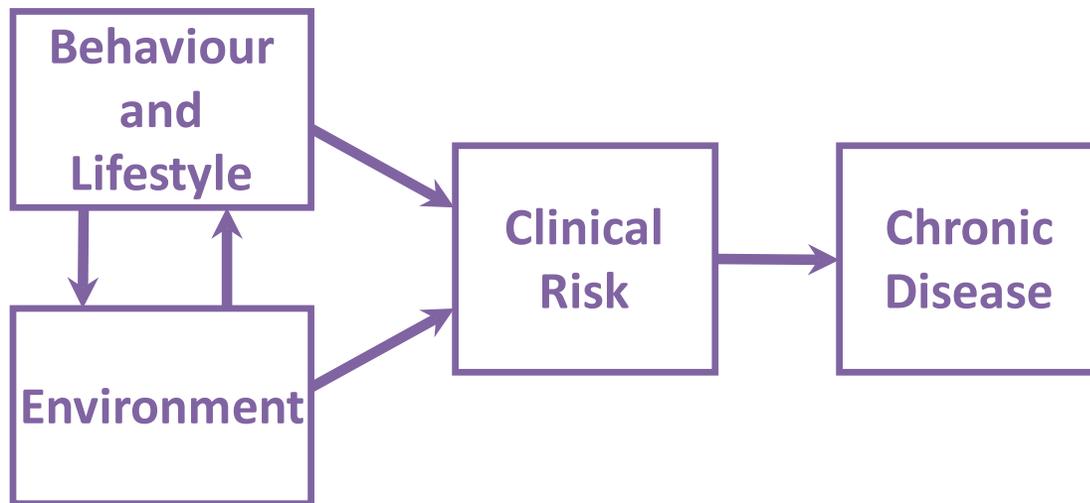# GeoHealth:Active School Travel

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Basic explanatory model for population health: **Environment is fundamental**

Behaviour and Lifestyle → Clinical Risk → Chronic Disease; Environment → Clinical Risk; Behaviour and Lifestyle ↔ Environment

Patterns of lifestyle vary with conditions of living and the resources or supports afforded by different kinds of environments.

Tobler's Law

Everything is related to everything else, but near things are more related than distant things.

-Waldo Tobler

Tobler W., 1970, A computer movie simulating urban growth in the Detroit region, Economic Geography, 46(2): 234-240.

Place in Health

Integrating spatial data into understanding

OR

Adding the "where" to the what!

What

Natural breaks		RR	95% CI		P
Central Obesity***	RLF*: 3 v 1	0.89	0.83	0.95	0.0004
	RLF*: 2 v 1	0.93	0.89	0.98	0.0033
Hypertriglyceridemia***	RLF*: 3 v 1	0.79	0.70	0.90	0.0005
	RLF*: 2 v 1	0.90	0.82	0.98	0.0173
Reduced HDL#	RLF*: 3 v 1	0.79	0.67	0.92	0.0025
	RLF*: 2 v 1	0.87	0.78	0.97	0.0159
Hypertension***	RLF*: 3 v 1	0.94	0.88	1.01	0.0824
	RLF*: 2 v 1	0.90	0.85	0.95	<.0001
Diabetic\diabetes Risk***	RLF*: 3 v 1	0.52	0.43	0.64	<.0001
	RLF*: 2 v 1	0.79	0.70	0.89	<.0001
High LDL^	RLF*: 3 v 1	0.95	0.77	1.17	0.6277
	RLF*: 2 v 1	1.05	0.90	1.23	0.5399
CMR Score***	RLF*: 3 v 1	0.81	0.76	0.86	<.0001
	RLF*: 2 v 1	0.91	0.86	0.95	<.0001

Gender, Age and Bachelor Education were included in all models.
*** Gender, Age and Bachelor Education Significant
# Gender Significant
^ Age Significant
* RLF – a property based socioeconomic status measure

