People who ride a bicycle to work or walk to work are confronted with a car dominated road environment that they cannot avoid.
The Towards Zero strategy has already been explained. I would like to add a footnote:

Of the four pillars of the strategy, the one most directly useful to vulnerable road users is lower speed.

In the original estimates of the strategy, lowering speeds by 10 kmh on all roads would only cost about $6000 per killed or serious injury avoided. This is about one percent of the cost to avoid death or injury by engineering safer road sides.

But due to pressure from special interest groups, including the RAC and WALGA, and with the support of MainRoadsWA, this effective way of reducing the road toll was put on the back burner.

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The road safety council has embarked on an ambitious program, originally aimed at halving the number of killed or seriously injured people (ksi) on West Australian roads by 2020. The pillars of the strategy are safer roads, safer cars, safer drivers and safer speed. The program “towards zero” was based on extensive research conducted by Monash University Accident research centre (MUARC). Community consultation showed broad acceptation of the strategy, except for safer speeds. Politicians quickly agreed with road users (and special interest groups) that lower speeds were not necessary if we had safer roads, cars and drivers. The political decision overlooked the low cost of avoiding death or serious injury by lowering the speed limit ($6000 per ksi avoided) compared to engineering safer roads and roadsides ($544'000 per ksi avoided).
So how does this car focused road safety strategy looks from the point of view of people walking or cycling to work? Well, not really good.

The Australian Institute of Health and Welfare analysed the cause of 52,066 persons seriously injured to land transport injuries for 2006/07 and found that 14.6% of all road users admitted to hospitals as a result of road vehicle crashes in Australia in 2006-7 were cyclists (Henley & Harrison, 2009), but only 1.5% of people indicated they were using the bicycle to commute to work at the last census. That means that compared to the overall mix of commuting choices cyclists have too many hospital admissions. Because most single vehicle bicycle crashes are not reported (Elvik & Mysen, 1999), it is difficult to know how dangerous cycling really is.

Between 2002 to 2007 serious injuries for cyclists increased by 47% (Henley & Harrison, 2009). In WA a similar upward trend can be observed between 2006 and 2007.

And according to the (Australian Transport Safety Bureau, 2006) the most common crash in which cyclists are fatally injured is the result of being hit by a car travelling in the same direction.

And not surprisingly, pedestrians fare worst when they are injured in road vehicle traffic crashes, with a mean length of stay of 8.1 days in hospital, compared to car drivers who spend 4.8 days (Henley and Harrison, 2009).

In survey after survey people use their fear of being hit by a car as the main argument why they are not riding a bicycle to go to work, the shops, the train stations or to their place of education. And I hate to admit that they are entirely correct – using a bicycle to go to work is just about the most dangerous way to commute in a traffic system where the car is king.

To counter the common belief that cyclists are risk takers and thus “deserve” to have crashes, Schramm (2010) shows that traffic violations are recorded against 85.4% of drivers that were at fault in bicycle-motor vehicle crashes.

Also ignored were vulnerable road users. The Road Safety Council suggested that eventually a road environment that was safer for cars would somehow benefit pedestrians, people on gopher cars and cyclists. Darren Strudwick would disagree. And so would the nearly 8000 cyclist admitted to hospitals as the result of traffic crashes in Australia in 2006-7 were cyclists.

The most frequent explanations why people do not cycle involve the danger when cycling on roads, and the lack of infrastructure to cycle on. A recent study by the Department of Transport in Queensland indicates 42% of respondents to a survey indicated that a safer environment would encourage them to cycle (Marsden-Jacob, 2009).

In Perth it was found that about a quarter of people who drive to train stations would walk or cycle if a safe and attractive environment was to be provided (Batti, 2010).


It might be more useful to have a traffic strategy focused on people. (DOT New York Janette Sadik-Khan). This shifts the focus to the users of public transport and to vulnerable road users, to people who choose NDT to drive a car to work, the shops or school. Their concept of a safe road is different to car drivers. And if we want to make safe roads for them, we have to think about safety from their perspective.
How does this car dominance affect cyclists?

Countries with the low cycle usage have a highest rate of cycling fatalities (Jacobsen, 2003): Cycling fatalities relative to distance travelled are five times higher in the USA than in Netherlands.

And if there is high car usage, there is high spending on roads, and little spending on cycling infrastructure. In WA we are spending about $800mio on infrastructure for cars, and about $3mio on infrastructure for people riding a bicycle to work.

It is a question of equality: Is a person in a $60000 car more important than a person on $600 bicycle? In Perth, the answer is clear.

I now want to show a couple of short clips that show what it feels like to be a vulnerable road user

Netherlands has about one cycling fatality per 100 million km travelled vs. USA with five cycling fatalities per 100 million km travelled. There is a strong inverse correlation between volumes and speed of traffic and levels of cycling (Jacobsen, Racioppi, & Rutter, 2009).

Providing a safe road environment to get to public transport would free expensive car park spaces for people who live too far away to walk or cycle, and it would alleviate in a small way some of the traffic congestions, which is estimated to cost the Perth economy $1.1 Billion per year (Tallentire, 2010)
In this crash, the person riding the bicycle was killed, but the person driving the car was not injured and the car was not visibly damaged.
In this crash, a child gets hit by a car and sustains serious injuries or is killed (the neck seems to snap on impact), whilst the speaker talks about the severity of crashes at differing speeds.
Tom Vanderbilt talks about the theory that we are not equipped to make decisions at speed, and we lose eye contact at about 20 mph.

