

SAFE ROUTES TO SCHOOL DESIGN GUIDE

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INTRODUCTION



Photo: Green-Schools

Background to the Safe Routes to School (SRTS) Programme:

The SRTS Programme was developed in partnership with the NTA and Green-Schools in 2020 as a response to the need to support schools to increase walking and cycling to school.

Aims of the Programme:

- Improve safety at the school gate by providing 'front of school' treatments to alleviate congestion and improve access;
- Improve access routes to school by improving walking and cycling infrastructure; and
- Increase the number of students who cycle to school by expanding the amount of cycle parking.

Aims of this Guide:

- The aim of this guide is to provide technical guidance on design principles and considerations that will enable Local Authorities, in conjunction with Green-Schools, to create safer, calmer, more attractive routes to school and front of school environments; and
- The guide aims to provide designers with a set of design concepts and ideas, and precedent examples of schemes that have successfully enhanced sustainable access to school.

SECTION 1: ACTIVE TRAVEL TO SCHOOL - DESIGN FUNDAMENTALS

1.1 **Why Does Active Travel to School Need Attention?**

1.2 Improving Front of School Safety

1.3 Improving the Street Environment

1.4 **Existing Standards and Guidance**

Publications Referenced in this Guide

1.5 DMURS

Reminder of some of the key design considerations as they relate to schools

1.6 **National Cycle Manual**

Reminder of some of the key design considerations as they relate to schools

1.7 **Special Design Considerations for Streets Near Schools**



Road Safety

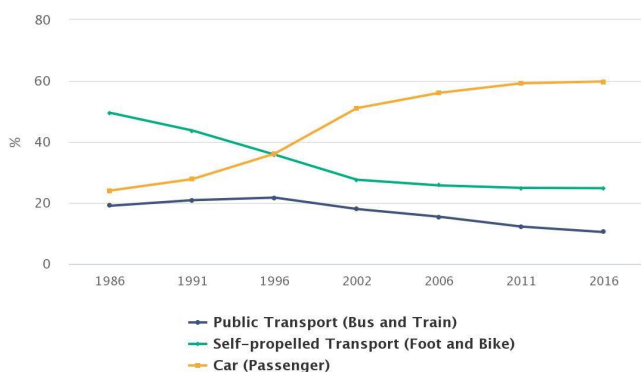
Road deaths are the main cause of child mortality in Ireland, with road traffic collisions accounting for approximately 37% of child deaths. Almost 50% of these fatalities are pedestrians, while 40% are car passengers.¹



Air Quality

An EPA report published in 2020 estimated 1,300 premature deaths per year in Ireland due to air pollution. There was an exceedance of the EU annual legal limit of the air pollutant Nitrogen Dioxide (NO₂) in Dublin due to road transport.²

Figure 5.1 Modes of travel for primary students, 1986 - 2016



Mode Share

60% of primary school children are driven to school, almost triple what it was a generation ago.³

Transport accounted for 20.4% of greenhouse gas (GHG) emissions in 2019⁴. This is projected to reduce to 19% by 2030 (in the With Additional Measures scenario). The projections include the impact of transport infrastructure projects to encourage mode shift away from the car.



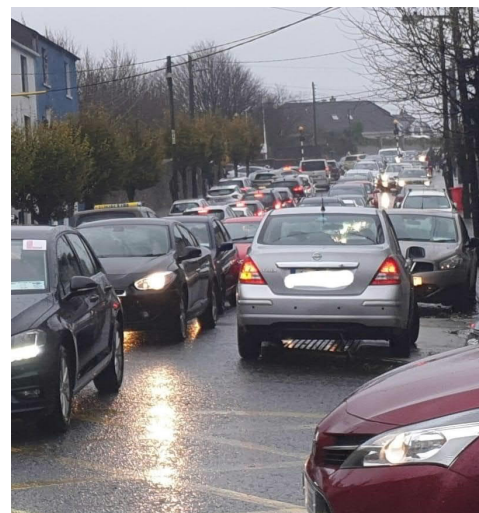
Inactivity and Obesity

1 in 5 primary school children in Ireland identified as overweight or obese.⁵

81% of primary and 88% of post-primary children do not meet the national physical activity guidelines.⁶



Grove Road, Malahide (Photo: Fingal County Council)



Bishop Street, Cobh (Photo: Ruth Ring)

Problem: Front of School Congestion

Traffic at the front of school during drop-off and pick-up times presents a safety hazard for school children and impacts on air quality in the vicinity of the school gates. Traffic congestion and parked cars can reduce visibility of children crossing the road. In addition, parking on footpaths can block access as well as reduce available footpath width, leading to overcrowding on footpaths or forcing children to walk on the road. Idling cars in and around the school gates also increases air pollution levels.



Grove Road, Malahide (Photo: Fingal County Council)

Solution: Integrated Street Design

Congestion issues at the school gate can be tackled by considering an integrated design that removes or at least reduces traffic volumes, reduces speeds, discourages set down, and provides an alternative, attractive means of travel to school. Examples include: Carysfort National School, Blackrock and Saint Oliver Plunkett School, Malahide (see Case Studies in Section 4).



Carysfort Avenue, Blackrock (Photo: Dun Laoghaire-Rathdown County Council)

“ Congestion at the school gates is another serious problem, with parents often double-parking, or parking on yellow lines to drop their children off. The result is incredibly dangerous” (Chief Executive of the Road Safety Authority, 2019)

Integrated Street Design

'Integrated approaches incorporate elements of urban design and landscaping that instinctively alter behaviour, thus reducing the necessity for more conventional measures (such as physical barriers and the road geometry) alone to manage behaviour. The attraction of this approach is that it creates a new dynamic and a 'win-win' scenario where:

- Street networks are simpler in structure (more legible) with higher levels of connectivity (more permeable) thus reducing travels distances.
- Higher quality street environments attract pedestrians and cyclists, promoting the use of more sustainable forms of transport.
- Self-regulating streets manage driver behaviour and calm traffic, promoting safer streets.
- Streets and junctions are more compact, providing better value for money.'

(DMURS, Section 2.2)

MOVING FROM THIS ...

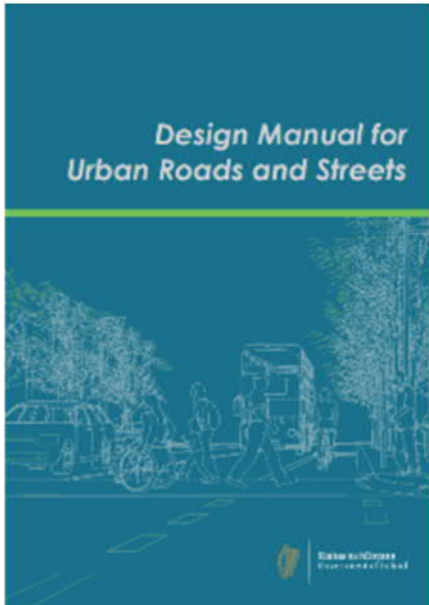


TO THIS ...



'The creation of walkable, cycleable and public transport orientated communities require that designers re-examine the way streets are designed in order to meet the needs of all users.' (DMURS Chapter 2)

National Standards and Guidance



Design Manual for Urban Roads and Streets (DMURS)
www.dmurs.ie



National Cycle Manual
www.cyclemanual.ie



Traffic Management Guidelines



Traffic Management Guidelines
<https://www.gov.ie/en/publication/e7f655-traffic-management-guidelines/>

Other Guidance



Safe to School
Published by An Taisce Green-Schools.
www.greenschoolsireland.org



Designing Streets for Kids
Published by the National Association of City Transportation Officials (NACTO). www.nacto.org

Application

DMURS is the principal road design document for all roads and streets within the 60km/h urban speed limit zone.

Presentations from the DMURS authors are available for download. The presentation on practical implications is particularly useful.

<https://www.dmurs.ie/workshops-and-presentations>

WHAT STREETS WILL LOOK LIKE ...

Permeable Neighbourhoods

Maximise walking and cycling connections within a neighbourhood and consider restrictions on the movement of private vehicles (filtered permeability). The NTA Permeability Best Practice Guide provides additional guidance.¹



Image: DMURS, Figure 3.27

More pedestrian crossings

Controlled crossings can be zebra or signalised pedestrian/Toucan crossings. Uncontrolled crossings include less formal types such as courtesy crossings. Designers should be guided by pedestrian demands, safety and vehicle flows.



Moreland Street, London (Image: Google Street View)

Narrower carriageways with lower speeds

Reduce traffic lane widths and reallocate the space to footpaths and cycle tracks. Research from the UK has found that narrow carriageways are one of the most effective design measures that calm traffic.²

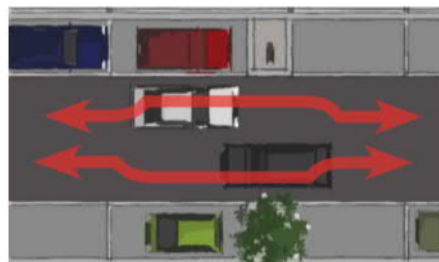


Image: DMURS, Figure 4.4

Pedestrian and cycle-friendly junctions

Consider: pedestrian crossings on all arms; omitting left-turn slip lanes; omitting staggered crossings; tighter corner radii; shorter cycle times at traffic signals; and single lane, cycle-friendly roundabouts.

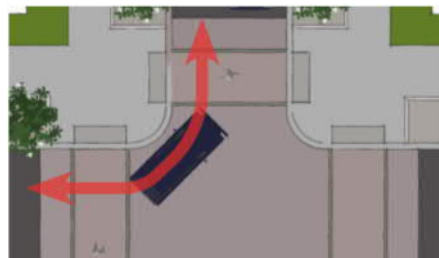


Image: DMURS, Figure 4.4

Some level of car congestion has to be accepted

It is acknowledged that in the absence of demand management, a certain level of car congestion is inevitable; however, it is government policy to implement measures to reduce private car usage and provide for modal shift to sustainable travel.

Protected cycle tracks where possible

To minimise the width of vehicular carriageways from kerb to kerb, preference should be given to the implementation of cycle tracks over those design solutions where cyclists and vehicles are at grade.



Carysfort Avenue, Blackrock, Co. Dublin

Place making with planting and street furniture

Trees and planting can greatly enhance an urban environment by creating visual interest and giving character to a public space; planting areas can be used as part of a Sustainable Urban Drainage System (SUDS) system. Seating can add to the sense of place and encourage activity; giving people opportunities to rest or meet and chat.



Killeagh, Co. Cork (Image: Google Street View)

Application

All designers should be familiar with the National Cycle Manual (www.cyclemanual.ie) and the tools and checklists provided within the manual. The manual embraces the Principles of Sustainable Safety as this will offer a safe traffic environment for all road users including cyclists. It offers guidance on integrating the bike in the design of urban areas. The “cycling offer” within urban areas must be improved to encourage more people to cycle, including those who are risk-averse. The goal is now to “raise the bar” and to aim to provide for two-abreast cycling in a stress free and safe environment.

SOME BASICS OF CYCLING DESIGN



Main Street, Dundrum, Dublin

Segregated facilities are most likely to encourage new cyclists on main roads. Segregated facilities are required over certain speeds and volumes.



Benildus Avenue, Kilmacud, Dublin

One-way cycle facilities either side of the road are generally better than two-way facilities as they are easier to access and less problematic at junctions and side roads.



Glounthaune, Co. Cork

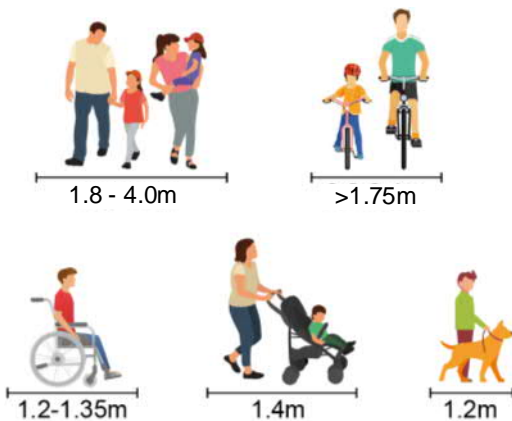
Shared pedestrian and cycle paths should be 4m wide and lit.