- Wave 1 NWAHS, 2001, n=3585
- Factors - Log binomial generalized linear models
- CMR score - Poisson regression
- Parameter estimates exponentiated - relative risk (RR)
- Accounted for age, gender and education (no university degree)
- Statistical significance was set at alpha = 0.05
- Statistically significant relationship between RLF & CMR score all but one of the risk factors.
- Participants in the advantaged and intermediate group had a lower risk for CMD.
- CMR score RR for the most advantaged was 19% lower (RR = 0.81; CI 0.76-0.86; p <0.0001) and the middle group was 9% lower (RR = 0.91; CI 0.86-0.95; p <0.0001) than the least advantaged group.
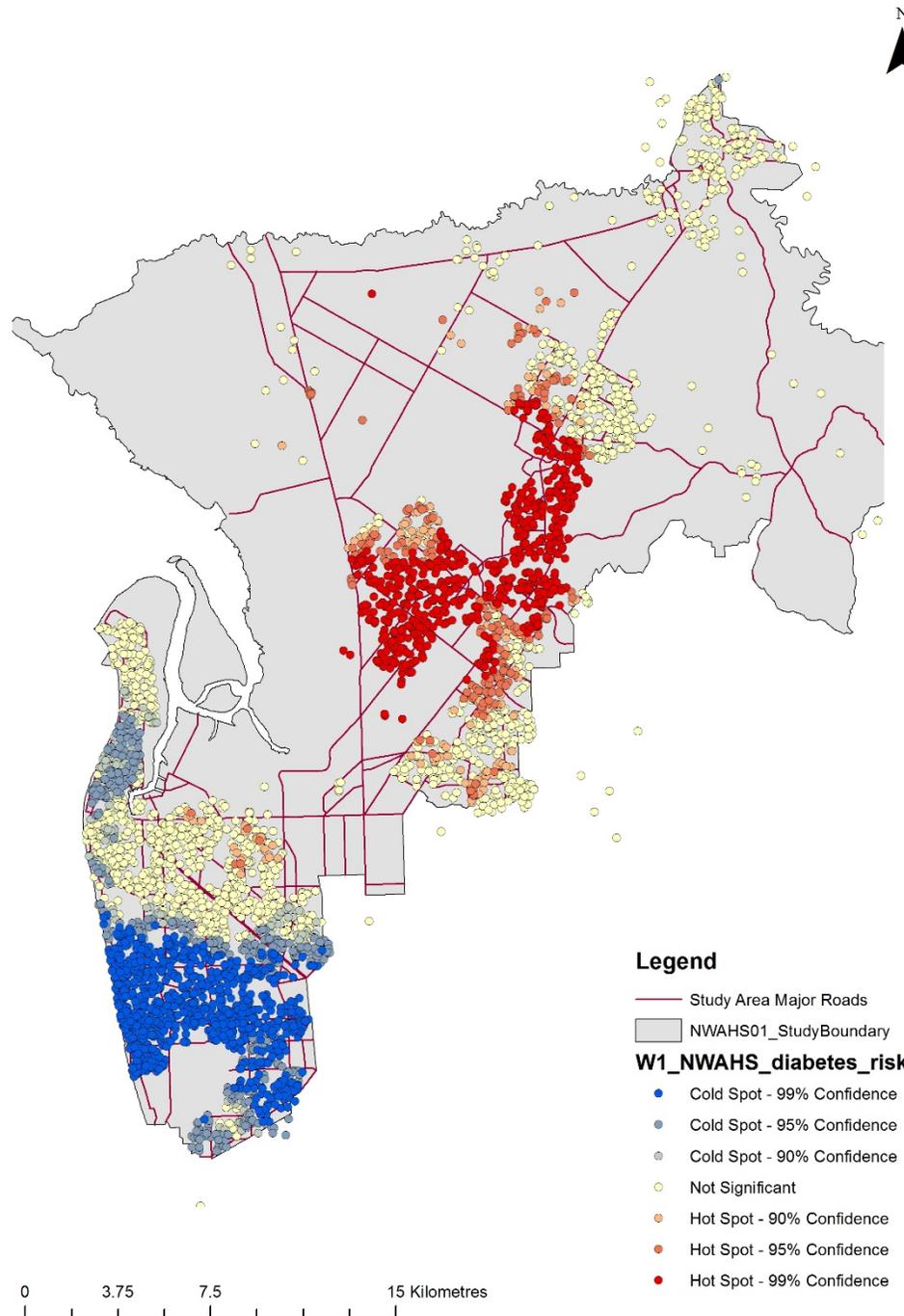
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Where!

Education is a measure used to express socioeconomic status

If we look at how education is spatially distributed and Diabetes risk!

This provides the **Where**

Legend

— Study Area Major Roads

▢ NWAHS01_StudyBoundary

W1_NWAHS_diabetes_risk

● Cold Spot - 99% Confidence
● Cold Spot - 95% Confidence
● Cold Spot - 90% Confidence
○ Not Significant
● Hot Spot - 90% Confidence
● Hot Spot - 95% Confidence
● Hot Spot - 99% Confidence

