherlands continues to increase, both among younger and older people. A key driver of mobility growth is women's participation in the labour market, which, since 2008, has stabilised.

#### **Young adults spend less time travelling**

Over the past decade, young adults, particularly in England and Germany, use cars less frequently and instead opt to travel relatively more by bicycle and public transport. In the Netherlands, we see a similar trend: young adults travel less, travel fewer kilometres, and spend less time travelling. There are however differences according to gender, motives for travelling, and educational levels. In addition, the size of this population group has decreased.

#### **Internet society seemingly not resulting in less mobility**

In general, the influence of ICT on mobility and the flattening thereof cannot yet be firmly established. The rapid rise of e-commerce has indeed had an effect on passenger and freight transport, but has made a limited contribution to the flattening of mobility growth. Due to e-commerce, mobility sometimes decreases (for example, when booking trips via internet rather than at a travel agency), and sometime creates new mobility (for example, discount coupons sent via email that must be used in person in a store). E-work is increasing and can lead to reductions in mobility or people working at varying times, but this can also lead to new mobility. The net effect of this is unclear, and this also applies to the mobility effects of social networks, which are especially used by young people.

#### **International mobility limited explanation for flattening of growth**

Trips abroad increased much more sharply in recent years than journeys within the Netherlands. This increase provides only a limited explanation for the flattening of growth in domestic car mobility. This is a result of the fact that the total number of international trips, relative to those undertaken within the Netherlands, is approximately only 2 percent (walking and cycling are not included).

The majority of international trips cover relatively short distances and concern daily activities, such as living, working, shopping and studying. Approximately 12 percent of international trips involve holidays. The distances travelled during holiday trips have increased spectacularly. The airplane claims an increasingly larger share and renders longer trips possible despite the limited time budgets of most holidaymakers. The car's share of international mobility is decreasing. Contributing to this development are increased prosperity and falling airline ticket prices stemming from the rise of low-cost carriers.

### Little change in division among transport modes

There has been little change since 2000 in how mobility is divided among the various transport modes. In 2011, half of all journeys in the Netherlands were undertaken by car, a quarter by bicycle, one in five on foot, and one in twenty with public transportation. Of all the kilometres travelled, the car claimed nearly three-quarters, public transport 13 percent, and the bicycle 8 percent. Approximately half of all kilometres travelled involved visits to family or friends, going out or leisure time trips. Since 2000, the largest increase occurred in home-to-work travel: an increase of 18 percent. During this time period, more Dutch people were employed and the average home-to-work journey distance increased from 16 to 18 kilometres. The primary reason for this was that over the past decade the number of employees with higher educations, high incomes and fulltime jobs increased, and these people are willing to travel further distances to work.

### Major regional differences in public transport use

On the national level, the train, bus, tram and metro play a modest role: 5 percent of all journeys. There are however major differences on the regional level. The use of public transport to and from the five largest urban areas during the morning peak hours is just slightly less than by car. School aged youth and students account for approximately 40 percent of all train, bus, tram and metro kilometres.

### Train use further increases

Between 2000 and 2011, the number of kilometres travelled by train increased by 17 percent. Population growth, economic development, the increasing numbers of students with an OV student public transport pass, and the extended supply of trains were all contributing factors to this development. An increase in ticket prices led to slight slowing in the growth of train use during this period. Train use over the years has proven to fluctuate: from 2004 to 2007, the annual growth rate was 4 to 5 percent, while from 2008 to 2012 the annual growth was less than 1 percent. This fluctuating growth was due to the credit crisis and its aftermath, and possibly also to the tardy performance of the NS railway company with regard to delayed trains. In 2011, growth recommenced, in large part due to increases in the use of the OV student public transport pass.

