

LEE LI MING
PROGRAMME IN
AGEING URBANISM

Safer Streets for Seniors in Singapore

The Silver Zone Scheme¹

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Introduction

Pedestrian safety is a major concern for older adults. Older adults are generally more prone to traffic accidents due to declining abilities such as vision and hearing as they age. International statistics show that 40% of pedestrian fatalities involve older adults, although they make up only 16% of the population (OECD Library, 2014). Singapore is no exception. While the overall road safety situation has been improved island wide, accidents involving older adults remain a key issue. According to the Singapore Police Force annual road traffic situation report, the number of accidents involving older pedestrians increased nearly 20%, from 224 in 2015 to 268 in 2016 (Ministry of Communications and Information, 2017).

To improve road safety for older pedestrians in Singapore, the Silver Zone

¹ This is an evolving database. We will be adding more examples and cases over time.

programme was first announced by Professor Muhammad Faishal Ibrahim at the Committee of Supply debate in 2014. Silver Zones aim to improve road safety for seniors by slowing down traffic and alerting motorists to keep a look out for senior pedestrians.

As announced in 2014, five locations in Bedok, Bukit Merah, Jurong West, Marine Parade and Yishun, estates with a large population of seniors and a relatively high accident rate involving seniors, have been identified as Silver Zones. As of December 2018, 15 Silver Zones are completed. The government plans to expand and build 50 more Silver Zones by 2023 (Land Transport Authority, 2016).

The Land Transport Authority (LTA) has received a road safety award from his Royal Highness Prince Michael of Kent at the annual Gala Presentation in London on 13 December 2016, in recognition of its successful implementation of the Silver Zone programme in Singapore.

What are the Silver Zone features?

The silver zone scheme is based on some best practices overseas, such as in Japan, South Korea and New York City, where similar zones have been established.

Box 1: Silver Zones in South Korea

In South Korea, to address the increasing older

pedestrian-vehicular collisions, the Ministry of Government Administration and Home Affairs established the legal framework for the Silver Zone system in 2007.

In the Silver Zones, the speed is limited to below 30 km/h, and the zone-designation and speed-limit signage is installed. Road surface is marked with red-brown colour and the words "Silver Zone". Occasionally, extra measures are added, such as fences, speed bumps, elevated crosswalks, reduced crosswalk slope, realignment to one-way traffic, widened pedestrian pathways, and speed and signal cameras.

Source: Ministry of Government Administration and Home Affairs (2016). Designation and Management Rules of Silver Zone – Silver Zones Management Cards Government Printing Office, Seoul.

Silver Zones are established mainly in residential areas characterised by a high proportion of senior residents, high accident rates involving seniors and are close to amenities frequented by seniors. They are typically designed with the following key traffic calming features:

- **The Silver Zone gateway** has signs and road markings to indicate the start of a Silver Zone and alert motorists to slow down;
- Silver Zones have a lower **speed limit** of 40 km/h, where feasible;
- Silver Zones have **pinch points**, which provide a two-stage crossing for senior pedestrians to rest before continuing to cross the road;
- Silver Zones provide **mountable centre dividers** along two-way traffic roads without dividers. The dividers help reduce vehicle speeds by narrowing lane widths. Vehicles

can mount over the dividers to pass through if necessary;

- Silver Zones have **full-height centre dividers**, which are implemented along undivided roads with two or more lanes. With a physical divider, lane widths will be reduced, and motorists will tend to travel at lower speeds;
- Silver Zones have **raised zebra crossing**. The elevation of the zebra crossing increases pedestrians' visibility to motorists and thus, ensures a safer crossing for pedestrians. In addition, the elevation serves as a speed hump, acting as a vertical deflection to slow motorists down. At some raised zebra crossing, flushed LED road studs provide lighting at night to increase the visibility of zebra crossing;
- Silver Zones have **bus-friendly humps**, which help slow vehicles and prevent motorists from speeding;
- Silver zones have **mini roundabouts** to encourage motorists to travel at lower speeds and reduce traffic conflict points and better regulates the traffic flow.

Box 2: Safer Streets for Seniors in New York City

Launched in 2008 by the Department of Transportation (DOT), Safe Streets for Seniors is a programme that addresses the safety of older pedestrians.