0   3.75   7.5   15 Kilometres

N

In this case: What

What is the significant reductions in child physical activity
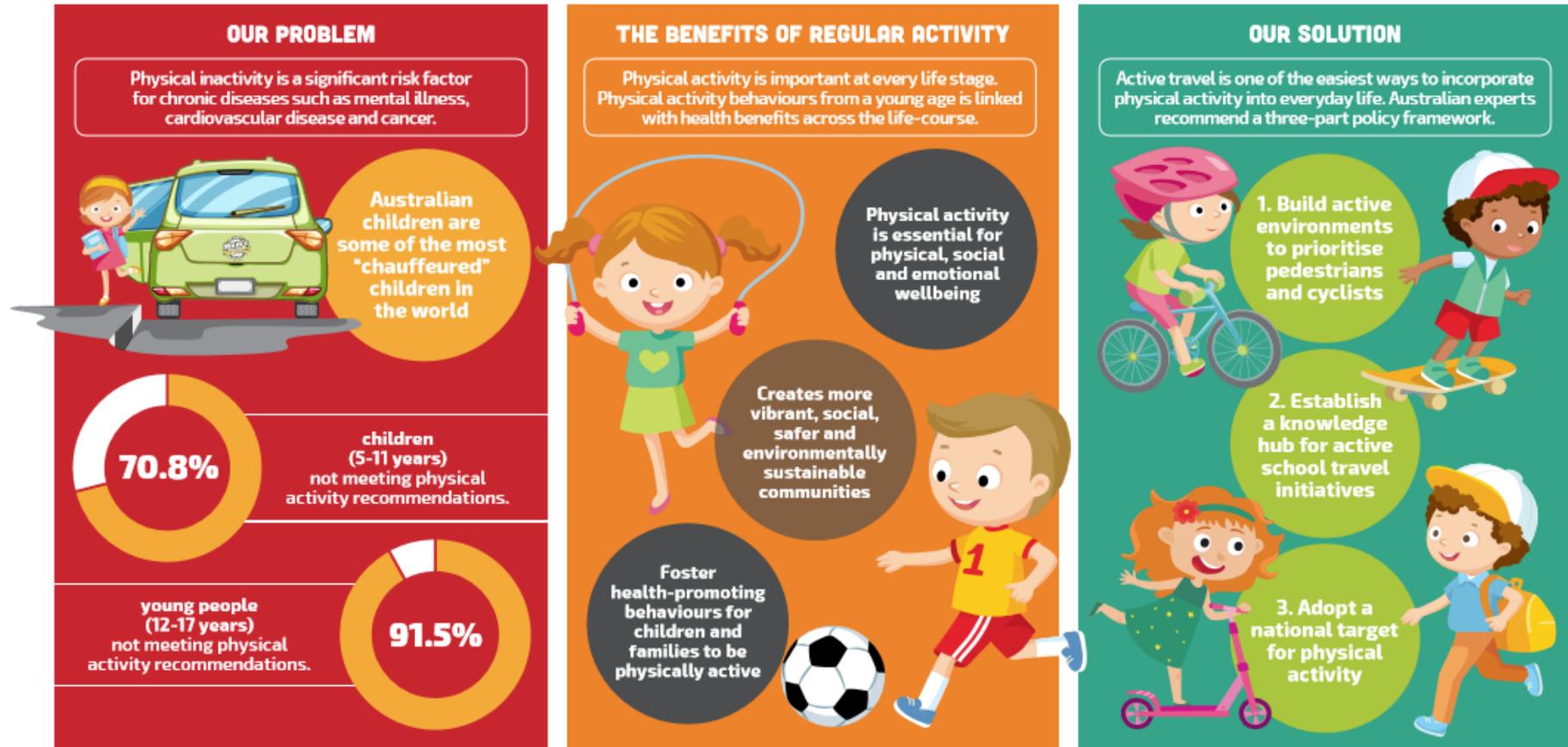
Active School Travel Pathways to a Healthy Future