“And at is it at this stage that the severity of accidents increases“.
The Swedish “Vision Zero” suggests that bicycles and pedestrians should be separated from car traffic, and where this is not possible, the Swedish strategy acknowledges the need to give pedestrians and cyclist priority over car traffic – particularly by reducing speed (WHO Global Status Report on Road Safety, 2010).

The severity of accidents between cars and vulnerable road users is directly dependent to the vehicle’s speed, and research undertaken by MUARC shows that 30kmh is the correct speed in environments where vulnerable road users and cars have to mix. “At collision speeds above 35 km/h, the probability that a pedestrian (or cyclist) will be fatally injured rises rapidly, with death almost certain at impact speeds of around 55 km/h or higher” (Oxley, 2010).

At lower speeds vulnerable road users have a better chance to escape permanent injury, demonstrated in London where the introduction of 20 mph (32 kmh) zones has resulted in a casualty reduction of 41.9% - “the percentage reduction was greatest in younger children and greater for the category of killed or seriously injured casualties than for minor injuries” (Grundy, 2009).

The 08/80 rule should apply to these roads. (Gil Penelosa, who transformed Bogota from a congested quagmire into a liveable city, suggests a street is safe for vulnerable road users if you are prepared to let your eight year old son, or your eighty year old grandmother, use it by themselves).

In September 2011, the European Parliament adopted a resolution in which it “strongly recommends the responsible authorities to introduce speed limits of 30kph in all residential areas and on single-lane roads in urban areas which have no separate cycle limits.”

Having a network of roads with a 30kmh speed limit for cars is a huge benefit to the community. Walking, cycling or the use of gopher cars should be a safe alternative to reach train stations, shops, schools or local attractors.

I am suggesting that the roads that form part of the Perth Bicycle Network should have a legislated maximum speed of 30 kmh. These roads should be clearly marked both with signage and with on-road markings, and flanking infrastructure measurements should be implemented where possible and appropriate, for instance narrowing the entrance to these roads, speed cushions or other measures.

Having a clear concept on how these roads should perform will allow us to re-align the Perth Bike Network to fit in with Directions 2031 and Transit Oriented Design).

The PBN network needs to be realigned with the primary focus of safe access to train stations, schools, shops, local attractors and connections to the Principal Shared Paths. A secondary focus would be the connection between localities.
As a two wheeled vehicle, bicycles are physically unable to travel in a completely straight line, and recognising this 28 American states have legislated a safe passing distance.

A Canadian Study confirmed that apart from intersection crashes, the second most frequent cause for police reported car/bike collisions was a bicycle being hit by a car travelling in the same direction. (12% at intersections, 11.9% same direction). That is similar to the WA data mentioned earlier, which puts straight thru intersection crashes at 17.5% and same direction crashes at 16.7%.

A study in Melbourne that analysed 127 hours of helmet-cam footage concluded that car drivers were at fault in 87% of incidents with cyclists, with sideswiping the most frequent type of incident (Johnson, 2010). Based on that study a cyclist using public roads would expect some sort of incident every three hours.

Examples:

Darren Strudwick, a 43 year old experienced bicycle rider was riding his bicycle home from work in November 2010, and was killed by a car travelling in the same direction.

In Secret Harbour, in December 2010, an 18-year old cyclist was run over by a four-wheel drive travelling in the same direction and dragged along for 75 metres. He had to be air-lifted to Royal Perth Hospital with serious injuries.

In March 2011 a 59-year old women who was killed whilst cycling in a marked cycle lane along Tonkin Highway.

A Canadian Study confirmed that apart from intersection crashes between bicycles and cars, the second most frequent cause for police reported car/bike collisions was a bicycle being hit by a car travelling in the same direction. The study examined 2572 police reported car/bike collisions in Toronto. 12% of collisions occurred at intersections, 11.9% of collisions were the result of a car overtaking a bicycle.

Safe passing distance between cars and bicycles are the law in 28 American states, and it is a recommendation in the current edition of the “Drive Safe” handbook (Department of Transport, 2010).

A safe passing distance of one metre when overtaking a bicycle should be more than a recommendation to car drivers. It should be part of the traffic code, so car drivers who overtake in an unsafe manner can be fined.

Legislating the one metre passing distance needs changes to the Australian Road laws. (To achieve this, representation needs to be made to the Australian Road Rules Maintenance Group (ARRMG), who have not yet acted on the need to have a legislated one metre passing distance. It is my understanding that they have been approached by NSW and Queensland to reconsider).

It is my understanding that they already once rejected legislating the one metre passing distance; part of the argument was that it would be impractical in a congested urban environment. Interesting point of view. If we cannot pass a car because of oncoming traffic or other lack of space, we wait. If it is a bicycle, we try to squeeze past, oblivious of the danger for the person riding the bicycle. Cyclists have to ride on the road to reach the relative safety of the Principal Shared Path network. A metre legislated passing distance will make that portion of their commute safer.

We would like the Road Safety Council to fund and support both the television campaign and the legislative process to change the Road Traffic Act, resulting in a mandated safe passing distance between cyclists and motorists.
I am coming back to a comment I made at the beginning: People who use a bicycle to ride to work have to use public roads.

We know that the safest solution for cyclists is to have cycling infrastructure physically separated from cars. A white line on a 100 kmh highway is not enough to protect a cyclist.

Where people riding bicycles and walking have to share the road with motorists, we need a legislated safe passing distance, and lower speeds.
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