

# Cwm Taf Morgannwg University Health Board

## Healthy and Sustainable School Travel

### Actions for zero-carbon eco-healthy schools.

*“Climate Solutions are Health, Social, City and Education Solutions”*

#### Topic Area

Please identify (more than one option may be selected)

Adaptation <input type="checkbox"/>	Communications and engagement <input type="checkbox"/>	Estates and facilities (energy, waste, water) <input type="checkbox"/>	Food, catering and nutrition <input type="checkbox"/>
Funding and financial mechanisms <input type="checkbox"/>	Medicines <input type="checkbox"/>	Research, innovation and offsetting <input type="checkbox"/>	Strategic ambition <input checked="" type="checkbox"/>
Supply chain and procurement <input type="checkbox"/>	Sustainable models of care <input type="checkbox"/>	Travel and transport <input checked="" type="checkbox"/>	Workforce, networks and system leadership <input checked="" type="checkbox"/>
Green/blue space and biodiversity <input checked="" type="checkbox"/>	Digital transformation <input type="checkbox"/>	Sustainability education <input checked="" type="checkbox"/>	
Other (please specify):			

*\*Topics aligned with the 12 Greener NHS workstreams (NHS England) are shaded.*

#### Key message / aim

Low-carbon modes of transport hold considerable potential to mitigate emissions, especially relative short trips amenable to modal shifts towards active travel (1).

“Active School Travel” is an equitable, easy, routine behaviour that has all ingredients for a “positive climate behaviour”: immediate benefits for individuals health (physical activity), for communities (reduction of traffic, air pollution, noise and injuries), and for the planet (climate change mitigation).

The ultimate aim of this project is to encourage School Communities (Parents, Children and Young People, Parent Teacher Associations - PTAs, and School staff) and the Cwm Taf Public Services Board (PSB)\* to introduce policies that increase “Eco-Healthy School Travel” and focus on children as leaders and facilitators of change.

*\*In Wales, according to the “Wellbeing of Future Generations Act”, the PSBs should include Local Authorities, Local Health Board, Natural Resources Wales, the Welsh Fire and Rescue Authority and must invite Welsh Ministers, Police and Crime Commissioner, certain Probation Services and voluntary organisations.*

(1). Christian Brand, Evi Dons, Esther Anaya-Boig, Ione Avila-Palencia, Anna Clark, Audrey de Nazelle et al. The climate change mitigation effects of daily active travel in cities, Transportation Research Part D: Transport and Environment. Volume 93, 2021, <https://doi.org/10.1016/j.trd.2021.102764>

## What was the problem?

In Wales, only 44% of primary-school children and 34% of secondary-school children (between 17-47% depending on rurality) actively travel to school, when 60% of Welsh primary school children live within a mile of their school (20 minute walk), and 88% within three miles (20 minute cycle) (2). The level of cycling to school is desperately low in Wales, with fewer than 1% cycling to school on a typical day (3). In the Netherlands, 49% of all primary school children cycle to school (4).

Also, nearly one in three children in Cwm Taf Morgannwg University Health Board are overweight (29.3%) and this is a high rate within Wales, having Wales one of the highest prevalences of obesity in the UK. It is also important that Cwm Taf Morgannwg Health Board serves an area with a high “Index of Multiple Deprivation” with limited affordability and resources.

Children who actively travel to school can meet between 25-35% of their recommended amount of physical activity per school day, and therefore, the declining figures for Active School Travel feel like a lost opportunity in this context. Also, routines established during childhood will influence adult behaviour and habits.

As far back as 2002, the UK National Travel Survey found that the school run made up 20% of all traffic during the morning rush hour, and the number of children travelling to school by car has increased considerably since then. Congestion has an estimated cost of £2bn per annum in Wales (3).

Active Travel helps to achieve all seven goals in Wales’ Well-being of Future Generations Act. Ultimately, “Healthy and Sustainable School Travel” appeals to the shared priorities of relevant stakeholders from “Health, Education, Transport and Urban Planning” to improve economic, social, environmental, health and well-being factors for people who live or work in Rhondda Cynon Taf, Merthyr Tydfil and Bridgend.

This agenda sits within the “Whole Systems Approach” to Healthy Weights adopted by Public Health teams, and in a bigger scale, this project is in line with “Sustainable Cities – SDG 11” – being that 60% of the global population in cities are children and 93% of them are breathing polluted air. Children breathe more air per pound of body weight than adults do, their heights put them at the level of exhausts, and the impact of illnesses and injuries is more important during their developing years.