### Urban and regional transport stable for a long time

The total use of urban and regional transport in the Netherlands increased by 6 percent from 2000 to 2011, which was more or less equal to the population growth rate. Major differences exist between regions, however. Certain new, high quality public transport lines (Zuidtangent Haarlemmermeer, RandstadRail, HOV Twente) have experienced remarka-

ble growth, while there were decreases on other lines. From 2000 to 2009, transport was on average stable, with few fluctuations. Preliminary figures for 2009 to 2011 revealed growth. During this time period, the OV public transport chipcard was further implemented and it became increasingly difficult to measure transport. It is therefore unclear whether transport growth during this period was a consequence of a difference in methodology or the result of an actual larger number of passenger kilometres travelled.

#### **Cyclists travel longer distances**

Since 2000, cyclists travelled a total of 14 percent more kilometres. This is partly a result of population growth and partly due to the fact that people also use bicycles more often and travel longer distances on them. This increase applies for all travel motives, except for shopping. Older people in particular account for increased bicycle use, as there are now more senior citizens and they cycle more often. Journey distances by bike have increased, which is related to expanding provisions and urban sprawl, which has therefore made home-to-work journey distances longer. Bicycles are increasingly used in combination with train journeys. Currently this applies to 4 percent of all bicycle trips. According to estimates, approximately 6 percent of all Dutch people above the age of 12 own an electric bicycle. E-bike kilometres primarily concern new transport and also replace normal bicycles kilometres.

#### **Increasingly more people fly from regional airports**

The number of passenger movements at Dutch airports increased from approximately 40 million in 2000 to approximately 54 million in 2011. Although there was a sharp decline in the 'crisis year' of 2009, this was followed by rapid recovery in 2010. Owing to strong growth in 2011, air transport in that year exceeded the levels achieved in the sector's best years of 2007 and 2008. Regional airports in particular have enjoyed remarkable growth in recent years, with their share of the Dutch aviation market increasing from 4 percent in the 1990s to 8 percent in 2011. Eindhoven is the largest regional airport. The recent implementation of a flight tax in Germany has contributed to the growth of the airports in Maastricht and Eindhoven. Approximately one-third of all Dutch people travelling via Amsterdam Airport Schiphol arrive at and depart from the airport by train. This figure is nearly 50 percent for foreign visitors.

#### **Freight transport via road trails other transport modes**

The growth in freight transport witnessed in 2010 continued in 2011, but this does not apply equally to all transport modes. In 2010, sea shipping exceeded the level reached prior to the credit crisis of 2008/2009, as did

inland waterway shipping in 2011. Similarly, in 2011, railway transport came close to the levels reached prior to the credit crisis. Only road transport remained well below the levels achieved in 2008, which is primarily attributed to sluggish domestic consumption and construction investments. The growth of air freight stagnated due to the recent economic downturn. In 2011, Dutch sea ports lost some ground to other ports in the Hamburg-Le Havre range, especially to Hamburg and Bremen. The Port of Rotterdam's market share for container transfers increased in 2011, because sea-sea transit experienced 15 percent growth.

#### **Decrease in real transport costs for freight transportation**

A significant shift in global trade occurred over the past decade, as increasingly larger shares of trade – and with it international freight transport – was focused on emerging economies, such as Brazil, Russia, India, China and South Africa. In tonnage, freight transport to and from the Netherlands increased by 11 percent from 2000 to 2011. Economic growth and internationalization significantly contributed to this growth. Increasing costs and tariffs over the past 20 to 30 years have seemingly had no impact on transport demand. Because general price developments were considerably higher during this period, freight transport became relatively less expensive.

#### **Moderate outlook freight transport**

Freight transport in 2012 and 2013 has a moderate forecast, which is related to limited economic growth. For 2012, KiM expects railway and air freight transport volumes to decrease, and for road freight transport and inland waterway shipping to stabilize. In 2012, port container transfers are expected to be higher than 2011 levels. In 2013, world trade is expected to improve and freight transport will again increase by 1 to 2 percent.

