



Active Routes to School Evaluation Update from the UNC Highway Safety Research Center (HSRC)

May 2018

Main Evaluation Goals

- Measure changes in the percentage of K-8 students in North Carolina who walk and bicycle to school in settings where those activities are feasible.
- Measure changes in participating schools' readiness to support safe walking and bicycling.
- Measure changes in participating families' walking and bicycling activity.

Main Data Sources and Collection Schedule

Instrument	Who / how reported	Timing
Student Travel Tallies and Parent Surveys	Coordinators are asked to recruit schools and work with them to collect data	<ul style="list-style-type: none"> • fall 2014 & spring 2015 (as baseline) • fall 2015 (first mid-intervention period) • 2016 (second mid-intervention period) • 2017 (third mid-intervention period) • 2018 (once complete, will become the fourth mid-intervention period)
Active Travel Readiness Scale	Coordinators report on the level of readiness to promote walking and bicycling for three to five schools with which they work	Quarterly beginning fall 2014
Active Routes to School Progress Reporting System (Formstack)	Monthly process measures submitted by Coordinators to North Carolina Division of Public Health (NCDPH)	Monthly

Key updates from this evaluation

- Between January 2017 and mid-May 2018 (spring 2018), four schools collected Travel Tallies and two schools collected Parent Surveys.
- Two of the four schools that collected Travel Tallies in spring 2018 collected Travel Tallies earlier in the Project. Among these two schools, walking and biking to and from school did not shift significantly over time (p values of 0.532 and 0.489, respectively), remaining at 2 to 2.5 percent of all trips between home and school.

- Given the limited amount of Parent Survey and Travel Tally data collected in 2018 so far, this analysis focuses on trends in schools' Active Travel Readiness, as well as how such Readiness has interplayed with walking and bicycling to school at six Travel Tally-collecting schools.
- A Readiness-Walk and Bike to School elasticity analysis revealed that a 10% increase in Active Travel Readiness ratings among six Travel Tally-collecting and Readiness-rated schools was associated with a 55% increase in walking and biking to school. This finding supports the notion that Coordinators' assessment of schools' Readiness is associated with and possibly predictive of same-direction changes in walking and biking to school, which suggests that the Active Travel Readiness scale demonstrates statistical validity and reliability.
- Throughout 2018 thus far, Coordinators have rated a total of 51 schools according to their perceived Active Travel Readiness.

Recommendations for Practice derived from all Evaluations

HSRC provides the following recommendations based upon consideration of the findings from Active Routes to School Project evaluations across all five years of the Project.

- Continue to:
 - Identify and work with schools where it is theoretically feasible to walk or bike to school to collect school travel mode information.
 - Identify, work with, and support in-school champions. These are people who enthusiastically support safe walking and biking to school and use their influence to get other key stakeholders involved.
 - Encourage parents to get involved in schools' programs.
 - Support schools' Walk to School Day events and allow the schools—especially the schools' champions—to lead the events' organization, promotion, and structure to help develop their sense of ownership.
 - Support walking- and biking-focused events that highlight the fun of walking and bicycling between home and school.
- Focus on:
 - Training the trainers at schools. This allows trainers to take ownership of pedestrian and bicycle skills training and greatly advances the sustainability of pedestrian and bicyclist safety programming, especially once the Active Routes to School Project is no longer able support the schools' safety training efforts.
 - Assisting schools and districts to establish policies or procedures to promote walking and biking to school toward supporting the sustainability of safe walking and biking programs.

Findings from the 2018 Data Collection Effort

This report contains five brief sections: (1) a description of the study sample's representativeness; (2) Active Travel Readiness results; (3) Travel Tally results; (4) Parent Survey results; and (5) a findings-based discussion that features practical implications for Active Routes to School Regional Coordinators' work.

Sample

Sample representativeness

As seen in Table 1, considering all of the school travel data collected over the five years of the Project, Travel Tally-collecting schools were proportionally over-represented in region 2, whereas Parent Survey-collecting schools were overrepresented in region 2 and to a lesser—though significant—extent in regions 3, 4, and 5. Therefore, the school travel and family walking and biking activity patterns presented here are not representative of all regions, counties, or schools in North Carolina. Nonetheless, the school travel data collected to date provides the Project team with valuable insight into how students in a growing number of school travel to and from school, the perspectives their parents have related to walking and biking to school, and those elements of educational and promotional programming that are most strongly associated with walking and biking to school.