(2). National Survey for Wales Results Viewer: Active Travel – Children (2014-15 –latest figures available)

(3). Active Travel to School Toolkit by Cross Party Group on the Active Travel Act

(4). Aldred, R. (2015) Adults’ attitudes towards child cycling: a study of the impact of infrastructure. European Journal of Transport and Infrastructure Research

## What was the solution?

When developing climate-behaviour interventions is important to consider both “i-frame” and “s-frame” strategies. In Behavioural Science, “i-frame” refers to a focus on individuals, whilst the “e-frame” refers to systems and institutions.

Children have the potential to empower parents to make sustainable changes that benefit the whole family, and there is plenty of evidence about the multifactorial barriers and effective school travel interventions (5). In many of them, schools play a key part in supporting their implementation by working with parents and local authorities to dis-incentivise access by car. The question is, why is it not happening everywhere or what can be done for acceleration?

Three objectives of the Public Health Wales National Active School Travel 2021 Delivery Plan are:

- 1) to develop guidance for the development of local community school travel improvement plans
- 2) to develop and agree a shared stated ambition and joint policy goals
- 3) to develop and implement a behaviourally informed mass communication intervention with parents/guardians as the primary audience.

According to “The Behaviour Change Wheel” – and the APEASE, factors to consider in Behaviour Change Interventions are: Acceptability, Practicability, Effectiveness, Affordability, Spill-Over effects, Equity. It is “Capabilities” (knowledge, education and skills), “motivation” (awareness and positive energy) and “opportunity” (supportive infrastructure) what leads change in what is called COM-B Model of Behaviour Change (6).

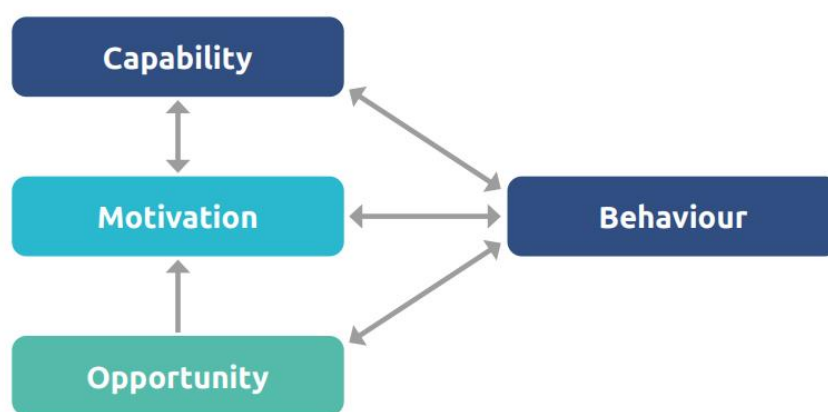


Figure 1: The COM-B model and interaction<sup>1</sup>.

Therefore, the task was to contribute to this delivery plan locally, by encouraging and enabling change, and the objectives of this scholarship project were defined as follows:

- 1) to collate information to create a behaviourally-informed framework for achieving the co-benefits of “Healthy and Sustainable School Travel”
- 2) to create a package of multiagency practical guidance that will support Schools, Local Authorities and other stakeholders to bring change through their strategic and investment decisions, better informed influencing and advocacy, enhanced partnerships and project design at a local level.

To achieve these objectives I made the following plan:

**First stage:**

1. Literature Review - I read over 40 policy documents and articles to identify the potential gaps in the agenda.
2. Stakeholder analysis and liaison – meetings with local and national Public Health Professionals, Healthy Schools Coordinators, Sustrans and EcoSchools Representatives (CORE GROUP), and identification of local contacts with Local Authority Officers (Transport, Road Safety, Air Quality, Wellbeing etc), Engineers, Directors of Education, Researchers, Nature Resources Wales, Living Streets etc
3. Field work experience and interview of Bridgend Sustrans Officer

4. Project definition – deliberation about the benefits of presenting a Case Study/Intervention as a SusQI project (alongside Sustrans intervention, but Sustrans already calculates some environmental variables) or an “Enable Policy Document” that extends the life of this project to future implementation of initiatives (final agreed decision)