Physical activity is a powerful, preventive course of action.
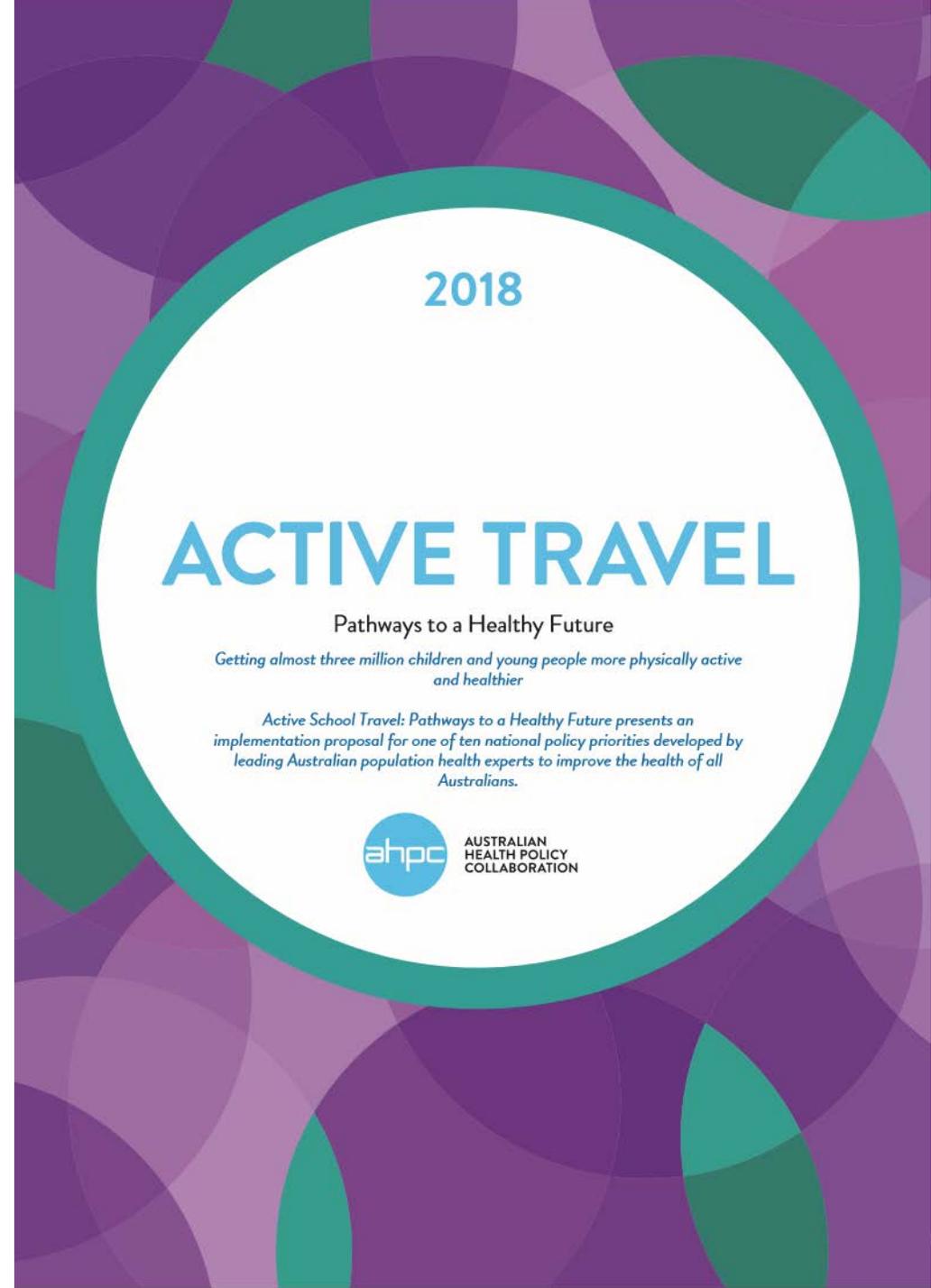Physical activity leads to healthier and more productive daily lives.

ahpc — AUSTRALIAN HEALTH POLICY COLLABORATION

OUR PROBLEM

Physical inactivity is a significant risk factor for chronic diseases such as mental illness, cardiovascular disease and cancer.

Australian children are some of the most "chauffeured" children in the world

70.8% children (5-11 years) not meeting physical activity recommendations.

young people (12-17 years) not meeting physical activity recommendations. **91.5%**

THE BENEFITS OF REGULAR ACTIVITY

Physical activity is important at every life stage. Physical activity behaviours from a young age is linked with health benefits across the life-course.

Physical activity is essential for physical, social and emotional wellbeing

Creates more vibrant, social, safer and environmentally sustainable communities

Foster health-promoting behaviours for children and families to be physically active

OUR SOLUTION

Active travel is one of the easiest ways to incorporate physical activity into everyday life. Australian experts recommend a three-part policy framework.

1. Build active environments to prioritise pedestrians and cyclists

2. Establish a knowledge hub for active school travel initiatives

3. Adopt a national target for physical activity

Supporting Organisations

Physical Activity Foundation · APPA · Brimbank City Council · Heart Foundation · IPAN · BLUEARTH · AUSTRALIAN BICYCLE COUNCIL · MAV · VicHealth · Victoria Walks · We Ride! · VICTORIA UNIVERSITY · ACTIVE HEALTHY KIDS · PARENTS' VOICE

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- **What**: Children are not active enough

- **Solution**: more activity

- **Active travel** to school is key focus

2018

ACTIVE TRAVEL

Pathways to a Healthy Future

Getting almost three million children and young people more physically active and healthier

Active School Travel: Pathways to a Healthy Future presents an implementation proposal for one of ten national policy priorities developed by leading Australian population health experts to improve the health of all Australians.

ahpc AUSTRALIAN HEALTH POLICY COLLABORATION

Ride or Walk to School Initiative
Walking Routes to Schools

Objectives for CERAPH:

-Identify the optimal walking and/or cycling routes for each pilot school, based on distance, safety and amenity

-Create walking/cycling maps to enable active transport to school

Initial Scope: 20 Schools in Canberra

Based on 1km straight line buffer identify specific facilities:

· Pedestrian crossings
· Traffic light crossings
· Bus stops
· Underpasses/overpasses
· Shared use paths
· Playgrounds
· Skateboard parks
· Public toilets
· Recommended walking routes
· Drop off points identified
· Routes or circumferences of 1km from school and estimated time
· Map which shows a close-up of the school entry points and pedestrian crossings
· Map which shows a circumference of 5km radius from the school and showing the main trunk paths
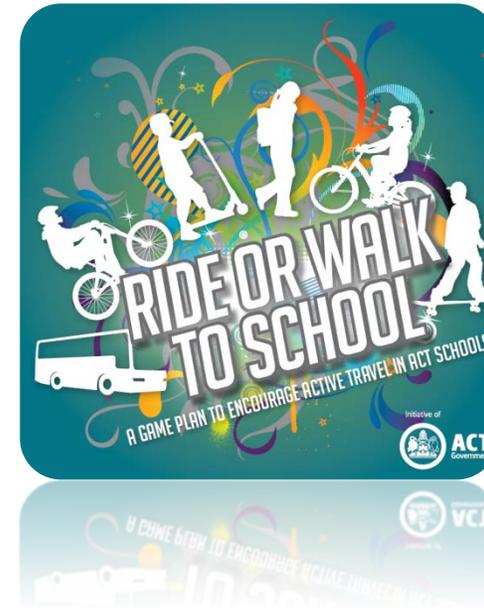
Process: Provide draft maps to ACT Health which are then provided to schools to provide feedback on drop off points and routes. Integrate this feedback into final poster style maps.

Acknowledgements: Vincent Learnihan and Rachel Davey @ CeRAPH

Ride or Walk to School Initiative
Walking Routes to Schools

In addition to creating cycling/walking maps to enable safe active travel to school, CeRAPH can build on its foundation of population health research expertise to better understand how health outcomes in the community can be improved.
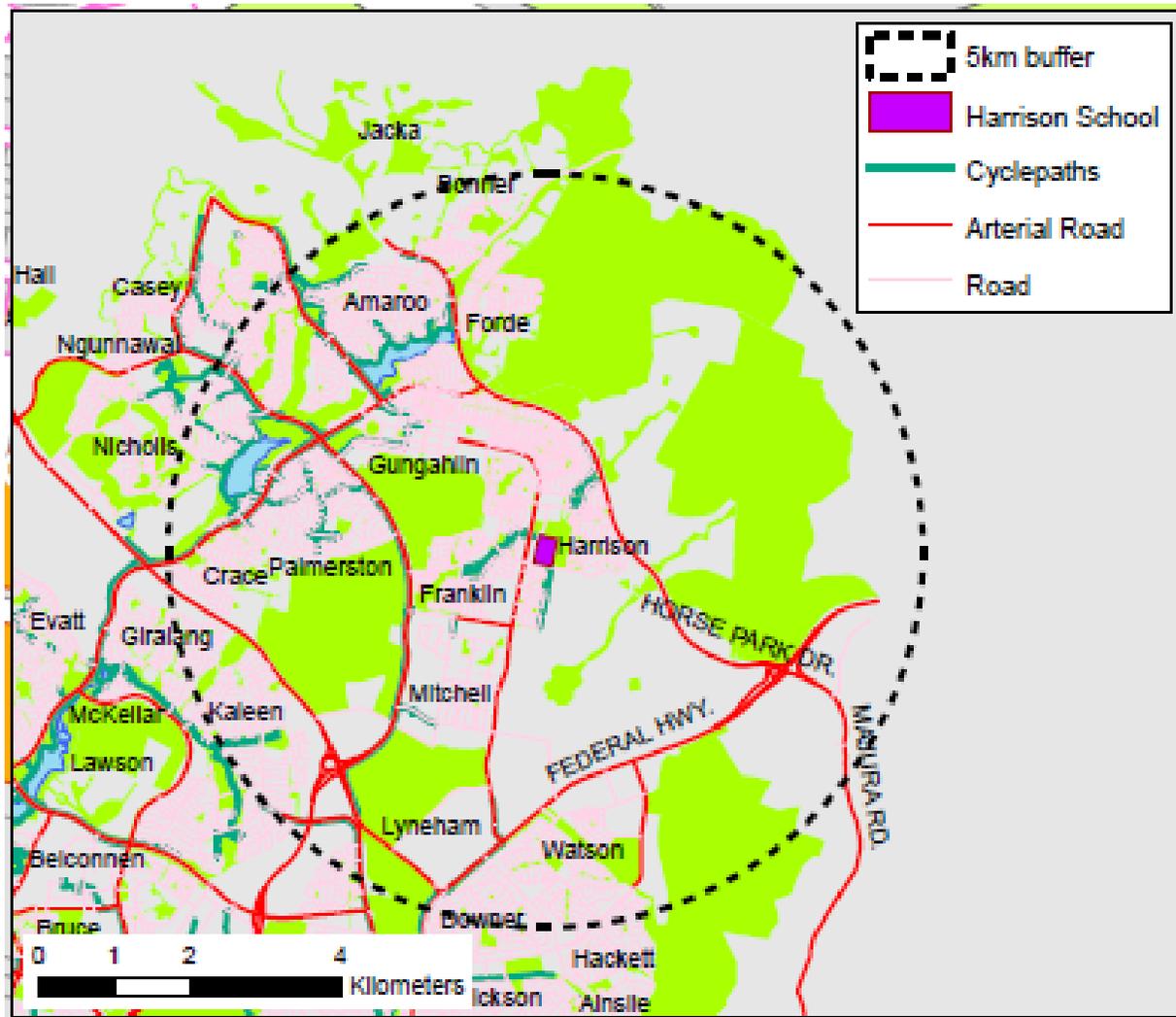
Opportunities include;

1. Evidence based research into the factors that promote active travel to school.

2. Collaborating with key partners across the ACT, Nationally and Internationally to identify cutting edge approaches to increasing physical activity in our communities.