Balbutcher Lane, Ballymun, Dublin

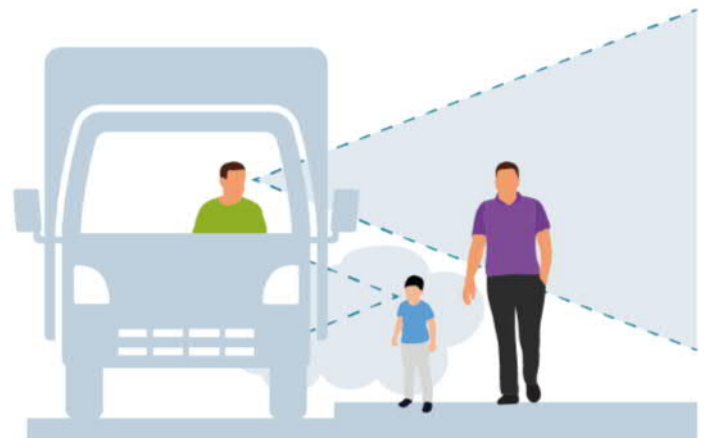
Provide for cyclists at junctions.

A presentation from the National Cycle Manual author on the basics of cycling design is available for download. <https://www.youtube.com/watch?v=Fj4xOwHW8jY>



Space

School children will often be accompanied by an adult, and perhaps siblings, on the journey to school. Often children will be holding hands with a parent or scooting/cycling side by side. Wider footpaths and cycle tracks can allow children to develop their abilities and independence by giving them the space to be at a safe distance from their parents.



Visibility

Children can be less visible to drivers than adults, particularly in urban areas where street furniture and barriers can obscure intervisibility. Designers should take account of the heights of children when considering pedestrian crossings and landscaping features.



A Healthy Environment

Children are more susceptible than adults to the adverse effects of air pollution as their lungs are not fully developed and they are generally closer than adults to vehicle exhaust due to their height. Children often have to pass queuing traffic on the route to school or idling cars at the school gate. Potential solutions could include implementation of No Idling Zones¹; Clean Air Zones; and effective planting for mitigating impacts on air quality.



Social Interaction and Play

Streets that are inviting to people walking and cycling, encourage interactions and social connections with children, adults, and their environments, fostering a sense of community. Places to pause and stay provide children and caregivers, as well as older adults, who may walk slower and tire easier, with necessary space to rest. Streets also provide opportunities to bring learning and unstructured play into children's everyday lives, whether walking along, stopping at some greenery or seating or waiting at a bus stop.² Potential solutions could include play areas; seating; and interactive art.

SECTION 2: WALKING AND CYLING LINKS TO SCHOOL - DESIGN SOLUTIONS

- 2.1 **School Location Typologies**
- 2.2 Walking and Cycling Links to School - **Design Considerations**
- 2.3 Street Design - **Junctions**
- 2.4 **Potential School Walking and Cycling Links** - Town Centre
- 2.5 **Potential School Walking and Cycling Links** - Suburb
- 2.6 **Potential School Walking and Cycling Links** - Rural
- 2.7 Walking and Cycling Links to School - Checklist

A street or road may pass through a number of different contexts along its route. As context changes, the design of streets and roads will need to change accordingly. (DMURS, Section 3.2)

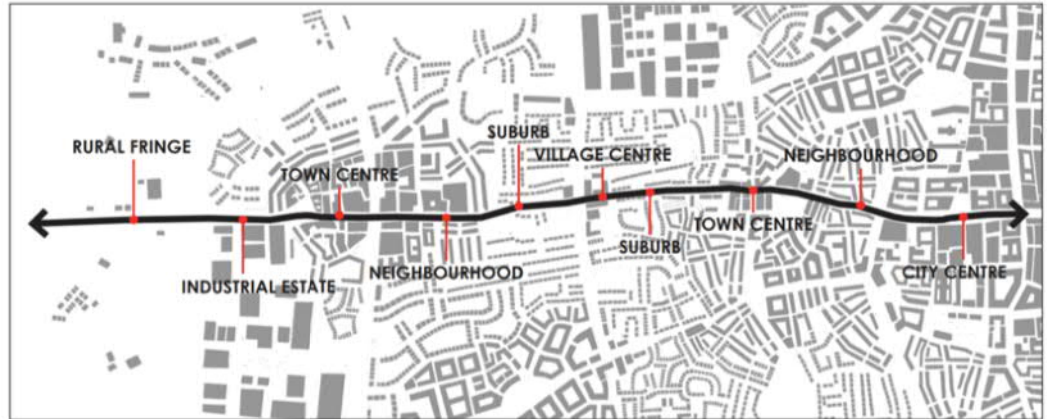


Image: DMURS Figure 3.4

TOWN CENTRE



- Example: Drogheda Street, Monastervin, Co. Kildare
- Town or Village Centre
- Typically 30km/h – 50km/h

NEIGHBOURHOOD



- Example: Harold's Cross, Dublin 12
- Mixed-use area
- Medium/high density residential
- Typically 30km/h – 50km/h

SUBURB



- Example: Collins Avenue East, Dublin 5
- Low density residential
- Typically 50km/h – 60km/h

RURAL



- Example: Kilberry, Co. Kildare
- Outside Village or Town Gateway
- Rural Fringe
- Typically 50km/h – 80km/h

Note:

The SRTS Programme focusses on walking and cycling links within an approximate 1km radius of the school.

Space for pedestrians

- Footpaths at least 1.8m wide
- Footpaths outside schools should be wider if possible due to peak loading.
- Reduce street clutter.
- Is it possible to create space for cycling by making the street one way or restricting vehicular traffic during school opening and closing times (e.g. create a school street).
- Combine seating, landscaping, street lighting to reduce footprint.

Safe places to cross

- Consider additional visibility requirements for children.
- Provide crossings at pedestrian desire lines.
- Side Road Junction tightening with raised crossings/continuous crossings/dished crossings (refer to NTA Active Travel Guidance Note on Low-Cost Junction Tightening Schemes)¹
- Reduce crossing distance/reduce radii.
- Provide crossing on all arms of junctions.
- Toucan/zebra crossings.
- Informal/courtesy crossings.
- No guardrail (as per DMURS).

Reduced traffic speeds

- Reduce carriageway width and corner radii.
- Use traffic management measures such as horizontal and vertical deflections.
- Use Vertical elements, such as trees to narrow the perceived width of the road.
- Surface colour/texture changes.
- Consider periodic pinch points to reduce rat running and bring the speeds and volumes down to level where cyclists can share the street (e.g. 30kph/<2000AADT).

Space for cyclists

- Can a link in the cycle network be provided to serve the school? Cycle tracks should be at least 1.75m wide for full build schemes and minimum 3m wide two-way.
- Is there potential to reallocate road space to create 1.5m quick build kerb/bollard protected lanes if the carriageway is greater than 9m wide.
- One-way cycle tracks are preferred, two-way cycle tracks may be appropriate but cyclists have to be able



Photo: Dun Laoghaire-Rathdown County Council

- to get to them and cross side streets and junctions safely.
- Is it possible to create space for cyclists by making the street one way or restricting vehicular traffic during school opening and closing times (e.g. create a school street).
- Do the six-way check when providing for cyclists at junctions. (Refer to the National Cycle Manual Section 7.5).
- Future proof for future network (e.g. do not plant trees where you are planning for cycle tracks).

Permeability shortcuts

- Look for attractive traffic free shortcut access to schools (e.g. paths across parks/sport grounds).
- Shared paths for cycling and walking should be 4m wide and well lit.
- Is it possible to provide/open a back entrance/gate with links through sports fields?
- Ideally, permeability links should be open to all but if needed gates could be time limited and auto-controlled.
- Formalising informal links and desire lines (tracks in the grass).

Encourage park 'n' stride

- Look for park 'n' stride locations within 600m (e.g. church car parks, supermarkets, local shops).
- Park 'n' stride can support local businesses.
- Ensure route is safe from car park to school, including crossings.
- Discourage on site or school adjacent drop-off zones.

Landscaping and public realm improvements

- Street trees.
- Planting and rain gardens.
- Quick-build/mobile elements (e.g. planters boxes).
- Footpath and carriageway materials.
- Quick-build footpath buildouts.

Legacy Issues at Priority Junctions

Many priority junctions in Irish towns and villages have been designed with the intention of facilitating ease of movement for turning vehicular traffic, at the expense of pedestrian convenience. These legacy junctions often feature:

- Large corner radii, facilitating swift vehicular turning movements; and
- Poor pedestrian crossing facilities including:
 - large distances across the mouth of the junction;
 - pedestrian crossings located away from desire lines; and
 - inadequate/non-existent dropped kerbs or tactile paving.

Improving Existing Priority Junctions

Options for improvements include:

- Junction tightening with raised crossing;
- Continuous footpaths (“crossovers”) over very lightly trafficked side streets/entrances;
- Junction tightening with dished crossing; and
- Temporary low-cost junction tightening measures.

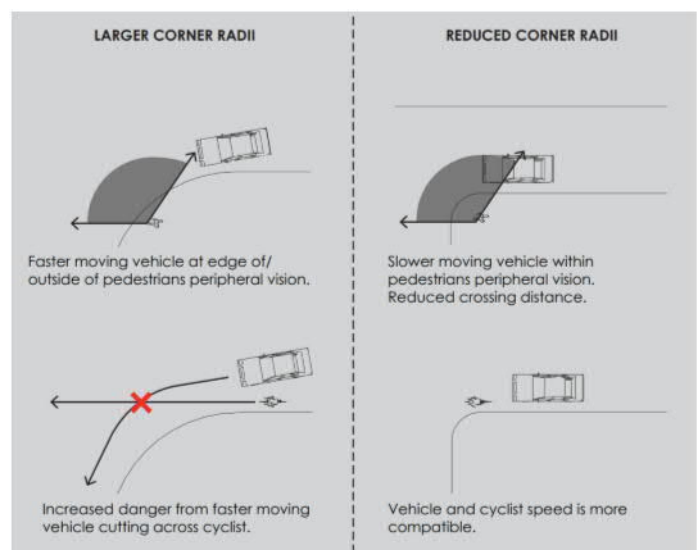
Corner Radii

Reducing corner radii will significantly improve pedestrian and cyclist safety at junctions by lowering the speed at which vehicles can turn corners and by

increasing inter-visibility between users. Reduced corner radii also assist in the creation of more compact junctions that also align crossing points with desire lines and reduce crossing distances.

NTA Guidance

The NTA Active Travel Guidance Note on Low-Cost Junction Tightening Schemes ¹ provides a high-level overview of options available to improve existing priority junctions.



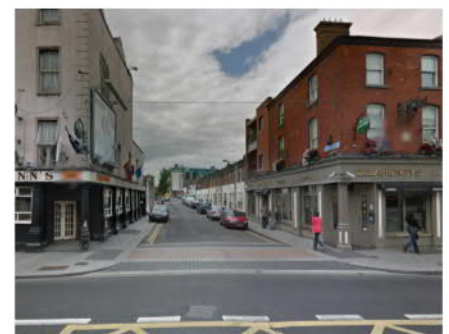
Source: DMURS Figure 4.42: Illustration of the benefits of reduced corner radii on pedestrian and cyclist safety



Main Road, Tallaght (Image: Google Street View)



Prosperous, Co. Kildare (Image: Google Street View)



Dorset Street, Dublin City (Image: Google Street View)



Patrick's Street, Cork City (Image: Google Street View)



Goatstown Road, Dublin 14

Junction improvements and upgrades

Designers must take a more balanced approach to junction design in order to meet the objectives of DMURS. In general designers should:

- Provide crossings on all arms of a junction;
- Reduce kerb radii, thereby reducing crossing distances for pedestrians and slowing turning vehicles;
- Omit left turn slips, which generally provide little extra effective vehicular capacity but are highly disruptive for pedestrians and cyclists;
- Omit staggered crossings in favour of direct/single phase crossings;
- Omit deceleration lanes;
- Include pedestrian, cyclist and bus passenger delays in the optimisation of traffic signal phasing and timings;
- Minimise waiting with pedestrian cycle times at signalised junctions; and
- Designers should also have regard to Context and Function when selecting junction types.

Main Road, Tallaght

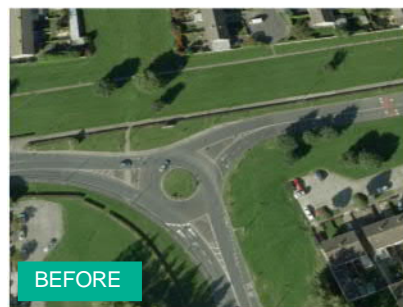
Tightened radii, narrowed carriageway, widened footpaths, Toucan crossings, cycle lanes brought through the junction.



(Images: Google Earth)

Main Road, Tallaght

Compact roundabout with single lane entries, cyclists segregated from traffic, raised zebra crossings (set back 5m from roundabout), narrowed circulatory carriageway.