Table 1. The number and percentage of Travel Tally- and Parent Survey-collecting schools by region.

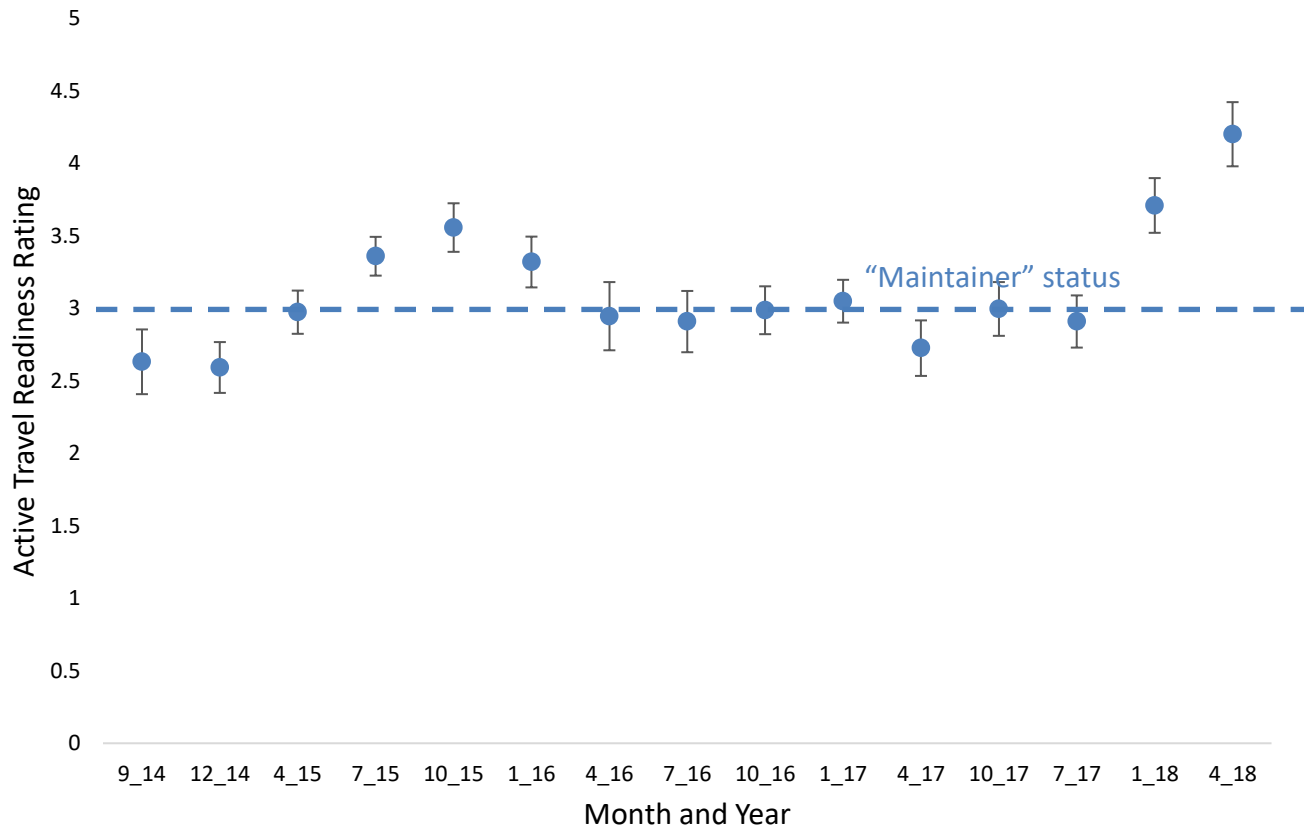
Region	# Travel Tally Schools	% of All Travel Tally Schools	# Parent Survey Schools	% of All Parent Survey Schools
1	11	8.6%	3	3.9%
2	62	48.4%	19	24.7%
3	10	7.8%	12	15.6%
4	11	8.6%	12	15.6%
5	8	6.3%	12	15.6%
6	0	0.0%	3	3.9%
7	1	0.8%	6	7.8%
8	8	6.3%	0	0.0%
9	7	5.5%	1	1.3%
10	10	7.8%	9	11.7%
Total	128	100%	77	100%

Active Travel Readiness Ratings

The Active Travel Readiness Scale is a measure of Active Routes to School Coordinators' perceptions of schools' interest in and engagement with walking and bicycling to and at school. Each quarter, Coordinators assign a score of 0 ("No Interest, No Activity") to 5 ("Lots of interest, Many activities, Seeking more to do") for up to 10 schools with which they work intensely (for more information on the scale, see the Appendix).