**Second Stage (creation of documents as direct result of previous stage):**

1. Tailored writing of a “Local Multiagency Policy document” (in progress)
2. Brief “Step by step Toolkit document” for schools with guidance to overcome obstacles and signposted tools and resources
3. “Charter of Commitments” for Schools and Local Authorities to encourage change
4. Behavioural science-informed “framework” for implementing and assessing the co-benefits of Eco-healthy School Travel initiatives

**Third Stage (likely to get all results after the end of this scholarship, post March 2023):**

1. Engagement Exercise – Brief questionnaire to Headteachers disseminated through Directors of Education to identify local priorities and current actions, SWOT analysis of perceptions of barriers and needs.
2. Consultation feedback of documents from CORE GROUP. Dissemination of improved and corrected version of documents to stakeholders

(5) Jones M, Defever E, Letsinger A, Steele J and Mackintosh, K. A mixed-studies systematic review and meta-analysis of school-based interventions to promote physical activity and/or reduce sedentary time in children. *Journal of Sport and Health Science* 2020; 9: 3-17.

(6) Responding to the climate crisis: applying behavioural science. Behavioural Science Unit, Policy and International Health, WHO Collaborating Centre on Investment for Health & Well-being, Public Health Wales.

### What were the challenges?

One of the main challenges has been the complexity of the multi-stakeholder scenario for delivery, which, paired with the limitation of the time, made me feel powerless at times. I also felt that I had not defined the main objective and plan until well advanced the first stage. However, it was important to establish the most effective use of the scholarship, how to get the most out of my strategic but not first-line position; and making sure I was “learning from” instead of “duplicating” the work already undertaken by other agencies. This reflection was key so the result of this work promotes and enables change and forward direction in this agenda.

The second challenge is the one associated with most of the “climate change related” behaviour changes, and transport is known as one of the most challenging sectors for reducing its emissions since the 1990s (7): the consequences of continuing with climate-impacting behaviours are often invisible, feel remote and therefore changes are easier to be delayed.

I realized that raising awareness by presenting endless negative facts and data is unlikely to achieve change. When new positive climate behaviours are not adopted, it is often not because of a lack of awareness or knowledge, or even a lack of motivation or intention; but a failure to outweigh and replace existing behaviours, as the majority of them are habits, and therefore not actually conscious decisions.

Reading about Behaviour Change and framework guidance for complex interventions kept my optimism and reminded me that these challenges are just the costs of co-beneficial outcomes. Addressing climate crisis via mitigation techniques usually requires the complex task of changing human behaviour, but this presents a positive opportunity: thousands of people making individual changes significantly reduce our impact on the planet.

(7). Christian Brand, Evi Dons, Esther Anaya-Boig, Ione Avila-Palencia, Anna Clark, Audrey de Nazelle et al. The climate change mitigation effects of daily active travel in cities, *Transportation Research Part D: Transport and Environment*. Volume 93, 2021, <https://doi.org/10.1016/j.trd.2021.102764>

### What were the results/Impact?

We are certain that “Eco-healthy School Travel” has the ingredients of a “Sustainable Healthy Practice” and positively influences the sustainable value equation (improving outcomes for patients and populations/ whilst reducing the financial, environmental and social impact).

This project focuses in the first principle of Sustainable Healthcare: “Prevention”. By tackling the causes of ill illnesses and inequalities we are able to promote health and prevent disease, saving healthcare costs and avoiding carbon footprint. Active School Travel is a daily habit, which makes it a good candidate in policies due to the potential returns that holds within it if the behaviour change is sustained.

The following factors within Sustainable Healthcare interventions should be analysed:

**Patient outcomes:** A systematic review and meta-analysis concludes that walking to and from school contributed 23% and 36% of moderate-vigorous intensity physical activity on schooldays in primary school age children and high school pupils, respectively (5). For estimates, the WHO uses a log-linear dose-response function between physical activity and all-cause mortality applying a 22% risk reduction per 29 min of daily walking and a 28% risk reduction per 3 hours of cycling per week.

Eco-healthy School travel promotes healthy habits at the earliest opportunity and established active transport as first option to commute. It is shown to improve attention, spatial neurodevelopment, reduced stress and improved wellbeing, behavior and school performance (8-13).

**Population outcomes:** the convenience of motorized transportation has reduced dependence on physically demanding travel, increasing sedentary habits. It is widely known that a lack of physical activity is associated with all-cause mortality, cardiovascular disease, type 2 diabetes, cancer, impaired mental health, and together with an energy-dense diet, is the driving force of the progressing obesity epidemic. Also, air pollution contributes to respiratory disease, cardiovascular disease, cancer, adverse birth outcomes, and potential neurodevelopmental detriments in populations (14).