(Images: Google Earth)

Kilcullen Road, Naas, Co. Kildare

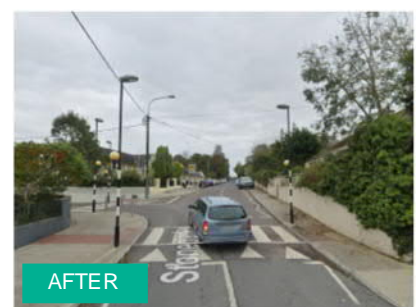
Slip lane removed, pedestrian crossing, central traffic island, reduced crossing widths.



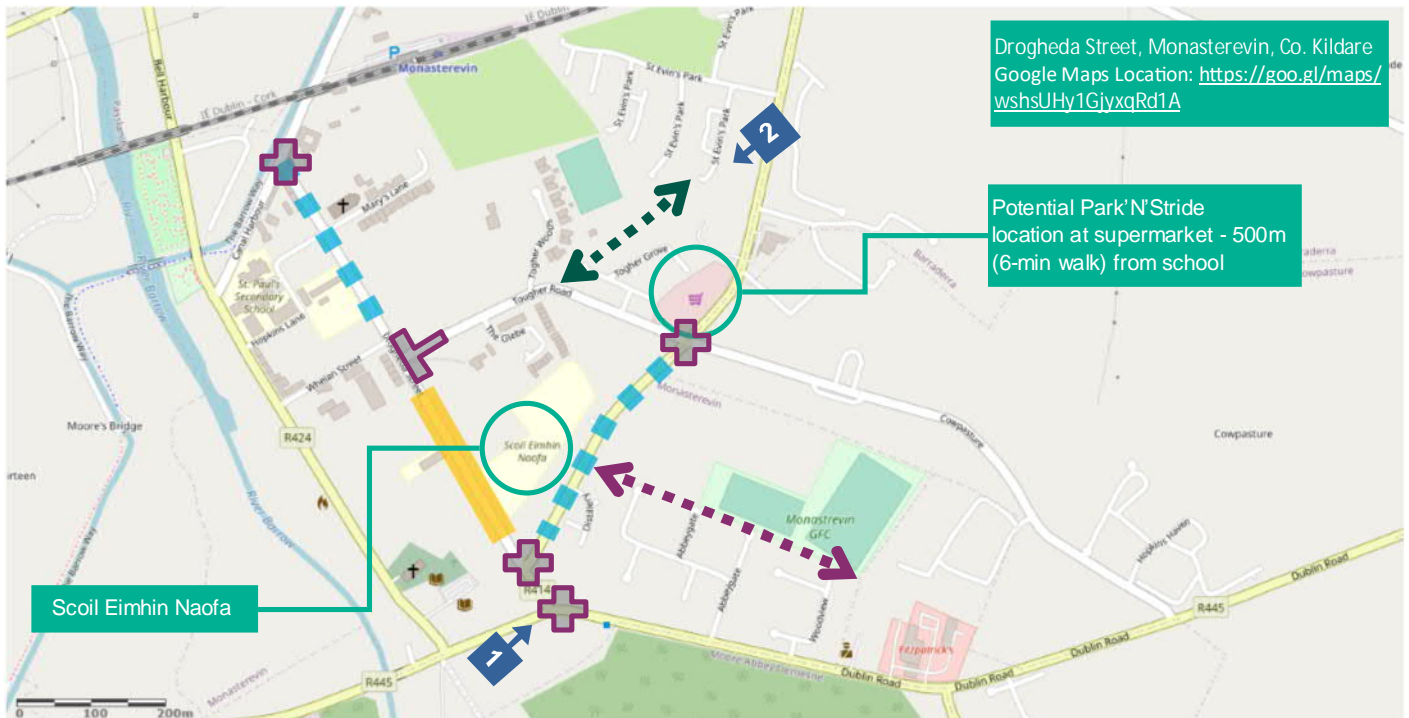
(Images: Google Street View)

Stoneparks, Ballymote, Co. Sligo

Tightened radii, widened footpaths, zebra pedestrian crossings, raised platform junction.



(Images: Google Street View)



Map Data: OpenStreetMap contributors




Side Road Crossings

Side road upgrades.



Junction Upgrades

Junction upgrades (e.g. provide crossings, reduce corner radii, remove slip lanes). See view 



Walking and Cycling Upgrades

Upgrade key walking and or cycling links in 1km vicinity (e.g. upgrade footpath). If carriageway >9m consider bollard protected cycle tracks on both sides of road, or as Kildare CoCo are proposing making Drogheda Street one way and providing 2 way cycle tracks along the eastern side.




Potential Permeability Links

Examine potential for walking and cycling links from new development areas e.g. through parks or sports grounds. Shared pedestrian cycle paths, 4m wide at least and lit.



Upgrade of Existing Informal Links

Improve informal pedestrian/cycling shortcuts and desire lines (e.g. widen to 4m, install lighting and upgrade surfacing). See view 



Potential School Zone

Refer to Section 3 for School Zone design ideas. Drop-off parking should be discouraged in School Zone.



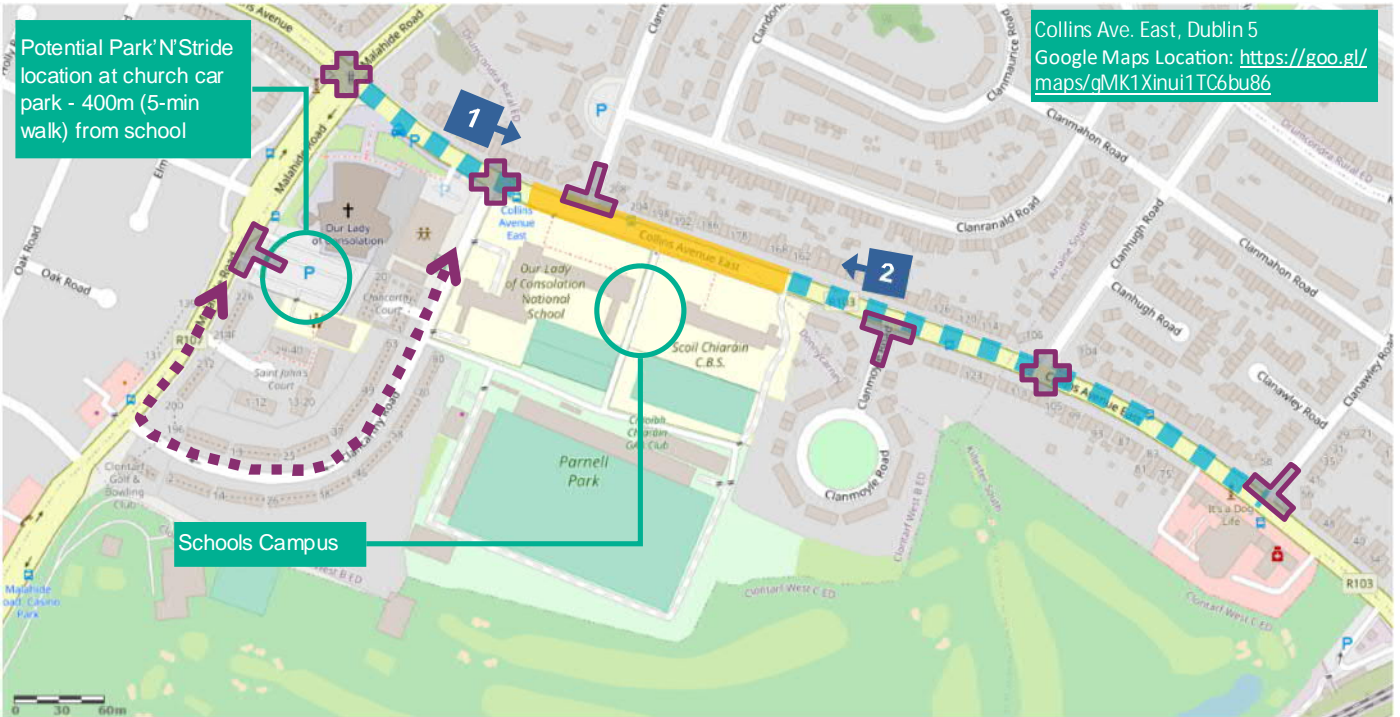
Image: Google Street View



Image: Google Street View

Potential School Walking and Cycling Links - Suburb

LINKS TO SCHOOL 2.5



Collins Ave. East, Dublin 5
 Google Maps Location: <https://goo.gl/maps/qMK1Xinui1TC6bu86>

Map Data: OpenStreetMap contributors




Side Road Crossings

Side road upgrades.



Junction Upgrades

Junction upgrades (e.g. provide crossings, reduce corner radii, remove slip lanes). Note: Malahide Road junction to be upgraded as part of BusConnects CBC Project. See view 

 **Walking and Cycling Upgrades**

Upgrade walking and or cycling links. As this link is a primary link on the GDA cycle network, and is 9m wide potential to provide a kerb/bollard protected cycle track for a suitable length e.g between key junctions that can usefully serve a residential area.



Potential Permeability Links

Examine potential for Park'N'Stride from church car park.

 **Potential School Zone**


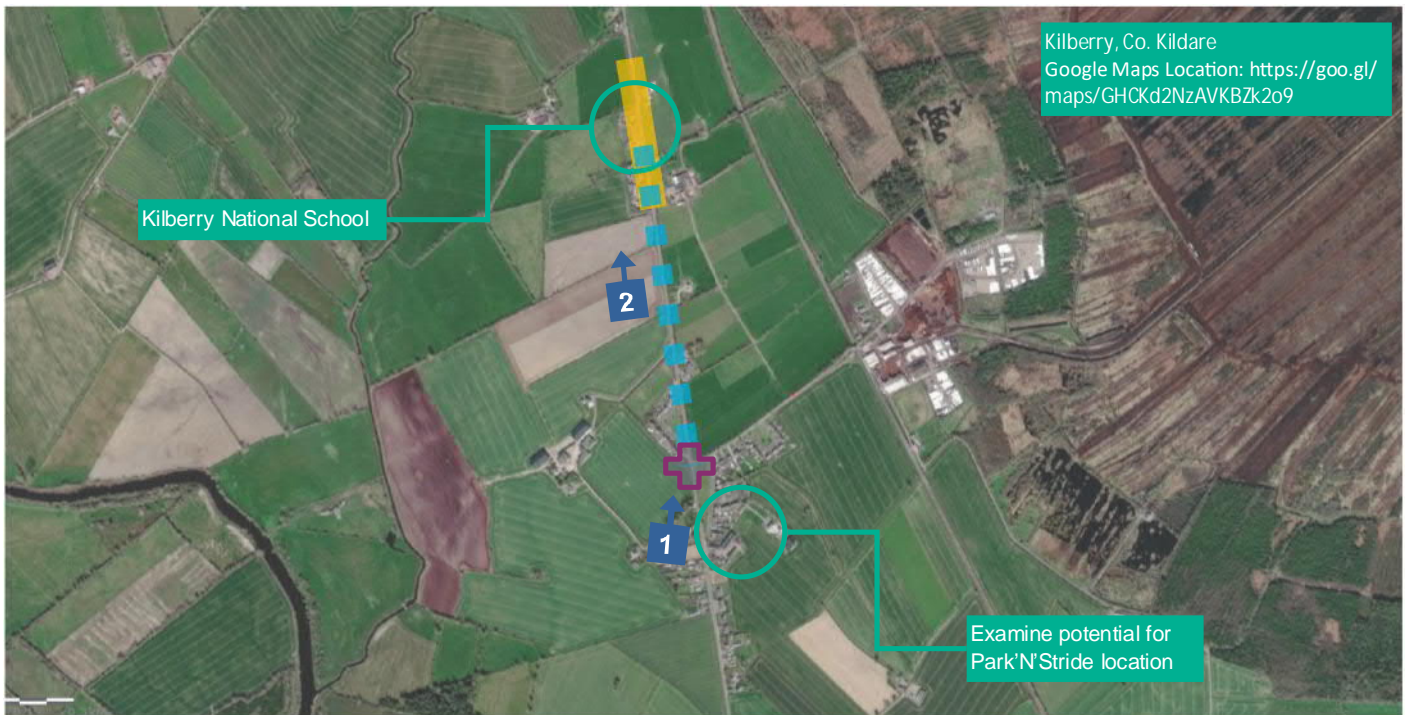
Refer to Section 3 for School Zone design ideas. Drop-off parking should be discouraged in School Zone. See view 



Image: Google Street View




Image: Google Street View



Map Data: OpenStreetMap contributors



Junction Upgrades

Upgrade the junction to provide crossing facility from residential areas. See view 

Walking and Cycling Upgrades

Provide/upgrade footpath from village and residential area to the school (approx. 500m) on at least one side of the road with lighting. Examine potential for Park'N'Stride from village.

