

LEE LI MING
PROGRAMME IN
AGEING URBANISM

Building Dementia-Friendly Neighbourhoods in Singapore¹ through Infrastructure Designs and Upgrades

Nurhazimah Binte Naharudin

Dementia is a major global health concern. With no available cure at present, dementia is globally the seventh leading cause of death and one of the major causes of disability and dependency among older adults (WHO, 2021). In Singapore, it was reported, in 2015, that 10% of those aged 60 years and above (45,000 people) have dementia. The number is expected to increase to 103,000 in 2030 and 241,000 in 2050 (Subramaniam et. al, 2015). Against the increasing numbers, it is essential to create and provide a dementia-friendly environment for older adults in Singapore to enable ageing in place.

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

Wayfinding for Persons Living with Dementia

Persons living with dementia often find it difficult to navigate in their own neighbourhood. According to Dementia Singapore (DSG), formerly known as Alzheimer's Disease Association, six in 10 persons living with dementia will wander at least once and many tend to do so repeatedly (Leong, 2021). This is a worrying trend as there are more and more incidences of individuals being confused, losing their way, and, in extreme case, goes missing. This is particularly a concern in Singapore's high-rise and high-density residential environment where many of the buildings look almost identical.

In recent years, community initiatives have been implemented to provide an inclusive community for persons living with dementia. One of the ways to attain a dementia-friendly neighbourhood is through the improvement of wayfinding and infrastructure designs and upgrades.²

Nostalgic Murals at Ang Mo Kio

One of many wayfinding initiatives is in Ang Mo Kio Kebun Baru, a neighbourhood located in the Central of Singapore. The collaboration between Kebun Baru constituency and DSG in 2020, led to the initiation of the mural project. Through a closed-door discussion with the residents, mural wall painting was proposed to assist residents living with dementia in finding their way around the neighbourhood (Dementia

Singapore, 2021). The initiative was completed with the help of students from the National University of Singapore, Kebun Baru grassroots members, dementia experts, mural design artists, community volunteers, and persons living with dementia. This cross-collaboration project is spearheaded by grassroots members and People's Association (PA) where they oversee the project and coordinate with the relevant parties in discussion and implementation. They also monitor the project timeline and source for resources. Dementia experts and mural design experts took on the advising and facilitating roles in the development of mural designs. Persons living with dementia, together with their caregiver, provided inputs on the mural designs and shared their experience in wayfinding the blocks. Lastly, the youths, students, and resident interest groups volunteered their time with the painting of the murals.

The project has garnered much interest in other neighbourhoods as it was being featured extensively by the media. In response, Agency for Integrated Care (AIC) established a structured process, in consultation with DSG, in guiding keen parties on similar mural painting projects. It comprises four phases, namely, planning, consultation, recce, and implementation (Box 1).

To ensure the main objective is being met, the project members engaged with the residents to seek their buy-in and participation in the project. This is followed by multiple walkabouts around the neighbourhood with grassroots

² We thank AIC for their invaluable inputs and for providing information on murals for dementia-friendly neighbourhoods in Singapore.

leaders and persons living with dementia to ensure that the murals are being painted at strategic locations. Once that was confirmed, the leading members started to develop the types and themes of the murals.

The developed themes (local heritage, food, and iconic images) can help to lift moods and prompt memory. The guiding principle is that the murals should be simple and recognisable; complicated murals will confuse rather than help focus on wayfinding. Simplicity also extends to colour choice; ideally not more than 5 colours. (Photo 1).

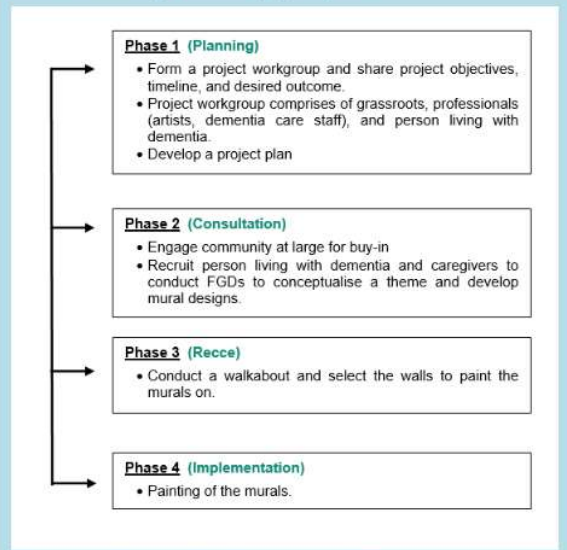
Mary-Ann Khoo, a consultant at DSG explained the selection of images for the wall murals:

“Reminiscence is an approach used commonly in our engagements with persons living with dementia, and food is an almost national obsession. Thus, we decided to paint a variety of retro items such as a tingkat, kopitiam cup, ang ku kueh and the like, which the elderly can very easily recognise.” (Leong, 2021)



As the dementia condition progresses, individuals living with dementia may forget their block number. Therefore, the block numbers were also included in the mural design. By painting large image murals next to the block numbers, the intent is to help residents living with dementia to recognise where they are and associate the murals with where home is. In painting the block numbers with each mural, the design team was careful to ensure that the block number was not drawn to be as big as the mural. That is, the focus was on the mural and the accompanying block number should not compete for attention and cause confusion in the person living with dementia.