**Environmental impact:** Car ownership and the vast network of roadway systems have adverse environmental impacts such as changes in land use and biodiversity loss, disruption of natural landscape, air pollution, noise, greenhouse emissions and climate change. There is growing consensus the technological electrification will not be sufficient or fast enough to transform the transport system (ICPP 2018)

During Big Pedal 2021-2022, a Sustrans intervention, these results were shown:

	BRIDGEND	RCT	MERTHYR
Number of schools	8	3	7
Number of pupils participants	2400	1027	2054
Total active journeys	10000	3039	5273
Cycling journeys	1700	207	456
Scooter journeys	2400	245	716
Walking journeys	5900	2565	3979
Hours of physical activity	1800	599	926
Avoided Car trips	20000	6034	10302
Kg Nitrous Oxides saved	15	5	8
Kg CO2e saved	7300	2209	3772
Party Balloons of CO2e saved	270000	81993	139990
Hot Air balloons of CO2e saved	1	0	0
Trips around the world saved	1	0	0

**Social impact:** improving infrastructures and public transport opportunities will help address social inequalities for populations that do not own a car or allow petrol associated cost savings.

Investing in improved built environments that increases walkability will enrich communities through social cohesion, identity building and feeling of owning the space. Active travel addresses problems of traffic strain and traffic hazards/accidents and improves the likeability and popularity of the neighborhood/community.

Active School Travel allows time and opportunities for encounters between children and their parents and with infrastructure innovation “nature-based solutions” could be included as “green corridors” to school, which will promote contact with nature.

**Financial impacts:** Eco-healthy school travel has the potential to save immediate money with each avoided car trip (£0.45/mile in an average car). Some interventions would require little or no cost, but even when an investment was made, expected benefits outweigh the cost when taking into account potential economic returns associated with burden of disease related to physical inactivity, air pollution or climate change related disease.

Due to health and environmental impacts, there will be some associated saved healthcare costs in relation with physical inactivity and air pollution related disease and productivity loss. Climate change also presents with an environmental burden of disease with significant associated costs. As previously stated, congestion on our roads is currently estimated to cost Wales £2bn per annum.

(8) Rasmussen M, Laumann K. The academic and psychological benefits of exercise in healthy children and adolescents. *Eur J Psychol Educ.* 2013;28(3):945–62.

(9) Lambiase MJ, Barry HM, Roemmich JN. Effect of a simulated active commute to school on cardiovascular stress reactivity. *Med Sci Sports Exerc.* 2010 Aug;42(8):1609-16

(10) Sullivan RA, Kuzel AMH, Vaandering ME, Chen W. The Association of Physical Activity and Academic Behavior: A Systematic Review. *J Sch Health.* 2017;87(5):388– 98.

(11) Martínez-Gómez D, Ruiz JR, Gómez-Martínez S, Chillón P, Rey-López JP, Díaz LE, et al. Active commuting to school and cognitive performance in adolescents: The AVENA study. *Arch Pediatr Adolesc Med.* 2011;165(4):300–5

(12) Hoza B, Smith AL, Shoulberg EK, Linnea KS, Dorsch TE, Blazo JA, et al. A Randomized Trial Examining the Effects of Aerobic Physical Activity on Attention Deficit/Hyperactivity Disorder Symptoms in Young Children. *J Abnorm Child Psychol* [Internet]. 2015 May 10;43(4):655–67.

(13) Sorrentino P, Lardone A, Pesoli M, Liparoti M, Montuori S, Curcio G, et al. The Development of Spatial Memory Analyzed by Means of Ecological Walking Task. *Front Psychol*. 2019;10(March)

### What were the learning points?

1. Investing and promoting active travel should be a cornerstone of sustainability strategies, policies and planning, to meet our very challenging sustainable development goals that are unlikely to be met without significant modal shift to sustainable transport.
2. The focus on children in Active Travel has the potential to achieve multiple co-benefits and shift family behavioural changes longer term.
3. The selection of activities and objectives to achieve for each school, neighbourhood or Local Authority will depend on the type of local barriers or historical issues that have been identified for each local scenario.
4. An action plan at PSB level could be established linking project objectives to specific actions and indicators. It is important to ensure that activities are locally acceptable and supported by a range of relevant local stakeholders.
5. There will surely be some barriers, such as lack of safety and convenience or perceived costs and long-term benefits that will need to be tackled. Ways of overcoming barriers include public information and participation, co-production, transdisciplinary working methods and adaptive management

### Next steps

#### **Fourth Stage (future)**

##### Lasting changes

With the policy document and multiagency guide, there will be many chances for local application, potential for generalizability and transferability to other contexts and populations (other Health Boards, Public Service Boards).