The DOT adopted an evidence-based process. First, they established senior pedestrian focus areas, defining the neighbourhood areas that need attention based strictly on crash data. Then, they expanded these areas, taking into account senior pedestrian generators, density of senior population and housing, e.g. locations of retirement communities, senior centres, nursing homes, etc.

In these areas, typical safety improvement measures are implemented, including installing countdown signals, prioritising pedestrians by clarifying pedestrian desire lines, pedestrian safety islands, road diet, sidewalk extensions, accessible pedestrian signals, repairmen of pedestrian ramps, allowing for more time to cross the roads, simplification of intersection movements, shortening of crossing distances. Since the programme launch in 2008, the number of pedestrian fatalities has been reduced by 16% across the city.

Source: New York City Department of Transportation (NA). Safe Streets for Seniors: New York City. Retrieved from: <http://www.nyc.gov/html/dot/downloads/pdf/safestreetsforseniors.pdf>. Accessed 10 January 2019.

Case study: Silver Zone Bukit Merah View

Bukit Merah View is first among 5 estates to implement a Silver Zone that comes with a whole slew of senior-friendly road safety features reminding motorists to slow down and keep a look out for pedestrians. Some of these features include: 1) gateway treatment, 2) Crossings with Ramp Down and 'LOOK' markings, 3) Chicanes, and 4) mountable centre divider (refer to the previous section for more details).

The safety features have received positive feedback from senior residents at Bukit Merah View. A housewife aged 53 said

that the measures will benefit the older folk living in her area².

"There's a hawker centre here, so a lot of old people cross the road to go there to eat. It's good that more is being done to keep them safe."

Another resident aged 83 said he feels "very much relaxed" crossing busier roads in Bukit Merah View now.

"Last time, I had to check both sides and cross quickly because the cars moved very fast. Now I can walk slower and stop at the centre divider."

How effective has the Silver Zone been?

According to the LTA, the Silver Zone scheme has been effective since implementation. Accident rates within the 15 completed Silver Zones across the island have been reduced by approximately 75%, from 14 cases to 4 cases per year on average (Land Transport Authority, 2018).

However, public reaction has been mixed. While some residents welcomed the changes, citing that the Silver Zone measures enabled them to cross roads with less anxiety (Hio, 2014), others felt some of the traffic calming measures may

² The two quotes were retrieved from <https://ifonlaysia.blogspot.com/2014/08/silver-zones-to-make-roads-safer-for.html>. Accessed on 15 February 2019.

Safer Streets for Seniors in Singapore result in a decrease in traffic efficiency, such as bottleneck from breakdowns in a one-lane road (Centre for Liveable Cities, Singapore and The Seoul Institute, 2016). To address this, the LTA has implemented various strategies including engaging the community to seek their understanding, addressing the concerns raised, issuing a media reply to inform the public that the kerbs have been made mountable to ensure vehicles can bypass a broken-down vehicle when driving slowly. Through constant engagement, motorists have gradually begun to accept these changes.

Another study in 2016 reviewed the effectiveness of the Silver Zones in enhancing safety for older adults by interviewing senior pedestrians in Silver Zones on their experience (Tan, 2016). In addition to acknowledging the effectiveness of certain aforementioned features, such as speed limit and zebra crossing, the study has identified two main aspects that critically impact older people's pedestrian safety, i.e. vehicular speeds and motorists' attention. Research has found that boring, slow roads lead to distracted driving. Therefore, road design should help motorists to keep eyes on the road and exercise greater attention and caution on pedestrians.

Conclusions

The Silver Zone is a part of the government's efforts to make Singapore more age-friendly. The scheme aims to

Safer Streets for Seniors in Singapore

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enhance safety for older pedestrians with various measures, especially in residential areas with a high proportion of older residents. Its implementation has reduced traffic accidents in Singapore.

But, in view of the limited number of studies on its effectiveness and accessibility, a more comprehensive study of the Silver Zones is needed to access and better understand the public, especially older adults' (the beneficiaries') views and experiences. Post-implementation evaluation could yield lessons for the future.

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