Potential School Zone


Provide gateways at start of school zone to reduce speeds and highlight the presence of the school. See view  Refer to Section 3 for School Zone design ideas.



Image: Google Street View



Image: Google Street View

- ▶ Have existing traffic speeds and volumes been measured?
- ▶ Has the carriageway width been reduced to minimum?
- ▶ Is it possible to further restrict traffic speeds and volumes through traffic calming (e.g. horizontal or vertical deflections)?
- ▶ Is it possible to create space for walking and/or cycling by making the street one-way or restricting vehicular traffic during school opening and closing times (e.g. create a school street)?
- ▶ Have pedestrian desire lines been catered for?
- ▶ Are footpaths wide enough?
- ▶ Is there good public lighting in the area?
- ▶ Have side road treatments been provided (e.g. radii tightened and raised/continuous/dished crossings)?
- ▶ Are pedestrian crossings provided on all arms of junctions?
- ▶ Have additional visibility requirements for children been considered?
- ▶ Have cycling facilities been provided as per the National Cycle Manual, are they wide enough are they protected? Is the route safe for a primary-school child to cycle on?
- ▶ Is there potential to reallocate road space to create 1.5m quick build kerb/bollard protected lanes if the carriageway is greater than 9m wide?
- ▶ Has the wider cycle network been considered?
- ▶ Can landscaping and/or seating be provided, can you start with quick-build, mobile items like planters?
- ▶ Have traffic free shortcut access to schools been examined (e.g. desire lines or paths across parks/sports grounds)?
- ▶ Are shared traffic free paths for cycling and walking at least 4m wide and well lit?
- ▶ Has a park 'n' stride location been identified?
- ▶ Is the route from the park 'n' stride location safe, including crossings?

SECTION 3: FRONT OF SCHOOL ENVIRONMENTS - DESIGN SOLUTIONS

- 3.1 Front of School Environment/School Zone Typologies
- 3.2 Front of School Environment/School Zone Design Elements
- 3.3 Front of School/School Zone Design Considerations
- 3.4 On-Site or Site-Adjacent Set Down Areas - Considerations
- 3.5 Redistribution of Parking Away from School Zone
- 3.6 Design Ideas: Town Centre School Zone
- 3.7 Design Ideas: Neighbourhood Quick-Build Scheme
- 3.8 Design Ideas: Suburb Quick-Build Scheme
- 3.9 Design Ideas: Suburb Longer Term School Zone
- 3.10 Design Ideas: Rural School Zone
- 3.11 Front of School Environment/School Zone Checklist

A street or road may pass through a number of different contexts along its route. As context changes, the design of streets and roads will need to change accordingly. (DMURS, Section 3.2)

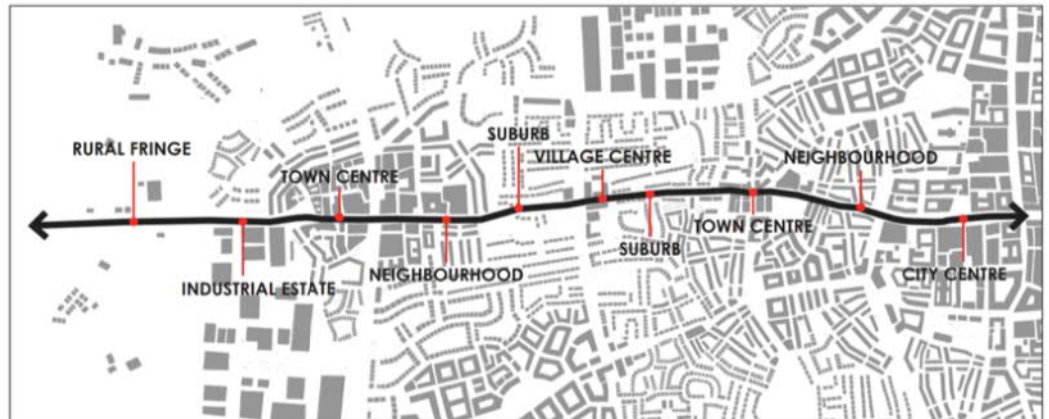


Image: DMURS Figure 3.4

TOWN CENTRE



- Example: Drogheda Street, Monastervin, Co. Kildare
- Town or Village Centre
- Typically 30km/h – 50km/h

NEIGHBOURHOOD



- Example: Harold's Cross, Dublin 6W
- Mixed-use area
- Medium/high density residential
- Typically 30km/h – 50km/h

SUBURB



- Example: Collins Avenue East, Dublin 5
- Low density residential
- Typically 50km/h – 60km/h

RURAL



- Example: Kilberry, Co. Kildare
- Outside Village or Town Gateway
- Rural Fringe
- Typically 50km/h – 80km/h



Design Elements could include:

- ① Carriageway narrowing where possible (build-outs using inexpensive materials could be used for Quick-Build Schemes).
- ② Vertical/horizontal deflection at start of zone.
- ③ Surface colour/texture change.
- ④ Visible pedestrian crossing with good lighting.
- ⑤ Distinctive signage (minimise use of warning signs).
- ⑥ Planting and trees (use planters for Quick-Build Schemes).
- ⑦ Seating.
- ⑧ Potential art elements.
- ⑨ Protected cycle lanes connecting to wider cycle network.





Photo: Dublin City Council

Space for pedestrians

- Footpaths at least 1.8m wide.
- Footpaths outside schools should be wider if possible due to peak loading.
- Reallocate road space to footpaths.
- Reduce street clutter; review need for existing guardrail.
- Create space for pedestrians by making the street one-way or restricting vehicular traffic during school opening and closing times (e.g. create a school street).
- Combine seating, landscaping, street lighting to reduce footprint.

Safe places to cross

- Consider additional visibility requirements for children.
- Side road junction treatments (see Section 2).
- Reduce crossing distance/reduce radii.
- Provide crossings on all arms of junctions.
- Toucan/zebra crossings.
- Informal/courtesy crossings.
- No guardrail (see DMURS Section 4.2.5).

Reduced traffic speeds

- Self-regulating design (see DMURS Section 4.1.2).
- Reduce carriageway width and corner radii (see Section 2).
- Horizontal and vertical deflections.
- Surface colour/texture changes.
- Vertical elements, such as trees.

Space for cyclists

- Provide a link in the cycle network to serve the school. Cycle tracks should be at least 1.75m wide for full build schemes and minimum 3m wide for one-way.
- Reallocate road space to create 1.5m quick build kerb/bollard protected lanes if the carriageway is greater

than 9m wide.

- One-way cycle tracks preferred, two-way cycle tracks may be appropriate but cyclists have to be able to get to them and cross side streets/junctions safely.
- Create space for cyclists by making the street one way or restricting vehicular traffic during school opening and closing times (e.g. create a school street).

Discourage parking and set-down

- Reduce carriageway width to restrict space for parking.
- Bollards and planters.

Distinctive but consistent visual identity

- Coloured carriageway surfacing.
- Distinctive banners and signs.
- Landscaping.
- Consider local heritage and architecture.

Places to sit, play and learn

- Seats and benches.
- Micro-art and interactive elements.
- Parklets.
- Incorporate with trees and planting.

Landscaping and public realm improvements

- Street trees.
- Planting, rain gardens.
- Quick to install mobile elements (e.g. planter boxes).
- Footpath and carriageway materials.
- Quick-build footpath buildouts.
- Quality Audit (see DMURS Section 5.4.2).

Separate access

- Provide separate entrance for pedestrians/cyclists from vehicles, if possible.



(Image: Google Earth)

Issues

The following points outline the rationale for discouraging on-site or site-adjacent set down areas:

- Set down areas encourage vehicles into the area with the highest intensity of children congregating;
- Set down areas reduce air quality in areas with the highest intensity of children congregating;
- Set down areas reduce the attractiveness of a park 'n' stride;
- Research shows set down areas require ongoing enforcement to operate effectively¹;
- Canadian research shows that collisions, particularly fatal collisions, decreased as the distance from schools increased²; and
- On site drop off zones uses land that could be used for play/sport/educational buildings.

Recommendations

- For the reasons outlined above dedicated set-down areas are not encouraged in close proximity to schools, unless there is no safe alternative area for set down within a 5 minute walk. This means a location where cars can park safely with a footpath link to the school;
- Schools should promote Park'N'Stride as an alternative (see Case Studies in Section 5); and
- It should be noted that Disabled Persons Parking Spaces and School Bus set down are exceptions and should be provided where feasible.

Feedback on School Issues

Broombridge Educate Together National School:
"The Principal said it causes more hassle because cars are queuing up along the whole road waiting for a space to become free so that they can pull in or pulling up alongside the cars that are already here and blocking the road."
(Dublin City Council School Liaison Officer)

Schools in Fingal:
"Parking, traffic congestion, road safety and air quality are ongoing issues at many school drop off areas across Fingal. In pre-planning discussions involving new school developments, the Transportation Planning Division always advises applicants that it is generally not acceptable for schools to provide dedicated set-down zones in close proximity to schools. A better solution, and what we seek to achieve at new school sites, is for an exclusion zone to be created in the immediate vicinity of the school, as that will prioritise safety for all school children, including those who cycle and walk, whilst also minimising air quality and traffic congestion issues at the school gate. If car set-down zones are definitely required, they should only be provided at carefully selected locations that are remote from the immediate school zone."
(Senior Engineer, Fingal County Council)

Will School Zones or School Streets just move school parking/set down further away resulting in overspill into nearby residential areas?

The front of school is where children congregate in the greatest numbers and where they are most vulnerable to indiscriminate parking practices, hazardous crossing conditions and air quality issues from idling cars. School Zones aim to:

- Discourage vehicle drop off in this critical area;
- Encourage active travel to the greatest extent possible; and
- Promote more considered parking practices for those who must drive, away from the school gate where there is less user intensity and subsequent risk to children's safety.

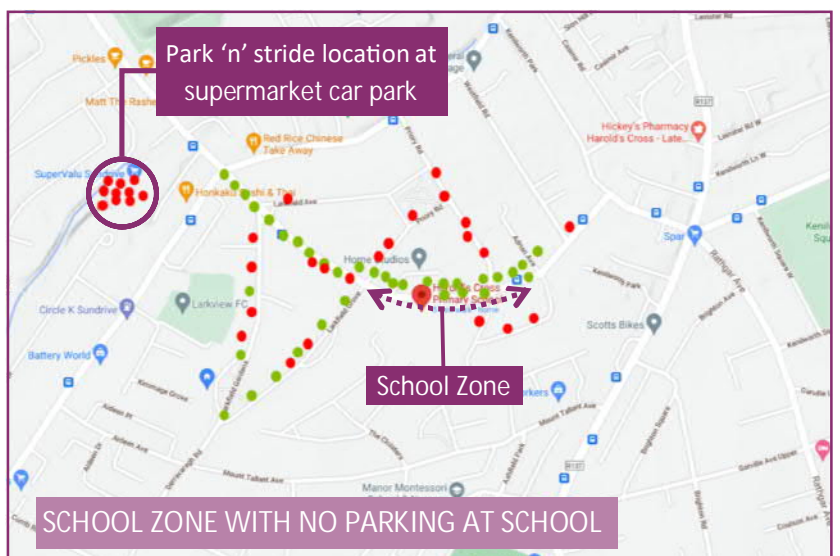
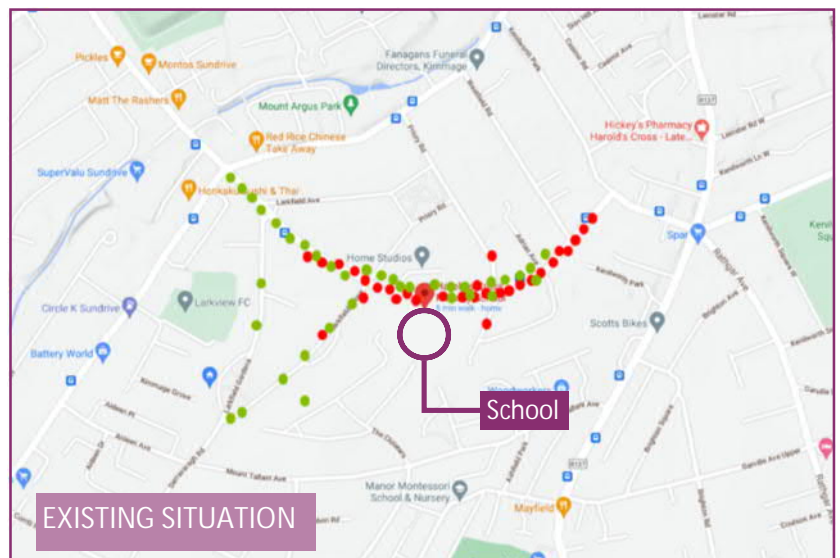
School Zones also signal a school's ethos that active travel is the preferred mode of travel to the school.