3. Continue to build a data repository for the exploration and creation of local level indicators that may influence population health outcomes in the ACT.

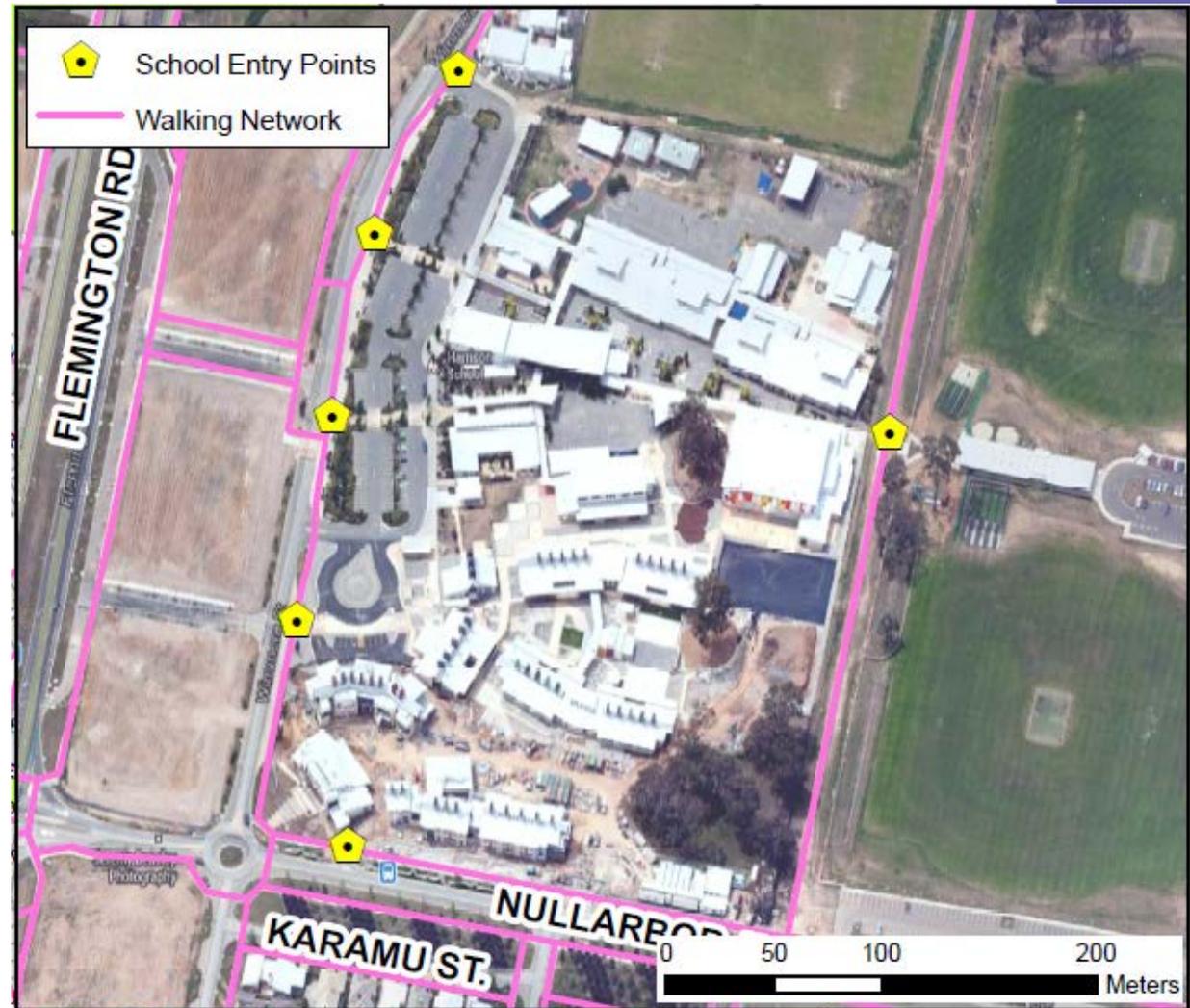**CeRAPH's GeoHealth Hub provides national data to provide context for research**

