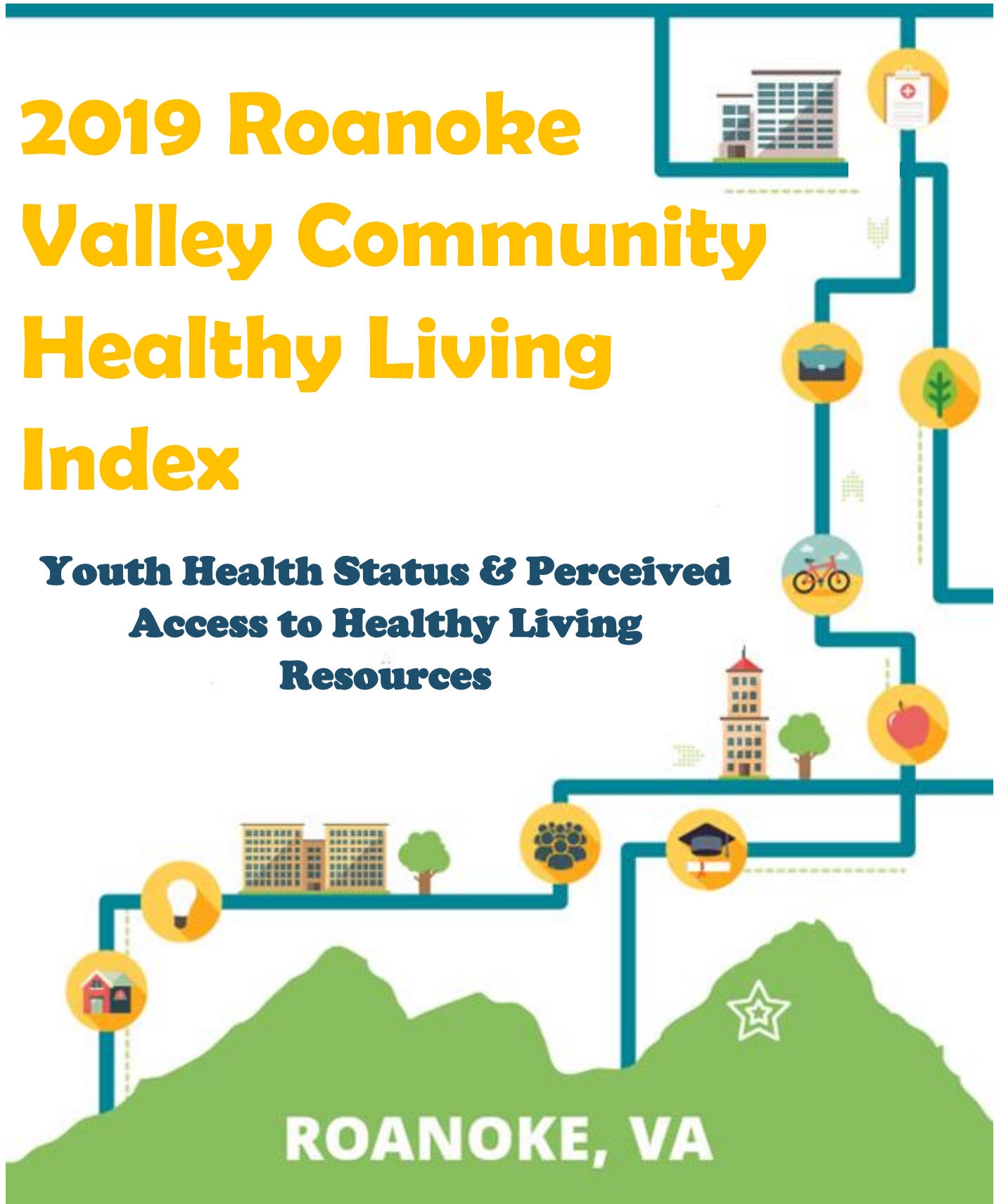


2019 Roanoke Valley Community Healthy Living Index

Youth Health Status & Perceived Access to Healthy Living Resources



Acknowledgement:

The Roanoke Valley Community Healthy Living Index is directed by Dr. Liz Ackley, Brian H. Thornhill Associate Professor at Roanoke College, and is graciously supported by the Center for Community Health Innovation at Roanoke College.