School Zones and Parking

- Each red dot represents a person dropped to school by car (i.e. a parking or set-down event).
- Each green dot represents a person walking/cycling to school.

Both diagrams have the same number of red and green dots. In the existing situation the red dots are concentrated in the vicinity of the school gate with resultant congestion, and safety and air quality issues.

With a School Zone or School Street in place, parking is not concentrated at the school and is distributed throughout the neighbourhood. A park 'n' stride parking location (e.g. at a local supermarket) can ease parking demand by taking a large number of cars away from local streets.



Map Data: Google Maps

Existing Street

- 9m-wide carriageway.
- On-street parking, parking on footpaths.
- No pedestrian crossings.
- No cycle facilities.
- Residential/commercial street.
- Movement and place function.
- 50km/h speed limit.
- Low traffic flows.

Google Maps location: <https://goo.gl/maps/88sSr3ZRKu7QENxB7>



Quick-Build School Zone

- 1 Carriageway narrowed to 6m; coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Raised platform at Gateway.
- 3 Gateway totem on each side of road.
- 4 School Zone Banner.
- 5 Raised courtesy/school warden crossing.
- 6 Mobile planter boxes.
- 7 Potential micro-art.
- 8 Seating.



Longer Term School Zone

- 1 Carriageway narrowed to 6m; coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Raised platform at Gateway.
- 3 Gateway totem on each side of road.
- 4 School Zone Banner.
- 5 Raised courtesy/school warden crossing.
- 6 Potential micro-art.
- 7 Planting/rain gardens and trees.
- 8 Seating.



See Appendix 2 for materials specifications and Appendix 3 for alternative design ideas.

Existing Street

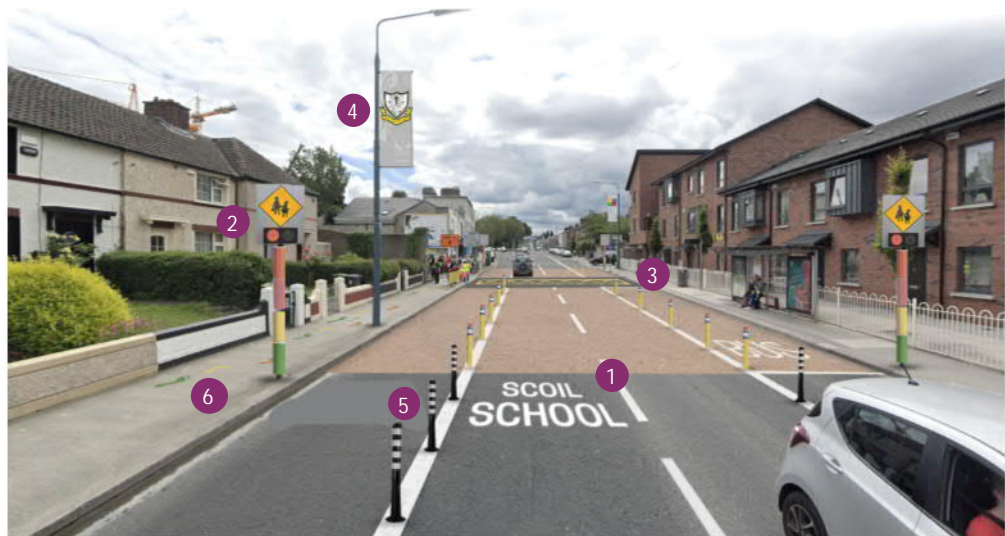
- 12m-wide carriageway.
- Bus lanes in both directions; busy bus route; proposed BusConnects CBC.
- No pedestrian crossings.
- No cycle facilities.
- Mixed-use street.
- Mainly movement function.
- 50km/h speed limit.
- High traffic flows.

Google Maps location: <https://goo.gl/maps/HQJfDSR5PxpYF1Nw7>



Quick-Build School Zone

- 1 Coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Gateway totem on each side of road.
- 3 Raised pedestrian crossing.
- 4 School Zone Banner.
- 5 Flexible bollards along bus lane; flexible pencil bollards within School Zone.
- 6 Potential micro-art.



Quick-Build Alternative Layout

- 1 Coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Gateway totem on each side of road.
- 3 Raised pedestrian crossing.
- 4 School Zone Banner.
- 5 Pencil bollards in footpath verge within School Zone.
- 6 Potential micro-art.



See Appendix 2 for materials specifications and Appendix 3 for alternative design ideas.

Existing Street

- 9m-wide carriageway
- On-street parking, parking on footpaths
- No pedestrian crossings
- No cycle facilities
- Residential street
- Mainly movement function
- 50km/h speed limit
- High traffic flows at peak times

Google Maps location: <https://goo.gl/maps/XAbT4t11QsCDGhiS9>



Quick-Build School Zone

- 1 Carriageway narrowed to 6m; coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Protected cycle lanes connecting to wider network. Flexible pencil bollards used within School Zone.
- 3 Raised courtesy/school warden crossing.
- 4 Mobile planter boxes.
- 5 Micro-art in footpath.



Quick-Build School Zone Gateway

- 1 Carriageway narrowed to 6m at Gateway.
- 2 Raised platform at Gateway.
- 3 Gateway totem on each side of road.
- 4 School Zone Banner.
- 5 Protected cycle lanes connecting to wider network (light segregation with bollards shown).

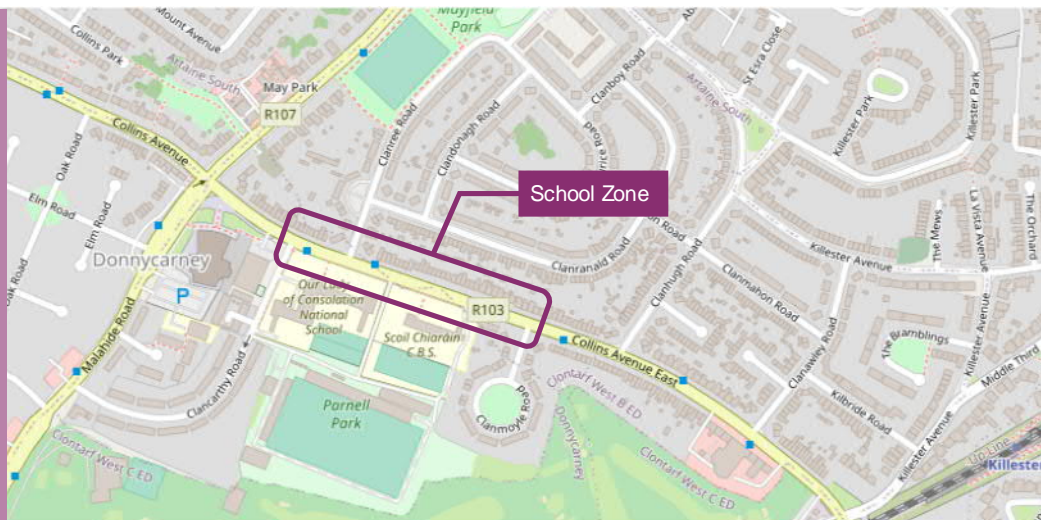


See Appendix 2 for materials specifications and Appendix 3 for alternative design ideas.

Longer Term Scheme Key Considerations:

- Connection to wider walking and cycling network;
- Traffic calming and speed limit reduction;
- Statutory Processes; and
- Alternative accesses.

Refer to Section 2.5 for potential walking and cycling links to this school.



Map Data: OpenStreetMap contributors

School Zone Layout

- 1 Carriageway narrowed to 6m; coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Raised cycle tracks connecting to wider network. Flexible pencil bollards used within School Zone.
- 3 Raised courtesy/school warden crossing.
- 4 Planting beds/rain garden.
- 5 Micro-art in footpath.



School Zone Gateway

- 1 Carriageway narrowed to 6m at Gateway.
- 2 Raised platform at Gateway.
- 3 Gateway totem on each side of road.
- 4 School Zone Banner.
- 5 Raised cycle tracks connecting to wider network.



See Appendix 2 for materials specifications and Appendix 3 for alternative design ideas.

Existing Road

- 7.5m-wide carriageway.
- Infrequent parking on road.
- Footpath on one side; no pedestrian crossings; no lighting.
- No cycle facilities.
- Movement function.
- 60km/h speed limit; reduced speed limit at school times.
- Low traffic flows.
- Straight road alignment with potential for high speeds.

Google Maps location: <https://goo.gl/maps/vme9f8P1qsL5rwMDA>



School Zone Layout

- 1 Coloured surfacing applied within School Zone (buff colour HFS shown).
- 2 Virtual ramp (i.e. no vertical deflection) at Gateway.
- 3 Kerb on left side to define carriageway edge.
- 4 Gateway totem on each side of road.
- 5 Public lighting.
- 6 School Zone Banner.
- 7 Planting and trees.
- 8 Micro-art in footpath.



School Zone Alternative Layout

- 1 Carriageway narrowed using central hatching and splitter island.
- 2 Coloured surfacing applied within School Zone (buff colour HFS shown).
- 3 Kerb on left side to define carriageway edge.
- 4 Gateway totem on each side of road.
- 5 Public lighting.
- 6 School Zone Banner.
- 7 Planting and trees.
- 8 Potential micro-art.



See Appendix 2 for materials specifications and Appendix 3 for alternative design ideas.

- ▶ Has the place context/movement function of the road been considered?
- ▶ Has the design been considered from a child's perspective (average height, etc.)?
- ▶ Does the design discourage parking and set down?
- ▶ Have existing traffic speeds been measured?
- ▶ Are footpaths wide enough?
- ▶ Has the carriageway width been reduced?
- ▶ Have pedestrian desire lines been catered for?
- ▶ Have crossing locations (formal/informal) been provided?
- ▶ Can play and learning space be accommodated?
- ▶ Have cycling facilities been provided?
- ▶ Has the wider cycle network been considered?
- ▶ Can landscaping be provided?
- ▶ Have SuDS measures been considered?
- ▶ Have existing drainage and utilities been considered?
- ▶ Are there planned future road/utilities works on this street?
- ▶ Is there good public lighting in the area?
- ▶ Will the design be legible for all road users?
- ▶ Side road treatment?
- ▶ Has resident parking and loading been considered?
- ▶ Has the road pavement condition been assessed?
- ▶ Is the school zone on a bus route? Consider implications on carriageway widths, bus stops, etc.

SECTION 4: CASE STUDIES

Pedestrian Facilities

1. St Laurences Greystones*
2. Kiltullagh NS, Loughrea
3. St Michaels NS, Cloonacool, Co. Sligo.*
4. Ardpatrick NS, Limerick
5. Loreto and Scoil Mhuire NS, Milford, Donegal
6. Drumshambo, Leitrim

Permeability Links

7. Schools Cluster, Rathfarnham, Dublin
8. Ballygarven NS, Cork
9. Half Moon Lane Cork*
10. Gaelscoil Ui Fhiaich and Maynooth Educate Together NS, Co. Kildare*
11. Educate Together Grangegorman*

Separate Access

12. Coláiste Phádraig, Lucan *
13. Athlone Community College
14. Scoil Iosaif Naofa, Oranmore, Co. Galway
15. Mary Mother of Hope National School, Littlepace, Dublin 15*

Cycling Links

16. Carysfort National School, Blackrock, Co. Dublin
17. Guardian Angels NS and Newpark Secondary School, Blackrock, Co. Dublin*

Quick-Build Schemes

18. DCC School Zones Initiative

School Streets

19. Scoil Iognaid, Galway
20. Saint Oliver Plunkett National School, Grove Road, Malahide

Park'n'Stride

21. St. Brigid's Presentation Secondary School, Killarney
22. Scoil Mhichil Naofa, Galmoy, Co. Kilkenny

* Case Study Sheets to be completed

Pedestrian Facilities and Park'n'Stride

Kiltullagh National School, Loughrea, Co. Galway

CASE STUDY



Map Data: Maxar, Microsoft

Overview

The project comprised the provision of 300m of new footpath on the R348 road to link the local shop, post office and petrol station to the National School.