Ride or Walk to School Initiative
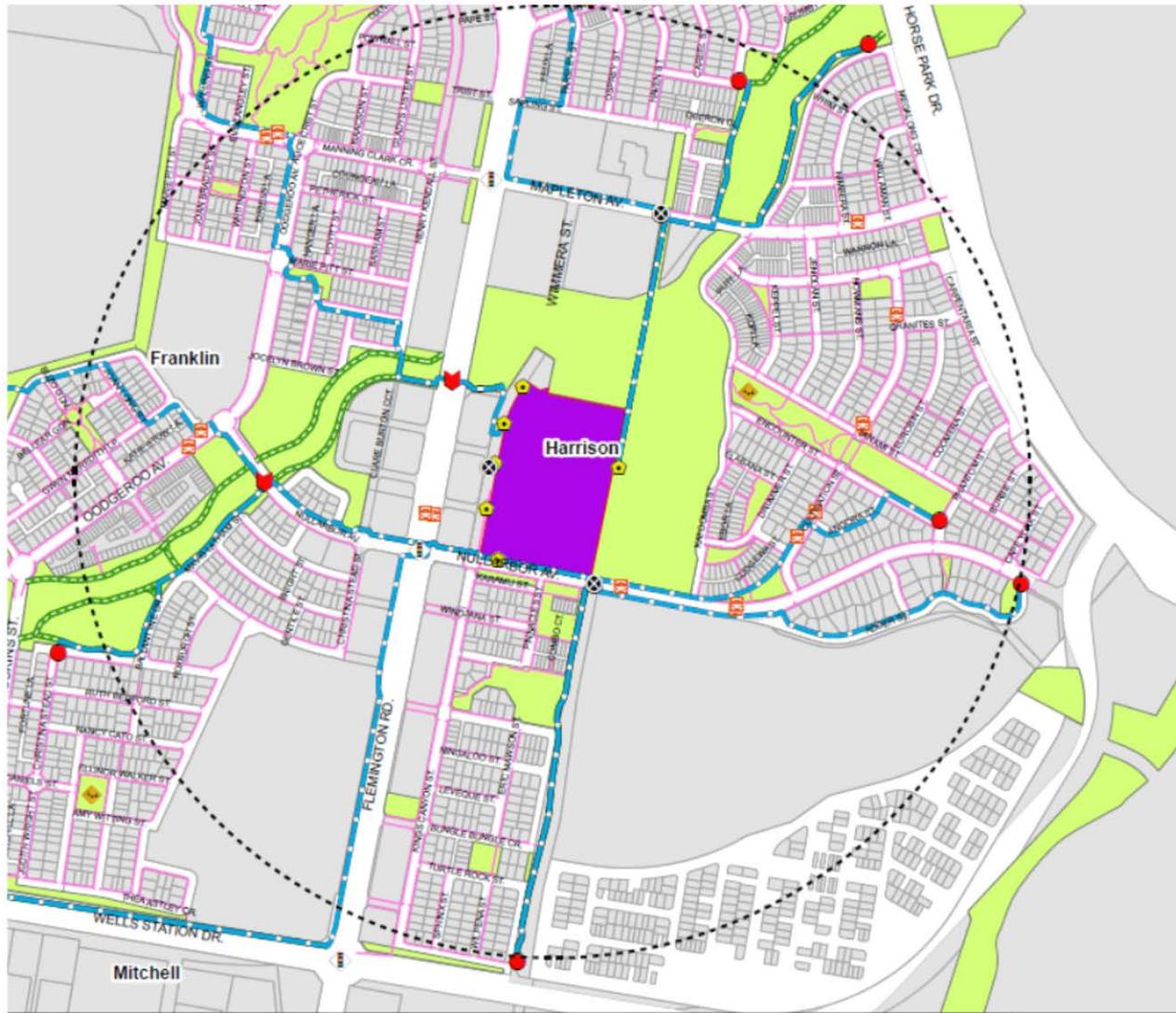# Walking Routes to Schools: Research Translation

- Increasing physical activity participation in youth through reducing barriers (both physical and perception of) to walking and cycling to school for children in the ACT.

- The development of an evidence based tool which identifies and prioritises active transportation improvements in school areas based on a range of outcomes including:

    - Health (Physical Activity, Traffic Safety)

    - Transportation (Accessibility)