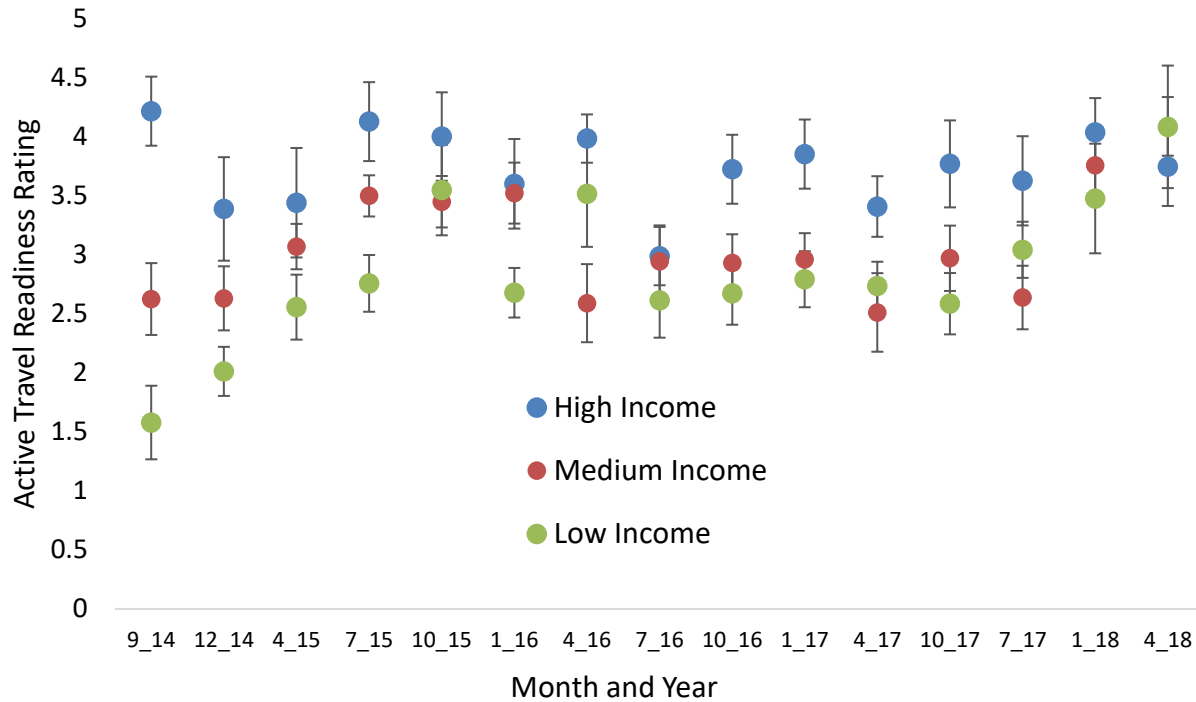
Ordinary least squares regression models controlling for schools' locale and school-level income revealed that between September 2014 and April 2018, Coordinators' ratings of schools' Active Travel Readiness increased significantly in early 2018 (Figure 1). It is worth noting that Coordinators rated many of the same schools each time, but also rated different schools as their familiarity with schools' interest and engagement in promoting safe walking and biking changed over the course of this Project.

Figure 1. Schools' Active Travel Readiness ratings over time (with 95% confidence bands).