The need for the scheme was identified following a Walkability Audit carried out at the school.

Construction on the new footpath was completed in 2018.

With the new footpath in place, it makes it easier and safer for children and their parents to park 'n' stride from Duane's shop while supporting local business.

Google Maps Location: <https://goo.gl/maps/F9afciAkBv4RKhv79>

Outcome:

Construction of 300m of new footpath now provides a safe route from the school to a Park'n'Stride site 5-minutes walk away.



Image: Google Street View



Image: Google Street View

Pedestrian Facilities

Ardpatrick NS, Co. Limerick

CASE STUDY

Overview

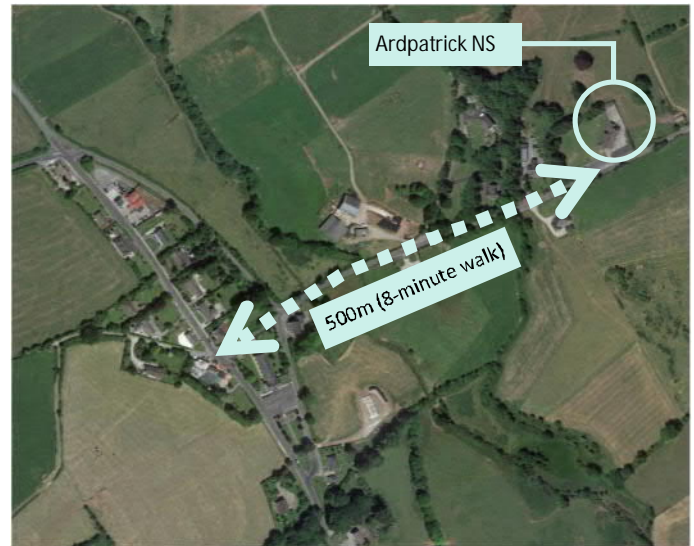
Ardpatrick National School, situated in County Limerick, is a rural mixed primary school with 64 students. The school is located 500m outside the village. There was no footpath linking to the village.

The school undertook a travel survey in December 2018 where the predominant mode of transport was motorised transport. Only 5% of students walked to school.

Barriers to Sustainable Travel that were identified included an absence of suitable infrastructure to support walking/cycling; a prevalence of speeding HGVs and non-school related traffic; and an unsafe pedestrian access point to the school owing to haphazard parking.

The lack of infrastructure inhibited travel initiatives such as Walk on Wednesday or park 'n' stride.

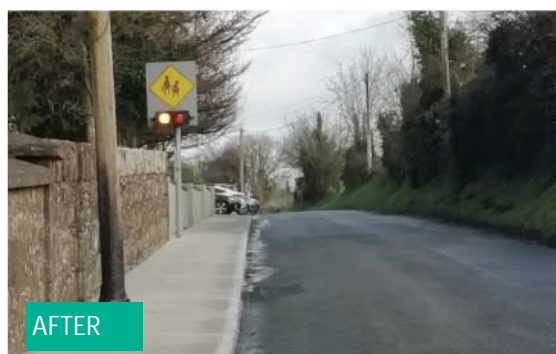
Google Maps Location: <https://goo.gl/maps/e1MrFAvpS6gshxpL9>



Map Data: Google, Maxar Technologies

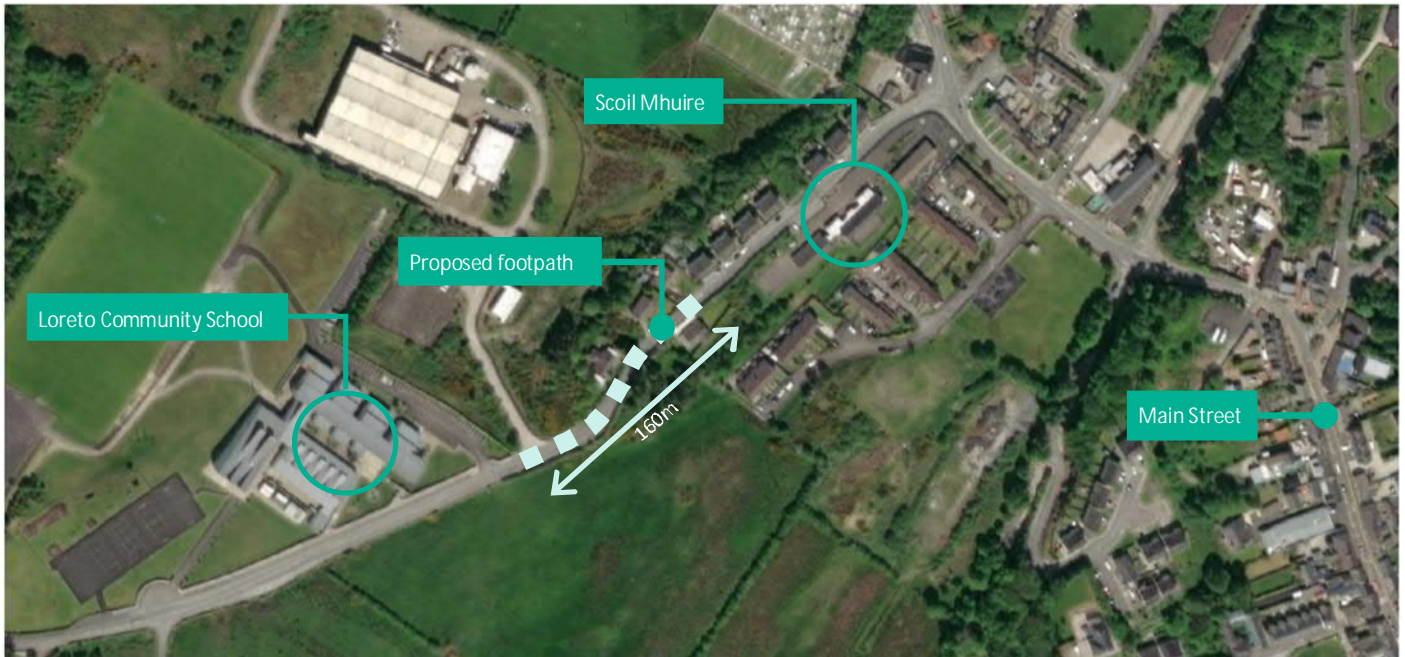
Outcomes:

- 500m of footpath was constructed, providing a link to the village;
- The school can participate in Walk on Wednesdays;
- The school Principal maintains that speed reduction measures still need to be put in place;
- Students can now attend the village and church where there is a large car park; and
- The school successfully applied to Green-Schools for scooter parking.



Photos: Green-Schools

Scoil Mhuire NS and Loreto Community School, Milford, Co. Donegal



Map Data: Maxar, Microsoft

Overview

The project comprised the provision of pedestrian facilities to link two schools: Loreto Milford Secondary School (787 students) and Milford National School (174 students) in the town of Milford in County Donegal.

The Loreto School on Convent Road, which was built in 2006, did not have a footpath connecting to the town. This meant that students walking had to share the narrow road with motor traffic including many buses at pick-up and drop-off times.

The Local Authority applied for funding to purchase a strip of land from a private land owner to facilitate road widening and the construction of 160m of new footpath. The scheme was granted planning permission in 2019 and the Local Authority then applied for funding through the NTA Active Travel grant scheme.

Construction works commenced in late 2020 and are due to be completed in 2021.

Outcome:

Construction of 160m of new footpath will provide a continuous walking route between the town and school.

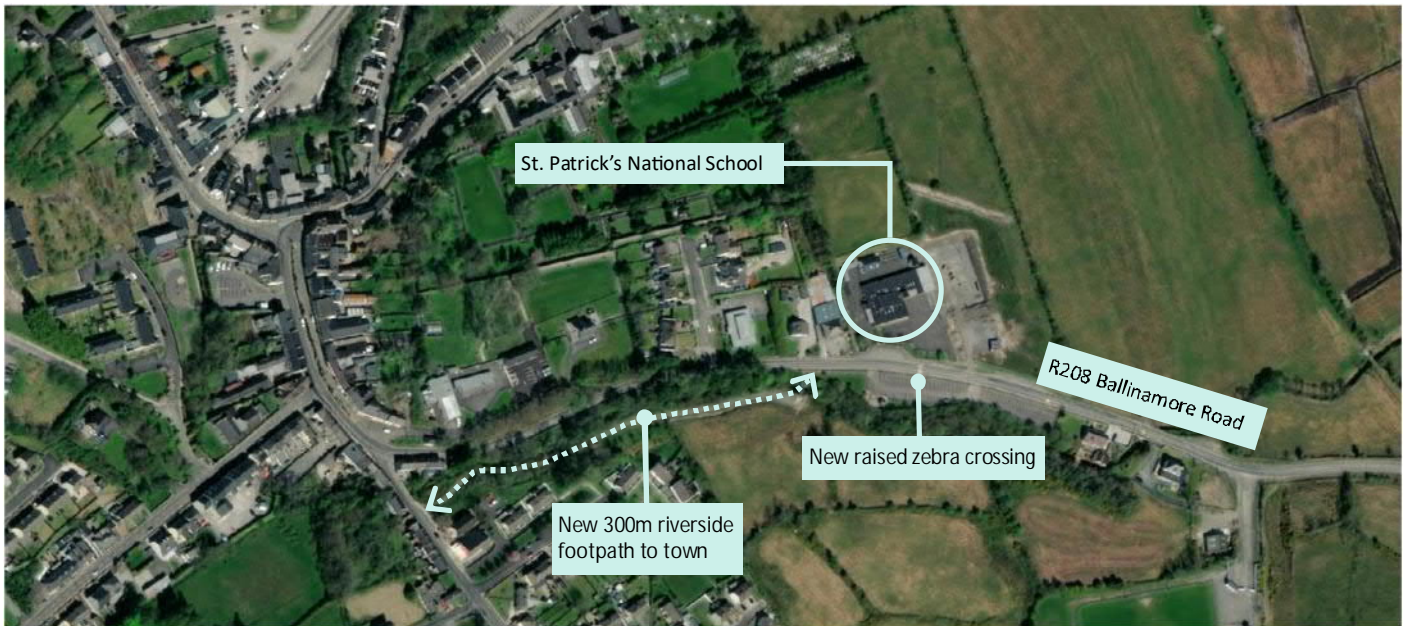
Google Maps Location: <https://goo.gl/maps/BUin5dpzmfU4Gf5Q8>



Image: Google Street View



Photo: Green-Schools



Map Data: Maxar, Microsoft

Overview

St. Patrick's National School is located on the R208, approximately 400m (5 min walk) from the centre of Drumshambo. This road had no footpath connecting the school to the town.

A Walkability Audit was carried out in December 2015. The audit identified that pupils walking to school had to cross the road on a bend and that there was no pedestrian crossing in the town. An initial travel survey identified that only 12% of pupils walked to school despite many children living very close-by.

During the walkability audit an overgrown off-road path linking an area where a high proportion of pupils live to the school was identified. This project of clearing and resurfacing this path started in 2017 with funding secured from 2 rounds of Clár funding. Further funding was also secured under the NTA Active Travel fund to resurface and provide lights along the woodland path. There are plans now to extend the path to link in the GAA pitch.

Google Maps Location: <https://goo.gl/maps/SV8U4kAh6VyH7d2S7>

Outcome:

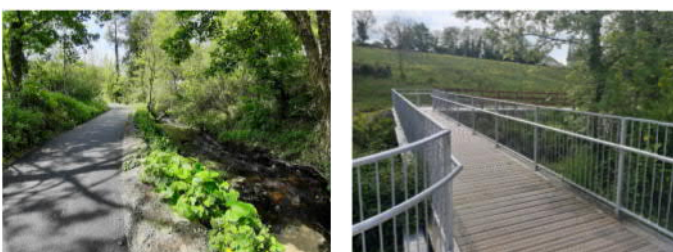
- New 300m riverside footpath, footbridge and raised zebra crossing connecting the school to the town.