The CTM 2030 strategy in CTM UHB sees “creating health” from the start as a key priority. The CTM PSB has taken as a priority the need to develop Active, Sustainable Transport. The CTM healthy weight strategy has likewise identified Active School Travel, children and the built environment as the key foci for action. Between these, all of the public and voluntary sector partners are represented and are all in support of Active School Travel.

There is potential for local transfer of a “Healthy Travel Charter” developed by Public Health Teams in Cardiff (led by Tom Porter), that could extend commitments to Active School Travel.

##### Build and expand the initiative:

1. Implementation of multiagency processes need to support openness and transparency and foster institutional spaces for multi-stakeholder dialogues and adaptive co-management, that includes co-design of interventions, children voices being heard and direct participation of beneficiaries

2. Some public participation tools and focus group discussions can be suggested to include the knowledge from stakeholders -policy officers, urban planners, academics, school representatives, neighbours and residents and even children and young people themselves-, in a process that leads to mutual learning and knowledge co-creation. Individuals from different backgrounds come together to identify specific problems and then review, evaluate and implement to address them in solution-orientated teams.
3. Assessment of the use of Documents and Resources created through the scholarship. Collection of post-dissemination feedback
4. Analysing Case Studies in partnership with Sustrans, Healthy Schools, Public Health.

### What the team and/or patients and carers had to say

We have designed an engagement exercise that consist in a questionnaire for Headteachers. It has been delayed due to reasons out of our control as needs to be uploaded and pass requirements of CIVICA - Health Board platform for distribution.

### References

1. Active School Travel “A route to Improvement”. A National Plan prepared for the Active Travel Board by Public Health Wales and the Active School Travel National Advisory Group 2021.
2. Active Travel: Interventions that evidence suggests may be effective. Public Health Wales.
3. Briefing Paper – Proposed ‘Daily Active’ Initiative. Public Health Wales
4. Active Travel to School Toolkit by Cross-Party Group on the Active Travel Act
5. Turning the Curve on Childhood Obesity in Wales Preventing Childhood Obesity Steering Group: Final Report Effective Services for Vulnerable Groups Programme
6. British Heart Foundation – Promoting Walking to School. A guide for Primary Schools
7. Active Travel and Physical Activity Evidence Review May 2019, Sustrans, Dr Nick Cavill and Professor Adrian Davis
8. What is a walking bus? Prepared by Carmarthenshire County Council
9. Active Travel Framework. Transport Scotland
10. Moving forwards: Healthy travel for all in Cardiff and the Vale of Glamorgan
11. Cwm Taf Wellbeing Plan. Public Services Board
12. School Walking Policies. Safe Routes USA
13. Responding to the Climate Crisis: applying behavioural science
14. An Active Travel Action Plan for Wales. Welsh Government

### Resources

**Through the scholarship I have created the following resources:**



## Summary of framework

# GREEN CORRIDORS TO SCHOOL

**ACTIONS FOR ZERO CARBON-HEALTHY SCHOOLS**  
Climate solutions are health, education and urban solutions



- The number of children walking to school has decreased in the last decades, predominantly because urban spaces are designed for cars.
- Even when families live within a mile radius, children are regularly driven to school, having lost the perception of "Active School Travel" as the first option
- Childhood obesity rates reach 30%, and sedentarism is also rising, while air quality and safety around schools are decreasing due to traffic.