    - Social Equity

    - Environmental targets

- Identify infrastructure improvements to make safe routes to school
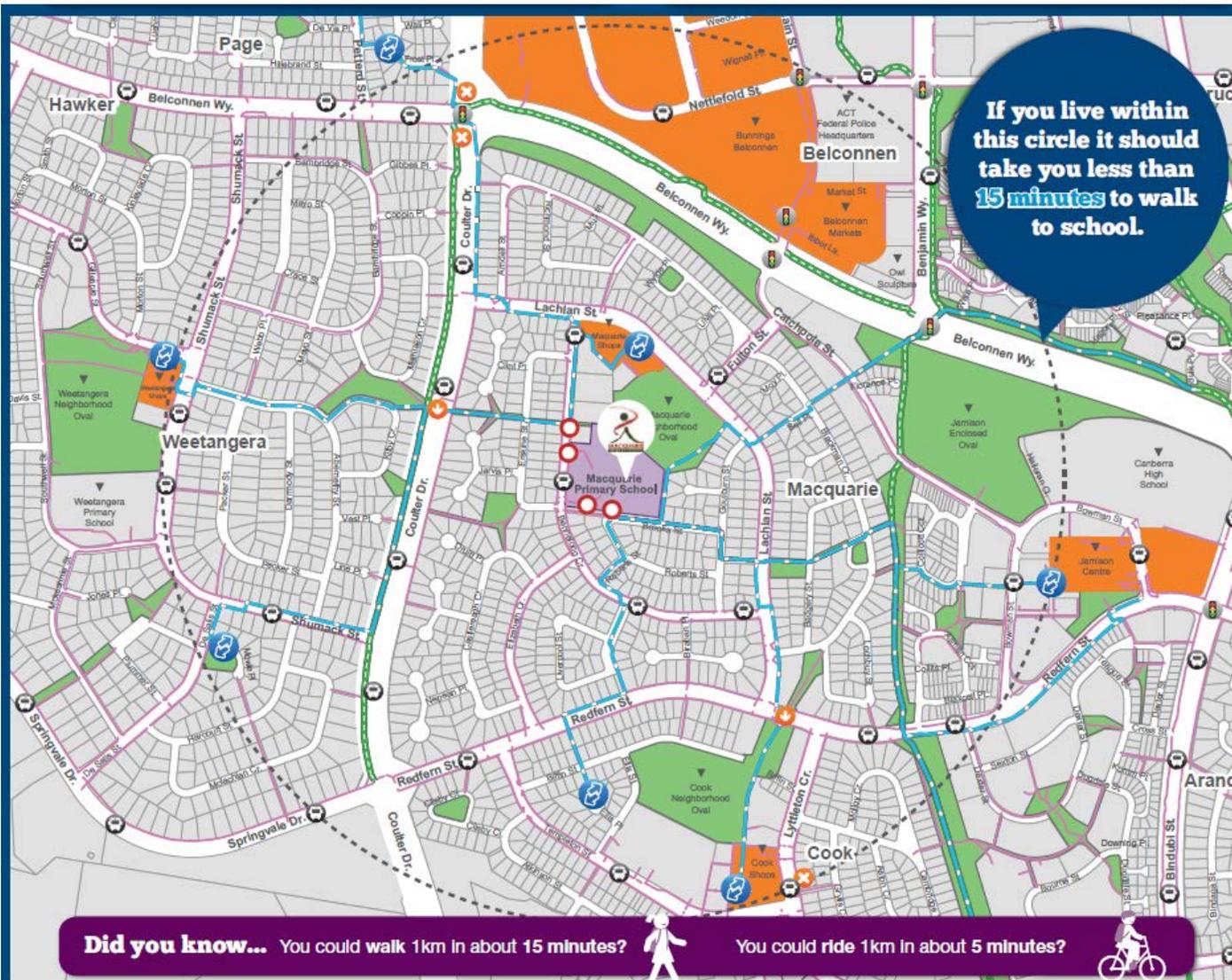
- Input into future school siting

Left map legend:
- 5km buffer
- Harrison School
- Cyclepaths
- Arterial Road
- Road

Labels on left map: Jacka, Bonner, Hall, Casey, Amaroo, Forde, Ngunnawal, Nicholls, Gungahlin, Harrison, Crace, Palmerston, Franklin, Giralang, Evatt, HORSE PARK DR., MAJURA RD., McKellar, Kaleen, Mitchell, Lawson, FEDERAL HWY., Belconnen, Lyneham, Watson, Bruce, Bowner, Hackett, Dickson, Ainslie

Scale: 0 1 2 4 Kilometers

Right map legend:
- School Entry Points
- Walking Network

Labels on right map: FLEMINGTON RD, NULLARBOR, KARAMU ST.

Scale: 0 50 100 200 Meters

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Legend:

- ┄ 1km buffer
- ■ Harrison School
- ⬟ School Entry Points
- ● Drop Off Point
- ▬ Recommended Routes
- ┅ Shared Path
- — Footpath and Access Path
- 🚏 Bus Stop
- ⛟ Underpass
- ⊗ Zebra Crossing
- ⬢ Signalised Crossing
- ◆ Playgrounds
- ▬ Park/Reserve
- ▬ Shops

N

0 125 250 50

Safe routes to School: Role of GIS

- Propose to use GIS in schools to collect data from the "bottom-up"

- Students will feed data on routes travelled

- Danger spots

- Safe spots etc

- UC will apply built environment data from the GeoHealth Hub to place these data in context

Outcome

- Work with schools to synthesize data to identify infrastructure needs to make riding and walking to school safer

- Prioritise items

- Submission to local and state governments

Thank You