Box 1: Guiding process and timeline for the mural painting project



Source: Agency for Integrated Care

The close collaboration with persons living with dementia is a commendable effort. It not only promoted inclusivity but also empowered the person living with dementia to contribute to their neighbourhood while showing to the wider community their capacity to continue to play an active role in society. Mr Anjang Rosli, a volunteer from DSG and an individual living with young-onset

dementia shared his experience of being a part of the project team,

“The process was very empowering for me. It was really a team effort. Happy to also be able to work with other persons living with dementia. It felt good because I know that whatever is put in place will truly be helpful to people with dementia. We were involved in exploring where to place the murals, the exact walls to paint that will help persons with dementia recognise their blocks as they walked pass. It was fun, and a huge sense of achievement after completion.”
(Dementia Singapore, 2021).

By November 2021, the project has painted over 37 murals across 10 blocks at Ang Mo Kio Avenue 3 and 4 (Dementia Singapore, 2021).

First Dementia-Friendly Estate at Nee Soon

Another innovative wayfinding and infrastructure designs and upgrades initiative can be seen within the 21 public housing blocks in Nee Soon, specifically at Chong Pang, and Khatib Central. This is Singapore’s first Dementia-Friendly Estate. Under this dementia-friendly initiative, blocks were painted with colourful directional markers. The project was supported by AIC, Khoo Teck Puat Hospital, Centre for Liveable Cities, Nee Soon South Grassroots Organisations, Nee Soon Town Council, and Montfort Care GoodLife@Yishun (Lu, 2021).

To enhance the infrastructures and meet the needs of the people with dementia, community stakeholders and multi-agencies came together to consult and engage with design consultants, experts,

healthcare partners and persons living with dementia. Audit walkabouts were also conducted to ensure infrastructure were appropriately enhanced, which is another important aspect in making neighbourhood safe and accessible for persons living with dementia to navigate in so that they can continue with their normal daily activities.

The main aim of these designs and upgrades is to encourage persons living with dementia to continue living at home and go about their usual routines in their community.

As seen in Photo 2, the public housing blocks were painted in red, green, and blue, to distinguish the different zones within the neighbourhood. Icons such as pineapples, tropical fish, rubber trees, were added as distinct visual anchors in common areas such as lift lobbies and stairwells. These icons were chosen based on their association with the history of Nee Soon, Chong Pang, and Khatib.



Photo 2: Colour coded signages to nearby amenities around the neighbourhood.

Photo credit: Nurhazimah

The wayfinding initiative also included colour-coded signage to nearby supermarkets, coffeeshop and Khatib train station (Photo 3). These visual

signages were designed to help the person living with dementia safely navigate within the neighbourhood and adjoining areas. The directional signage was placed on aluminium panels that were seamlessly integrated into existing infrastructure such as concrete seats that doubled up as resting places for the residents. The Khatib train station, managed by SMRT, also made facility modifications to be dementia friendly.



Photo 3: Colour coded blocks at Nee Soon.
Photo credit: Nurhazimah

Feedback from the residents have been encouraging (Lianhe Zhaobao 10 March 2021, translation from Agency for Integrated Care),

"It brings much convenience to seniors and those who are unfamiliar with the neighbourhood. These features allow them to find their way to the destination easier and faster."
(A 68-year-old retiree and resident of more than 20 years).

"The block number at the exterior of the flats are so much bigger. This is really useful for seniors like myself."
(A 75-year-old retiree)

"I feel that the blocks in different zones are painted different colours. This is helpful in guiding person with dementia to be able to find their way home easier by recognizing which colour zone they live in."
(A 64-year-old retiree)

The blocks were chosen based on the demographic of the area (where the majority were older residents) and high-pedestrian traffic (where residential blocks overlapped with many key amenities). Madam Yong, a Nee Soon South resident, and a caregiver to her husband with dementia, shared how her husband did not want to stop his daily morning routine and would continue to take a walk and go to the coffee shop on his own. However, this has led to him getting lost.

"He asked a passer-by, but he gave the wrong block number because he had forgotten it. That made me worry."
(Kurohi, 2019)

As the dementia condition progresses, persons with dementia may forget their block numbers. The colour coded signages are especially useful for the person living with dementia like Madam Yong's husband who wants to walk not just within the residential area but also to the neighbourhood amenities. Other than bold colours, the block numbers are also displayed prominently in large fonts, making them easily seen and identified from a distance.

The successful examples from Ang Mo Kio and Nee Soon have spurred interest from other neighbourhoods to embark on similar projects to support individuals living with dementia in the community.