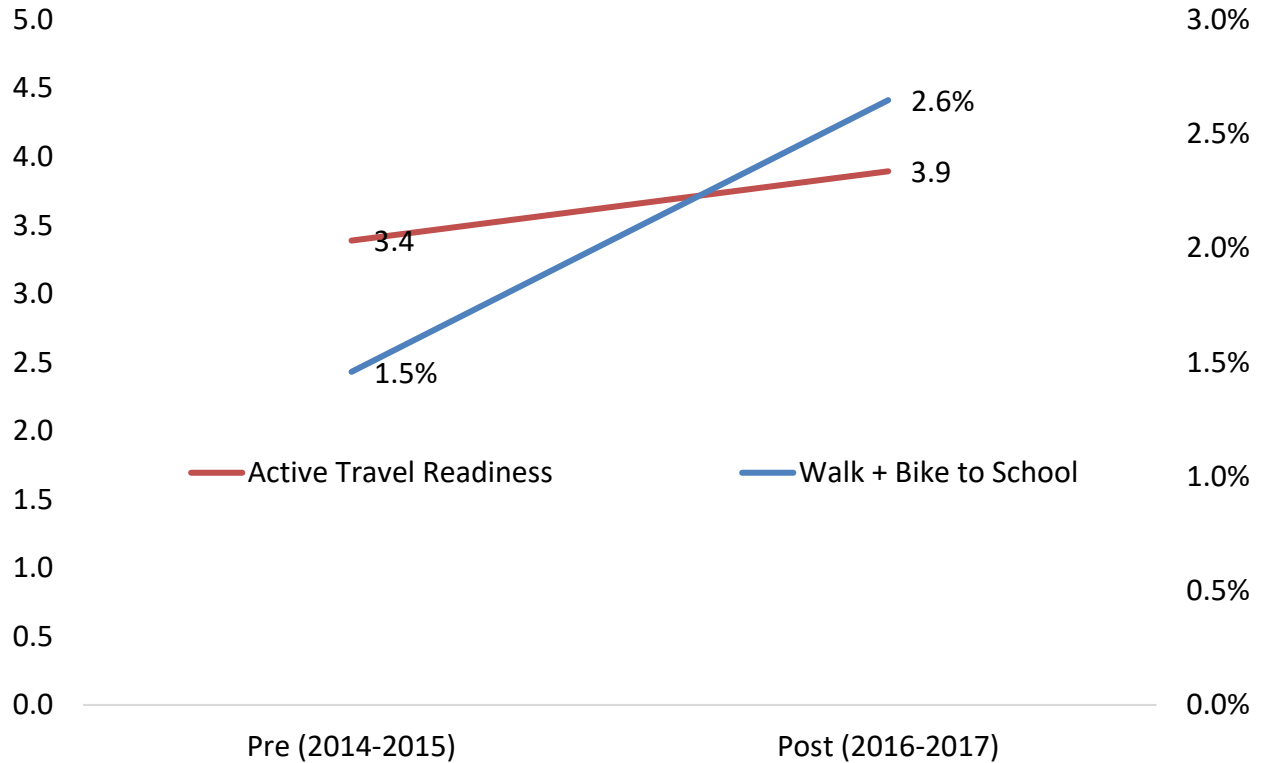
Across all 186 schools that Coordinators rated: Looking across the 186 schools that Coordinators rated any time from October 2014 and April 2018 (Figure 1), on average, Readiness rated schools enhanced their readiness scores starting in the summer of 2015. They maintained higher ratings through the early part of 2017, when their ratings dipped slightly in the spring 2017, rebounded in the summer and fall months of 2017, and rose significantly in the winter and spring of 2018. Before 2018, Coordinators tended to rate schools somewhere between a “Maintainer 1” and “Maintainer 2” archetype. More recently, Coordinators have rated school higher, more often assigning schools to “Maintainer 2” status (Figure 1). That is, in general, the schools Coordinators have worked with most intensely have tended to show a good deal of interest in promoting safe walking or biking to school and have consistently carried out several activities each year (see the Appendix for more information on the *Active Travel Readiness Scale*).

Figure 2. Active Travel Readiness by school-level income over time (with 95% confidence bands).



Active Travel Readiness by school-level income: As seen in Figure 2, from 2014 through the fall of 2017, ARTS Coordinators generally rated high income schools (n =37) as possessing greater active travel readiness than medium (n = 94) and low income (n = 55) schools. Yet by the spring of 2018, low and medium income schools had caught up with their high income counterparts in terms of enhancing their active travel readiness. This finding is heartening, as it suggests that less resourced schools have more recently embraced active school travel and have incorporated safe walking and biking practices into their educational repertoires.