#### **Approximately 11 billion in government investment in new infrastructure**

In 2011, the government invested some 11.2 billion euros in new infrastructure, of which approximately 7 billion euros came from the budgets of regional governments. The national government allocated some 8 billion euros via the Infrastructure Fund, of which approximately half of this sum was allocated to new infrastructure, particularly the expansion of main roads. Around two-third of expenditures for repairs and maintenance was allocated to railways.

#### **Number of people seriously injured in traffic continues to rise**

Despite the increase in mobility from 2001 to 2011, the number of traffic fatalities decreased during this period by some 40 percent, to 661 in 2011. This decrease was primarily a result of safer cars, safer road designs,

education and enforcement. In 2011, there were 21 more traffic fatalities than in 2010, the reason for which remains unclear. In the past, incidental deviations from the trend occurred more frequently. The number of people seriously injured in traffic accidents fell slightly from 2000 to 2006, but then increased again by 25 percent from 2006 to 2010, an increase primarily attributed to a larger number of accidents involving bicyclists, in which no motor vehicles were involved. Older cyclists were often victims. At present, there are not only more older cyclists, but these senior citizens are more likely to ride bicycles, and there is higher probability of them being injured per kilometre than there is for younger cyclists.

#### **CO<sub>2</sub> emissions: effect of better engine efficiency offset by heavier cars**

Road traffic accounts for one-fifth of the total CO<sub>2</sub> emissions in the Netherlands, of which passenger cars accounted for well over half of these emissions. From 2000 to 2011, CO<sub>2</sub> emissions from passenger cars increased by approximately 11 percent, which was primarily due an increase in the total number of car kilometres travelled. During this time period, CO<sub>2</sub> emissions from passenger cars decreased by 2 percent per kilometre travelled, which is a sum of opposing factors. The improved engine efficiency of new cars resulted in a 9 percent decrease in emission levels from the national car fleet. By contrast, however, the average weight of passenger cars increased, resulting in a 9 percent increase in CO<sub>2</sub> emissions. Air pollution caused by traffic decreased sharply from 2000 to 2011, despite increases in traffic volumes. The number of people disturbed by traffic noise remained relatively constant. The number of traffic noise problems along motorways decreased, thanks in part to the use of quieter road surfaces and noise barriers.

#### **Social costs of traffic: traffic accidents biggest issue**

The costs related to road congestion and delays, traffic accidents and the environmental damage caused by traffic accounted for between 19.8 and 21.5 billion euros in 2011. The largest cost involved traffic accidents: between 12.3 and 13.3 billion euros. This situation has hardly changed over the past ten years. The cost of CO<sub>2</sub> emissions and air pollution caused by traffic accounted for 5.2 billion euros in 2011, which is approximately one-quarter less than in 2000. Traffic jams and delays on the Dutch main road network cost between 2.3 and 3.0 billion euros in 2011, which is on average approximately 19 percent less than in 2010.

#### **Social importance of mobility considerable**

The social importance of mobility and transport can be determined by estimating what citizens and businesses spend on mobility. For citizens, the importance of mobility amounts to a minimum of 61 billion euros, which is

a sum of transport costs and the time spent on transport expressed in monetary terms. The importance of transport for companies amounts to at least 54 billion euros, as measured in time and costs.

#### Quality and availability of basic data increasingly a problem

KiM states that it is becoming increasingly difficult to acquire basic data in a timely manner in order to map and explain mobility. Data about general passenger mobility are based on increasingly small sample sizes. All sorts of technical complications put pressure on the accuracy and reliability of time series. For public transportation, the availability of data is a bottleneck. From a technical viewpoint, the chipcard offers virtually limitless possibilities, yet the resulting data is not generally made available for research. For railway transport, commercial interests stand in the way of possibilities for conducting analyses per rail section or region. As for insights into the number of people injured in traffic, only the nationwide figure can be determined. Divisions can no longer be made according to transport modes and age, because the police increasingly fail to record information about those injured in traffic accidents.