One of which is the Dementia-Friendly Yio Chu Kang 2025.

Dementia-Friendly Yio Chu Kang 2025

Yio Chu Kang is slated to be the first constituency to integrate dementia-friendly upgrades in its private, public housing estates and community spaces. This is an initiative mooted by Adviser to Yio Chu Kang Grassroots Organisations, Mr Yip Hon Weng, with support from AIC, along with agencies like inter alia, Ang Mo Kio Town Council, Centre for Liveable Cities (CLC) and AWWA. This project is expected to be completed by 2025.

Dementia-friendly environment designs considerations focus on accessibility, wayfinding, sensory stimulation, cognitive aspect of limitation. The guiding principles of this project are to (a) Improve safety and wayfinding for seniors, (b) Encourage community bonding, (c) Practicality for upkeep and maintenance and (d) Include heritage identity in the design.

This includes:

- **Colour zoning**, where residential areas are repainted with contrasting colours and enlarged block numbers. This effort will help persons living with dementia better identify the vicinity and aid in recalling their place of residence.
- **Directional signage** where colour zoning system will be put up prominently along commonly accessed routes to help individuals remember

and recognise the blocks and key community amenities better.

- **Infrastructure enhancements** like levelled grounds connecting the various parts of the neighbourhood, sheltered walkways, anti-slip floor/tiles, assistive grab bars on slopes to ensure better accessibility and safety for persons with mobility devices, frail seniors and persons living with dementia when travelling around.
- **Communal space** to encourage community bonding and engaging seniors including persons living with dementia with activities, such as community garden and parks.

These designs can benefit seniors and persons living with dementia the most, though other residents of the younger age groups would also find these modifications useful. These age- and dementia-friendly environmental designs will complement the upgrading projects that Adviser has in the pipeline to meet the residential needs.



Photo 4: The revamp of the Lentor private estate includes covered drainage to extend pathway space for mobility, barrier free, prominent estate markers to aid wayfinding, encourage social bonding through more community space/facilities created for activities and bonding, ie playgrounds and pavilion) and therapeutic greenery (with horticultural landscaping).

Photo credit: Lentor Estate Upgrading Committee



Photo 5: New proposed inclusive playground, enhanced greenery and estate markers in Lentor estate revamp.

Photo credit: Lentor Estate Upgrading Committee



Photo 6: Colour zoning, enlarged block numbers and contrasting colored vertical strips to the public housing estates to help better wayfinding within the neighbourhood.

Photo credit: Ang Mo Kio Town Council

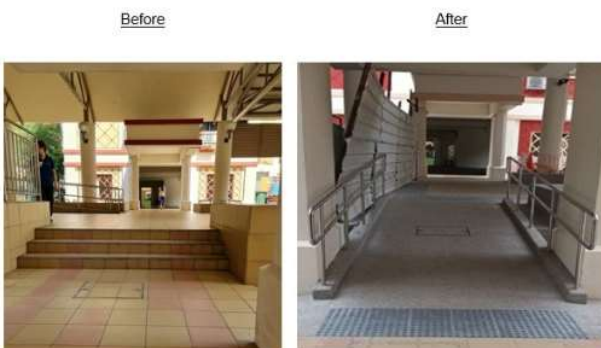


Photo 7: One of the public estate enhancements was to convert the steps into ramp with supportive railing at the sides for better accessibility for wheelchair users including persons living with dementia.

Photo credit: Ang Mo Kio Town Council

Similarly, Yio Chu Kang will be embarking on a Dementia-Friendly Neighbourhood Research Study in

collaboration with AIC, CLC, and the Singapore University of Technology and Design (SUTD) to gather first-hand user response from persons living with dementia. The evidence-based study aims to prototype detailed design improvements that are customised to their needs. The designs will then be implemented to ensure the future-readiness of Yio Chu Kang to better support persons living with dementia.

Apart from preparing the infrastructures, Yio Chu Kang will also create the *kampung spirit* by raising community awareness about dementia. This will be achieved through dementia awareness talks and webinars, sharing of dementia resources, mental wellness screening and dementia Go-To Points (GTPs). By equipping the residents with the necessary knowledge, they can then assist lost persons living with dementia in the neighbourhood.

Conclusion

Yio Chu Kang, Nee Soon and Kebun Baru are part of the 14 Dementia-Friendly Communities (DFCs) set up in Singapore. Under DFSG, it aims to build an inclusive society whereby people know about dementia and willing to assist those affected by dementia and caregivers in making them feel included, involved, and supported in the community.

The abovementioned dementia-friendly environment designs considerations focus on accessibility, wayfinding, sensory stimulation, cognitive aspect of limitation. These designs can benefit seniors and persons living with dementia the most, though other residents of the younger age

groups would also find these modifications useful.

Equally, transforming the neighbourhood into a dementia-friendly town is a collective effort that taps on the different expertise of various parties and organisations at different phases.

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