Figure 3. The Relationship between Six Schools’ Active Travel Readiness (red line, left y-axis) and Levels of Walking and Biking (blue line, right y-axis).



As seen in Figure 3, a 10% increase in six schools’ average Active Travel Readiness scores was associated with an average 55% increase in walking and biking to these six schools. In other words, these six schools demonstrated a “*readiness-walk/bike travel mode elasticity*” of 5.5. This result suggests that walking and biking to these schools was *elastic* or “sensitive” to changes in their Active Travel Readiness. That is, walking and biking to these schools responded more than proportionally to changes in the schools’ readiness to embrace active school travel. Therefore, this finding suggests that the Active Travel Readiness scale possesses statistical validity and reliability, which makes it a useful tool to explain and predict changes in students’ participation in walking and biking to school.

Travel Tally Results

The Travel Tally is a show-of-hands accounting of students’ travel modes to and from school and is collected at the classroom level. In the spring of 2018, only two schools that had previously collected Travel Tally data had entered Travel Tally data through the saferoutesdata.org site’s data entry interface. At these two schools, walking and biking to and from school did not shift significantly over time (p values of 0.532 and 0.489), remaining at between 2 and 2.5 percent of all trips between home and school.

Note. Another two schools that collected Travel Tallies for the first time entered rather suspect Travel Tally information, reporting such results as 90 percent of students walking to school, yet only one percent walking home from school. We will reach out to the appropriate ARTS Coordinators to explore these suspected cases of measurement error.

Parent Survey Results

The results presented in this section reflect Parent Survey data collected by two schools in spring 2018. The Parent Survey captures the school travel modes students use “on most days” as well as parents’ perceptions about walking and bicycling between home and school.

Parent Survey data analysis involved estimating logistic regression models. These models are commonly used to estimate the probability of outcomes that involve choice (e.g., school travel mode decisions).

Table 2. Outcome and predictor variables used in the statistical models of students’ school travel patterns.

Variables	Variable Descriptions
Outcome variables	# of trips to and from school: walk/bike bus (school bus or transit) car (family vehicle or car)
Predictor variables	Student’s grade (K - 8 th grade) Student’s sex School’s Census-defined locale: suburb rural School-level income , i.e., the percentage of students eligible to receive free or reduced-priced lunch: < %40 = high income 40-75% = medium income 75% = low income Distance from school within 1 mile between 1 and 2 miles more than 2 miles Whether child asked for permission to walk or bike to school Whether or not parent was comfortable allowing their child to walk or bike to school Whether or not parent thought their child’s school encouraged walking or biking to school Whether or not parent thought walking or biking to school were fun for their child Whether or not parent thought walking or biking to school were healthy for their child

Among the two schools that collected Parent Surveys in spring 2018:

- 24.8 percent of students walked or biked to school.
- 18.7 percent of students traveled home from school on foot or by bike.
- Interestingly, boys who lived with 1/2 mile of these schools were more likely than girls to walk or bike to school, but girls were as likely as boys to walk or bike back home from school.
- Parents of students who most commonly walked or biked to or from school believed the school encouraged walking and biking to school and that such activity was healthy and fun for their child.
- Parents' perceptions of schools' encouragement of walking and biking predicted significantly less busing to and from school.
- All else equal, girls were significantly more likely than boys to be driven between home and school.

Discussion and Recommendations for Active Routes to School Regional Coordinators' Work

This evaluation report marks the fifth produced for the Active Routes to School Project. Considering 2018 results with prior evaluation findings, this memo focuses on the significance of schools' Active Travel Readiness over time but provides a brief discussion of the Travel Tally and Parent Survey results.

A total of four schools collected Travel Tallies between January and May 2018, and two schools collected Parent Surveys during this time. Two of the four Travel Tally-collecting schools did not significantly shift walking and biking participation from the previously documented 2 – 2.5 percent mode share, and two schools seem to have entered incorrect school travel mode information. The two schools that collected Parent Survey information reported high walking and biking participation—24.8 percent to school and 18.7 percent from school. Interestingly, boys who lived close to these schools were more likely than girls to walk or bike to school, but girls were as likely as boys to walk or bike back home from school. Moreover, parents' perceptions of schools' encouragement of walking and biking predicted significantly less busing to and from school.