The R208 road between the school and town (Image: Google Street View)



New raised zebra crossing at school entrance (Image: Google Street View)



New riverside walk and footbridge (Photos: Green-Schools)

Permeability Links

CASE STUDY

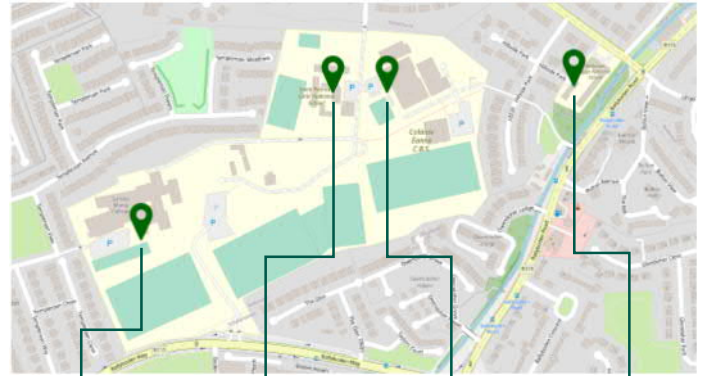
Green Schools Cluster, Rathfarnham, Dublin

Overview

There are four schools located within a 300m radius of each other but are not well connected with walking or cycling routes. A total of 2,000 pupils and teachers travel to this schools cluster each day.

The scheme proposals to improve accessibility to the cluster arose from engagement with the schools. Pupils were involved in identifying issues, including traffic congestion, poor permeability for walking and cycling between schools, poor surfacing and poor lighting.

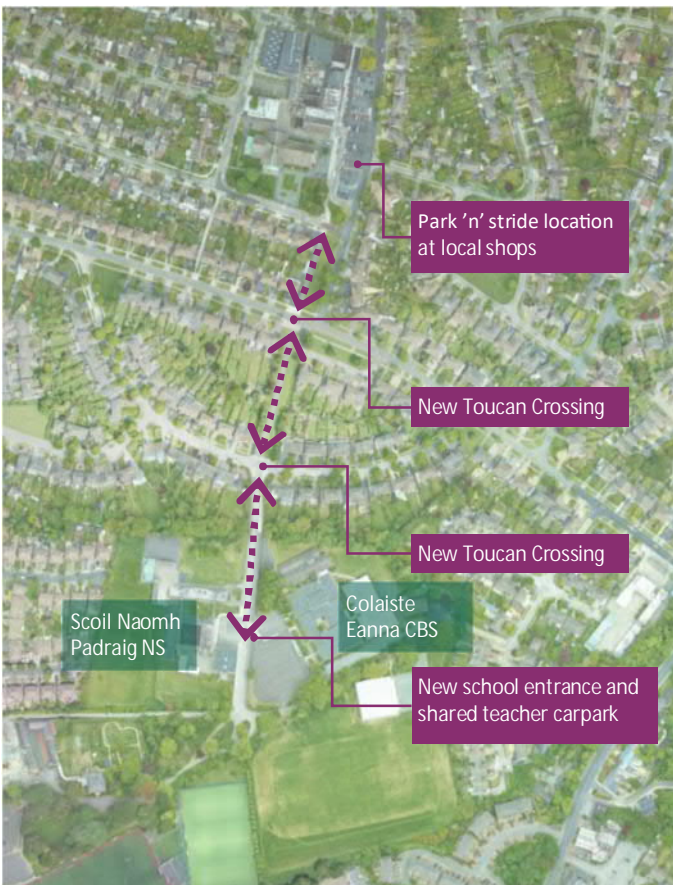
Google Maps Location: <https://goo.gl/maps/ra6Jv1hkMfxoQtEQ8>



Sancta Maria College
Scoil Naomh Pdraig NS
Colaiste Eanna CBS
Ballyroan Boys NS



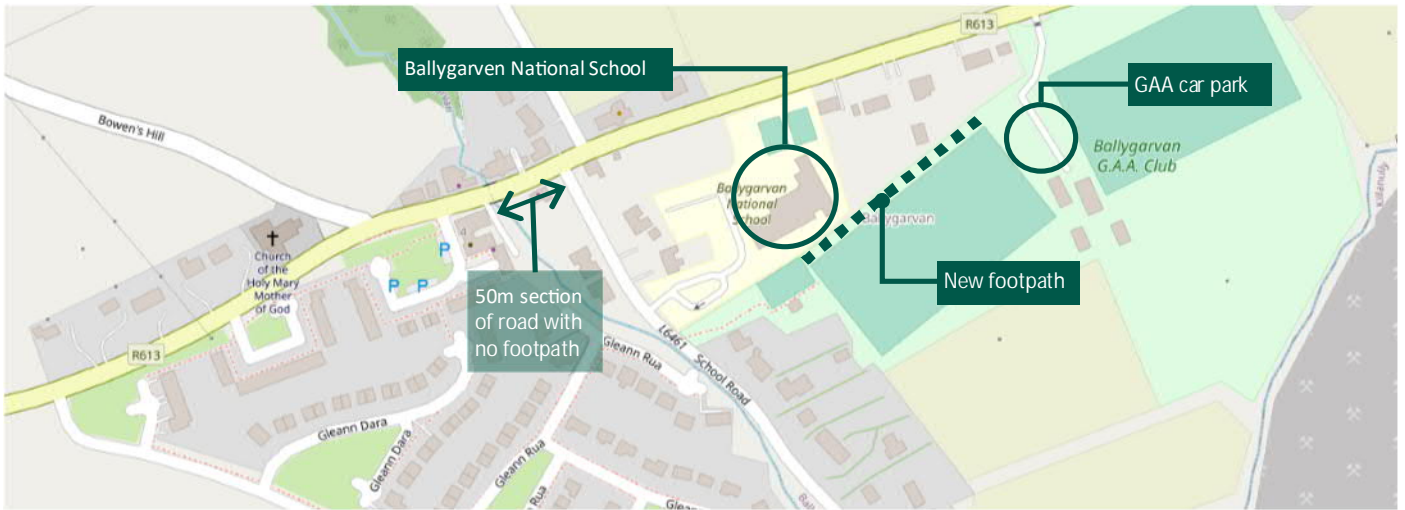
Images: Google Street View



Map Data: Google Earth



Ballygarven National School, Co. Cork



Map Data: OpenStreetMap contributors

Overview

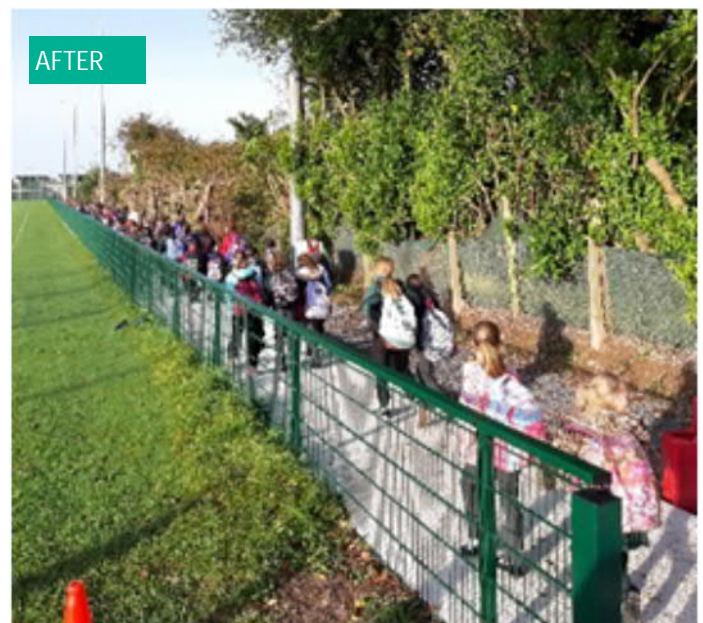
Ballygarven NS began work on the travel theme in September 2018. It is a mixed school with approximately 390 pupils located within the village on the R613. The Green-Schools committee audited the route from the school gates westwards to the church (approx. 300m distance). The route to the school to the GAA pitch to the east (approx. 560m distance) was also audited, as this had been identified as a possible park 'n' stride or Walk on Wednesday (WOW) meeting point. The following issues were identified:

- The footpath between the school gates to the main housing estates is not continuous, with a 50m gap;
- There is no crossing on the R613 where many parents wait for pupils and where the shops and church are located;
- There is a large volume of heavy commercial vehicles, including lorries from the local quarry;
- The R613 has high traffic speeds; and
- School traffic causes congestion on School Road and at the school entrance at main drop-off/pick-up times.

The Green-Schools committee then wrote to the quarry outlining their concerns about lorries from the quarry travelling at speed through the village. They also approached the GAA to see if the students could use the GAA car park as a meeting point for their WOW.

The local community was very responsive in helping to create a safer school area. The school also worked with the road safety officer from Cork County Council. Options to provide a new section of footpath on the R613 were not deemed possible, so the GAA allowed 150m of new footpath to be constructed along the side of the pitch to the school gates. The Roadstone Quarry offered to build and finance the path. All cars and buses now use the GAA car park for morning and evening drop offs and collections.

Google Maps Location: <https://goo.gl/maps/F9afciAkBv4RKhv79>



Photos: Green-Schools

Separate Access to School

CASE STUDY

Athlone Community College, Co. Westmeath



Map Data: Maxar, Microsoft

Overview

Athlone Community College is situated to the south of Athlone's Old Rail Trail Greenway. A new access gate and path was constructed to provide a connection between the Greenway and the school.

Results from travel surveys carried out in November 2020 and May 2021 show that over 50% of the school's pupils walk to school, with at least 33% of the pupils using park 'n' stride via the Greenway.

Google Maps Location: <https://goo.gl/maps/hvpYY7bMQj7frndV8>

Outcomes:

- New footpath link to the Greenway was constructed, providing an opportunity for park 'n' stride to school; and
- Travel surveys show over 50% walking and 33% using Park'n'Stride via the Greenway.



Image: Google Street View



Photos: Green-Schools

Separate Access to School

CASE STUDY

Scoil Iosaif Naofa, Oranmore, Co. Galway



Map Data: Google, Maxar Technologies

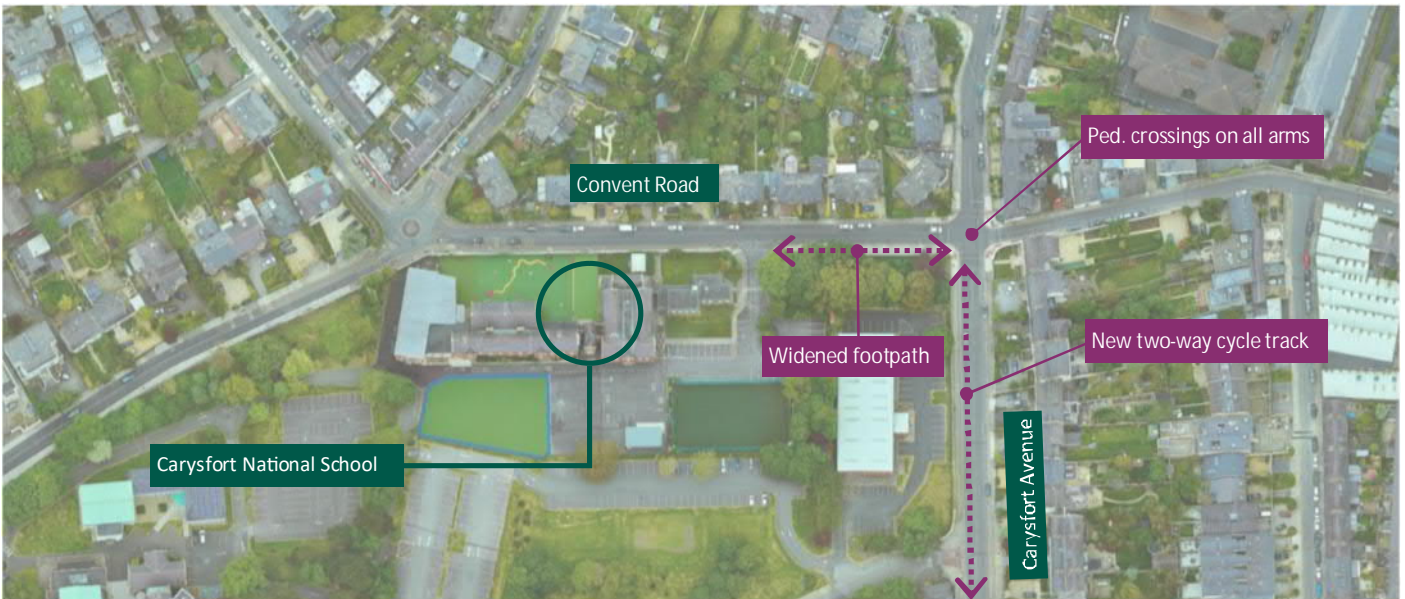
Overview

This school opened a gateway and walkway through their sportsgrounds to an estate road at the back of the school. This facilitated many children to park 'n' stride and walk to school; last year over 66% of the school's pupils travelled sustainably to school.