## STAKEHOLDERS

- Engineers and urban designers
- City Councils and Local Authorities (representatives, transport officers air quality, youth, wellbeing officers)
- Schools, High Schools, PTAs, Education Local Authority
- Healthcare systems, Health Board and Public Health
- Citizens, Neighbourhoods, local businesses
- NGOs, cyclist associations, youth clubs etc
- Involve children and young people! Co-design



## FEASIBILITY AND RATIONALE

Effective strategies for ecohealthy school transport can be complex interventions that require interagency collaboration, but have the potential to promote the health and sustainability for future generations

By increasing the number of "walkers" to school we will fulfill

### ENVIRONMENTAL, SOCIAL AND HEALTH OBJECTIVES

- Improved urban air quality and traffic congestion
- Enriched communities through social cohesion, identity and a feeling of owning their space
- Promotion of physical activity and weight management habits at the earliest opportunity
- Ensured equity and accessibility as walking is free
- Improved wellbeing, spatial neurodevelopment, attention, behaviour and school attainment
- Quality time and opportunities for encounters between children and their parents or between peers

### BARRIERS and OPPORTUNITIES

- Urban connectivity and distance. Safe and convenient routes for all. Pavements, zebra crossings, traffic lights, lighting, accessible streets for the visually impaired and wheelchair users,
- Green infrastructure – cycle paths, "green corridors" to school (with trees, gardens, bushes and other habitats for flora and fauna including pollinators)
- Family structure, schedules and support
- Community support, charities, local businesses, NGOs
- Education and opportunities for civic organization

## ACTIONS AND ALTERNATIVES

- Creation or identification of greener paths to school
- Supportive policies (priority to active travellers on site) and educational curriculums (pedestrian skills, outreach)
- Involve parents through information communications asking for participation
- Cycling training and bike repair skills
- Organisation of "Walking Buses"
- Respect drivers – suggest "park and stride"
- Promotional activities: awards, identified champion network, clubs, buddy schemes, healthy travel day, safe routes
- Safe lockers, changing rooms, storages
- Low emission school bus, improved public transport

## IMPLEMENT AND MONITOR

Consider acceptability: weather and school calendar, analyse which alternatives better serve specific schools or local authorities  
Regular meetings with stakeholders  
Maintain, Transfer and Upscale

## EVALUATION

Decide indicators and multicriteria assessments: walkability index, surveys, number of walkers to schools, CO<sub>2</sub>e saved, air quality...

Created by:  
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Community Paediatrician

## Eco-healthy School Travel Charter of commitments and steps

COMMUNICATION, EDUCATION AND LEADERSHIP
<p><b>Promote Active Travel to School through POLICIES and the NATIONAL CURRICULUM</b></p> <p>Mindful of teacher’s busy schedule, Healthy Sustainable Travel can be introduced in school lessons</p>
<p><b>Involve parents, teachers and school staff</b></p> <p>Send communications on Healthy Sustainable travel informing of benefits and asking for participation, acknowledging barriers and being respectful with drivers - suggesting “park and stride” schemes.</p>
<p><b>Provide Pedestrian/scooter/cycling training and give priority to active travellers on site</b></p> <p>Find support from Local Authorities or organisations such as Sustrans</p>
<p><b>Be inventive and organise Active Travel Promotional Activities</b></p> <p>Walking buses, Healthy Travel Day, Awards, Clubs, Walking Buddy Schemes, Safe Routes Activities, etc</p>
<p><b>Identify a Healthy School Travel champion network</b></p> <p>Over time a network will be identified at the school – motivated students, teachers, senior staff or Council Officers could provide strategic leadership.</p>
<p><b>Establish routine promotion messages and monitor progress</b></p> <p>The Healthy School Travel Network group can design new activities and identify local barriers (i.e through surveys)</p>
ESTABLISH AND ENABLE SUSTAINABLE TRAVEL
<p><b>Consider the provision of improved facilities: lockers, storage, dry room</b></p> <p>Within the school’s capability</p>
<p><b>Safe Routes – Improved facilities for active travel - Green Corridors to school</b></p> <p>Pavements, zebra crossings, traffic lights, lighting, accessibility for visually impaired/wheelchairs, cycle paths, Garden city movements (trees, bushes, habitats for pollinators, urban vegetable allotments in school paths)</p>
<p>Consider options for <b>low emission school bus</b> and improved <b>public transport</b> routes</p>

### Want to know more?

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- Location & NHS Region if within the UK: **Wales, Rhondda Cynon Taf**
- Partner organisations involved:

Centre of Sustainable Health Care, Public Health Team in Cwm Taf Morgannwg University Health Board, Welsh Network of Healthy School Schemes, Sustrans

- Has this project or story been made public in any form before? Yes/ **No, it will be published on the Cwm Taf Morgannwg Health Board intranets and Centre of Sustainable Healthcare websites and networks**