New this evaluation is the finding that among six data-collecting and readiness-rated schools, a 10% increase in the schools' average Active Travel Readiness ratings was associated with an average 55% increase in walking and biking to school. This result suggests that Coordinators assessments of schools' Active Travel Readiness is closely associated with schools' participation in walking and biking to and from school and suggests that the Readiness scale may prove a statistically valid and reliable means of explaining and predicting students' walking and biking participation.

The following discussion highlights recommendations for practice that derive from all evaluations and reinforces previously shared implications that might inform the nature of Active Routes to School Regional Coordinators' work.

Recommendations drawn from all evaluations across the five years of the Active Routes to School Project

These recommendations stem from evaluation findings across all five years of the Project. We provide them with the understanding that Coordinators have been using several of these strategies already. We believe the Coordinators should “continue to” advance these initiatives. The recommendations we propose the Coordinators “focus on” represent more recent evaluation-based insights or less Coordinator-reported activities, which nonetheless can lead to program sustainability and increased uptake of effective promotional and educational practices. We first present those recommendations Coordinators should “continue to” advance, and then present those they might wish to “focus on” in the sixth year of the Active Routes to School Project and beyond.

Continue to:

Identify and work with schools where it is theoretically feasible to walk or bike to school to collect school travel mode information. This way, we will all get clearer sense of whether and to what extent the Active Routes to School Project is meeting its overarching goal to increase the number of elementary and middle school students in North Carolina who safely walk and bike to school.

Identify, work with, and support in-school champions. These are people who enthusiastically support safe walking and biking to school and use their influence to get other key stakeholders involved. Work with these champions to spread the word about the benefits of safe walking and biking and uncover ways of removing real and perceived barriers to participating in these activities. It stands to reason that nurturing in-school champions also serves as a key sustainability strategy.

Support schools’ Walk to School Day events and allow the schools—especially the schools’ champions—to lead the events’ organization, promotion, and structure. Support events that highlight the fun of walking and biking between home and school. Capturing photos and videos of smiling families and school staff can communicate the community-oriented benefits of active school travel to school administrators and other decision-makers. Considering the relationship between schools’ Active Travel Readiness and their associated walking and biking participation, enhancing the fun of programs offers a promising strategy for realizing lasting positive change.

Encourage parents to get involved in schools’ programs. Recruit them to lead walking school buses from homes or remote drop-off locations; invite parents who walk or bike to school to socialize with other parents and school staff during drop-off and pick-up transition times, thereby creating a sense of community; invite parents as special guests to participate in on-campus walking programs; and improve infrastructure so more adults and children may walk and bike separated from traffic.

Focus on:

Ensuring program sustainability. Work with schools to place bike racks in visible locations on the schools’ campuses and around town; develop school policies or procedures that include safe walking and biking as an objective; and use consistent school-parent communications that feature walking and bicycling as viable transportation options. These strategies can create a welcoming community climate for safe walking and biking.

Training the trainers at schools. This allows trainers to take ownership of pedestrian and bicycle skills training and greatly advances the sustainability of pedestrian and bike safety programming, especially once the Active Routes to School Project is no longer able support the schools' safety training efforts.

Appendix

School archetypes using the Active Travel Readiness scale

Coordinators are prompted with: "This school community..."

...is not interested in promoting safe walking/biking and hasn't conducted any activities.	...shows some interest in promoting safe walking/biking, but hasn't gotten involved yet.	...shows some interest in promoting safe walking/biking, and has done a few activities to promote them.	...shows a lot of interest in promoting safe walking/biking and has consistently done one or two activities each year.	...shows a lot of interest in promoting safe walking/biking and has consistently done several activities each year.	...shows a lot of interest in promoting safe walking/biking, has consistently done numerous activities, and wants to do more to make walking/biking to (or at) school an important part of the school's culture.
Keywords for classifying a school					
No interest No activity	Some interest No activity	Some interest A little activity	Lots of interest A few activities	Lots of interest Many activities	Lots of interest Many activities Seeking more to do
Archetype					
Resistor	Beginner-1	Beginner-2	Maintainer-1	Maintainer-2	Maintainer-3
Active Travel Readiness score					
0	1	2	3	4	5