Google Maps Location: <https://goo.gl/maps/ZMJLhAUbNrCe3ke5A>



Photos: Green-Schools



Map Data: Google, Maxar Technologies

Overview

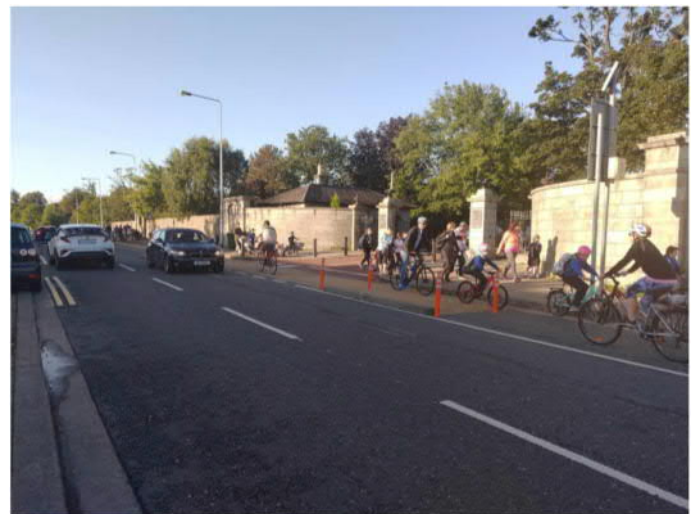
Pre-2015, the footpath on Convent Road was extremely narrow from the junction of Carysfort Avenue to the school entrance. Vehicles were parking on the path and close passes were frequent with some collisions being reported. Initially, bollards were installed by DLRCC; however, the narrow path was soon over capacity due to the excellent efforts of the school to get people to walk.

In 2015 DLRCC widened the path and made improvements to the Carysfort Avenue junction to provide pedestrian crossings on all arms. The scheme included land acquisition by agreement and construction of a new structural retaining wall faced in granite.

In 2020 a two-way cycle track was installed on Carysfort Avenue. The track provided a wide, segregated cycling link to the wider network. As a result, the number of pupils cycling to the school has significantly increased.

DLRCC are currently working with the school on Active School Travel facilities from the other approaches to the school.

Google Maps Location: <https://goo.gl/maps/MEXe7ipx8qgYnNTs6>



Two-way cycle track on Carysfort Avenue (Photo: DLRCC)



Narrow footpath on Convent Road (Photo: DLRCC)



New widened footpath (Photo: DLRCC)

Overview

Dublin City Council initially piloted two School Zones in the city; one in Francis Street School, D8 and one at Central Model School, D1 in late August 2020. Following positive feedback from the schools and parents, DCC contacted all primary schools in the DCC administrative area (213) inviting them to complete an application form for a School Zone.

All applications are assessed for suitability by a site visit by the area engineer who completes preliminary designs which are forwarded to the contract engineer for further assessment and final design. These are then sent to the NTA for approval. Once the final designs are approved, they are sent to the school along with a flyer explaining the concept of a School Zone for dissemination to local residents.

In 2020 over 30 School Zones were installed throughout the City.



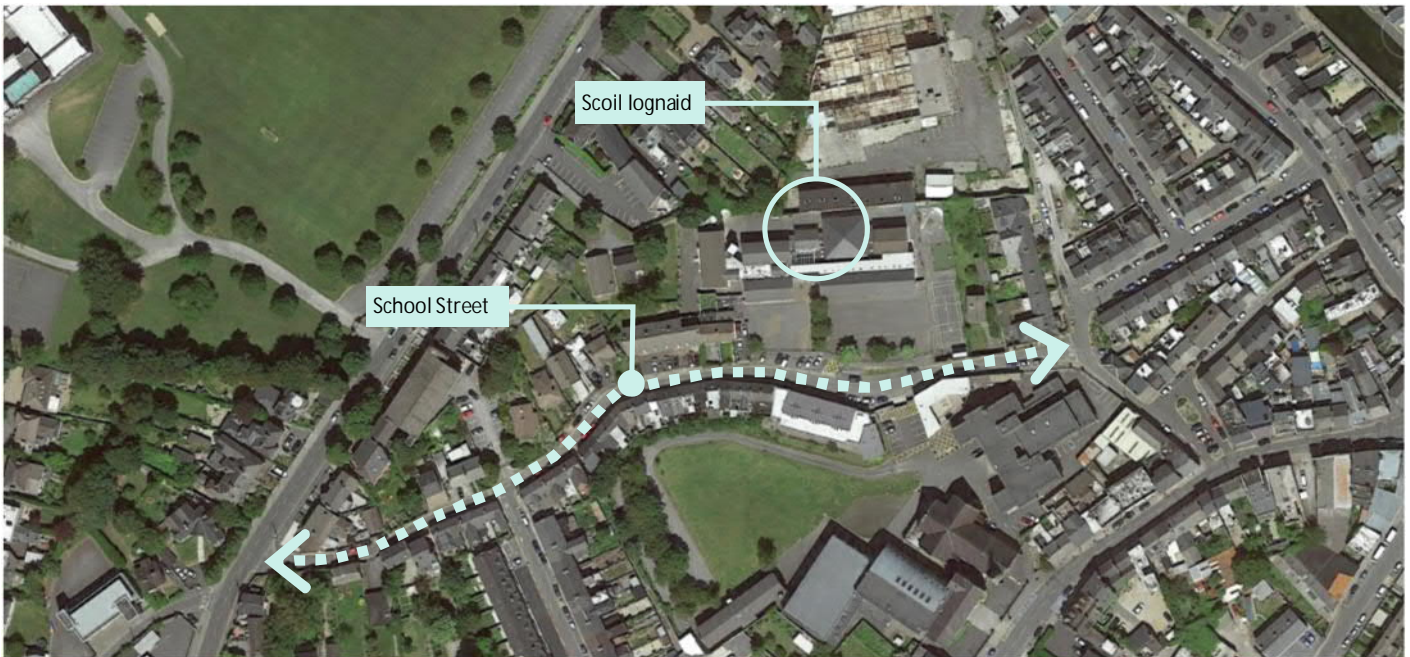
Outcomes:

- Over 30 school zones were implemented in 2020; and
- The design features assisted in creating a safer, calmer, more attractive environment at the school gate.



Photos: Dublin City Council

Scoil Iognaid, Galway City



Map Data: Google, Maxar Technologies

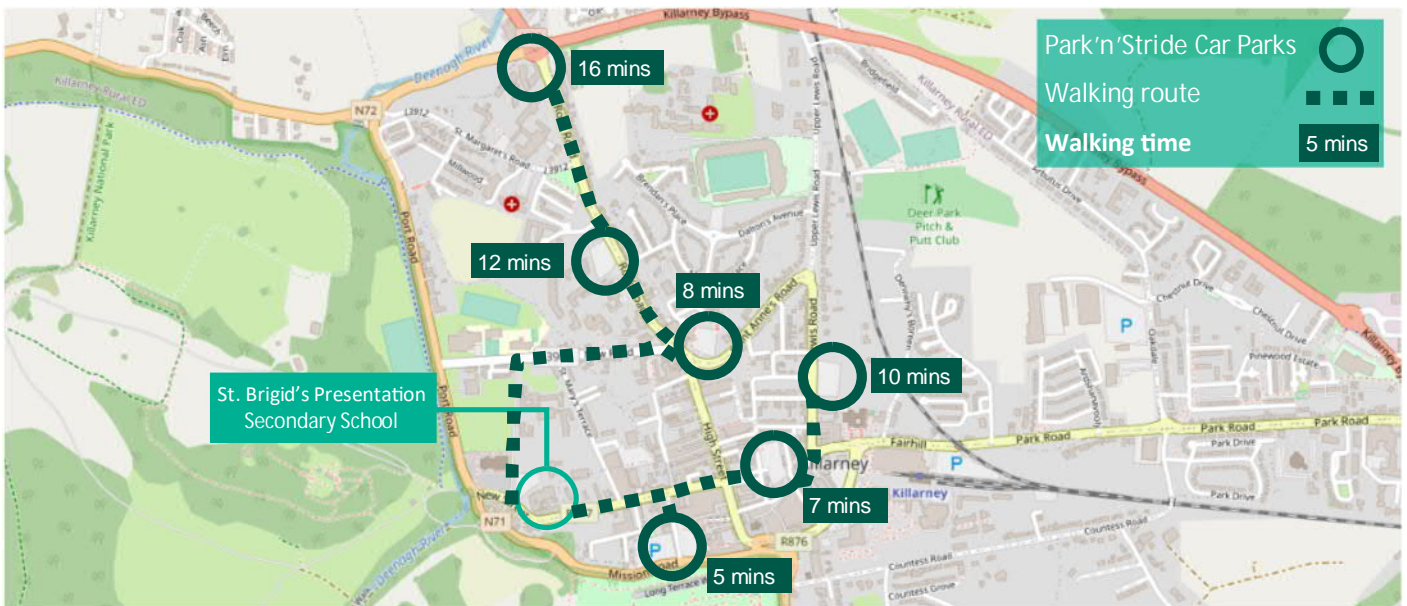
Overview

Galway's first 'School Streets' pilot project was implemented in November 2020 at Scoil Iognaid in Galway City Centre. The school street environment created a safer, calmer space for children, parents and residents to walk, scoot or cycle. As part of the pilot project, Palmyra Avenue and Raleigh Row were pedestrianised during the school pick up and drop off times. Residents along these routes continue to have access to their homes during these times, as will cyclists or 'blue badge' holders accessing the school.

Google Maps Location: <https://goo.gl/maps/jKoc28xCq2apTM43A>



Photos: Green-Schools



Map Data: OpenStreetMap contributors

Overview

St. Brigid's Presentation Secondary is a large all girl's secondary school on New Road, Killarney with a population of 600+ students.

They conducted a Travel Survey in October 2018, revealing that 60% travelled by car, 24.5% by bus, 7% carpoled, 6% walked, 1.5% used Park'n'Stride and less than 1% cycled.

They carried out a mapping exercise to establish where the students live, and what alternative options they had for travelling to school. The students conducted a Walkability Audit of two routes to school and submitted a report to Kerry County Council. The school decided to promote park 'n' stride from six carparks around Killarney.

To promote park 'n' stride they made a map of where the carparks were located with the time taken to walk from each carpark and displayed it outside the school gate.

Other Actions Undertaken by School

- Weekly Committee meetings and rotating committee;
- Instagram account set up for Green-Schools Activities;
- Environmental Review (Surveys/Audits/Mapping);
- 5-day Travel Challenge with prizes to encourage students to try new modes of transport;
- Won local Tidy Towns award for Travel Initiative;
- Arranged event with two other secondary schools for 6th year talk on Climate Action;

- Cycle Training for 1st year students;
- Students and coordinator attended #andshecycles event in Dublin; and
- Green Code Competition for the school Travel Officer talk to Parent's Council received press coverage for work on Active Travel.

Google Maps Location: <https://goo.gl/maps/UQ2XWDGEB9NAxTfx9>

Outcome:
Park'n'Stride users increased from 1.5% to 8% in 2 years



Image: facebook.com/stbrigidskillarney/



Map Data: Google, Maxar Technologies

Overview

Scoil Mhichil Naofa is a mixed primary school, with 60 pupils, located in the rural village of Galmoy, Co. Kilkenny. The school began work on the travel theme in 2018 and were successfully awarded the flag in 2020.

Before commencing work on the Travel programme, 70% of the children were driven to the school gates, with the rest arriving by bus daily. The committee conducted a comprehensive review at the start of their work on the Travel programme. They undertook a Walkability Audit and concluded that Park'n'Stride would be an option due to the favourable location of a church carpark. The carpark is located in the village centre, a little over half a kilometre from the school with a connecting footpath. The benefits identified were:

- It is a short, safe walk to school (500m / 8-minute walk);
- There is a footpath along the main road; and
- There are plenty of car parking spaces at the church.

The school promoted the new park 'n' stride location to parents through the use of video, social media and newsletters. The school also ran fun events to promote the carpark such as a *Santa Stroll* and *Walk A Green Mile* initiative.

The results from their survey show that 21 families now regularly use the park 'n' stride location. The school has also seen an increase in walking and cycling to school.

Google Maps Location: <https://goo.gl/maps/rcpXXczChfzpRmjN7>

Outcome:
21 families now regularly use the park 'n' stride location



Photos: Green-Schools