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Disclaimer:

The Roanoke Valley Community Healthy Living Index (RV-CHLI) was developed to propagate positive change toward the elimination of health disparities in Roanoke, Virginia. This report is intended for use by the community and can be cited accordingly: Ackley, E., Duff, E., & Guthrie, H. (2019). The 2019 Roanoke Valley Community Healthy Living Index: Health Status and Perceived Access to Healthy Living Resources. As a means to encourage the long-term sustainability of the RV-CHLI, users are asked to contact the director at ackley@roanoke.edu when reports are used to support organizational or community efforts. While an internal committee has reviewed the data presented in this report, complete accuracy cannot be guaranteed. The authors assume no liability for the use or misuse of this data.

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Background:

The Roanoke Valley Community Health Living Index (RV-CHLI) was developed in 2011 to facilitate awareness of relationships between “place” and health across Roanoke’s city neighborhoods. Adapted from a previously validated tool developed by the Centers for Disease Control and Prevention¹, the RV-CHLI combines GIS technologies with familial perceptions of access to healthy living resources and objective measures of youth health outcomes². In this way, the RV-CHLI serves to empower stakeholders across diverse sectors to make informed decisions in the development of projects and programs seeking to improve community health and promote equitable resource availability across city neighborhoods.

In addition to providing an array of local stakeholders with benchmark data concerning youth health status across Roanoke’s diverse neighborhoods, the RV-CHLI has served as a catalyst for strategic planning for the Roanoke City Invest Health Initiative, the PATH Coalition, and Roanoke’s 2040 Comprehensive Plan.

¹ Soowon, K., et al. (2009). Development of the Community Healthy Living Index: A tool to foster healthy environments for the prevention of obesity and chronic disease. *Preventive Medicine*, 50(S), 80-85.

² Youth health outcomes used in this assessment were determined objectively from the FitnessGram Test Battery. More information on this widely-accepted assessment can be found at <http://www.cooperinstitute.org/fitnessgram/components>.

Executive Summary:

Purpose: As community-level health inequities grow nationwide, a local understanding of the impact of neighborhood environments on health status and health behaviors is needed. This report summarizes youth health outcomes and perceived access to resources supporting healthy living among participating families in the Roanoke City Public Elementary School system.

Methods: Data for the 2019 Roanoke Valley Community Healthy Living Index was collected in partnership with Roanoke City Public School physical educators and administrators. Weight-related health status was collected as a component of the FitnessGram test battery (n = 5,176 children). Perceptions of access to healthy living resources were collected via questionnaire provided to each elementary school and disseminated by school administrators. Questionnaires (n = 765) were collated, analyzed, and reported by staff at the Center for Community Health Innovation at Roanoke College.

Summary of Results: When compared to national prevalence rates in similarly-aged youth, Roanoke city elementary school-aged youth display higher rates of obesity and lower rates of healthy weight (see page 6, Table 1). Since 2017, rates of all classifications of weight status have remained relatively stable (see page 7, Figure 2).

Reflecting considerable variation in local prevalence rates of youth weight status, spatial patterns of overweight and obesity indicate that the highest prevalence rates of unhealthy weights status trend toward the northwest quadrant of the city (see page 7, Figure 1), with 40-53% of children classifying as overweight or obese compared to < 32% in other neighborhood quadrants. When examining weight-related health status by grade-level and sex, Roanoke city youth display a gradual increase in unhealthy weight over time, with boys and girls displaying similar increases in overweight and obesity from kindergarten to grade 5 (see pages 8-9, Figures 3-7).

When families with elementary school-aged children were prompted to reflect on neighborhood-level access to healthy living resources which may impact healthy behaviors:

- 76% perceived having adequate access to resources supporting physical activity (p. 11);
- 71% perceived having sufficient access to stores offering healthy foods (p. 13);
- 62% perceived their neighborhood as safe for engaging in daytime physical activities, compared to 50% in the evening (p. 12);
- Families considered infrastructure changes, parks and recreational facilities, and traffic calming as the leading areas for improvement in their neighborhood (p. 13);
- 33% perceived their neighbors are engaged in creating a culture of health in their neighborhood (p. 14).



2019 Roanoke Valley Community Healthy Living Index

Youth Health Status

Weight-Related Health Status:

The measurement of body mass index-for-age (BMI-for-age) allows for the assessment of weight-related health risk in youth while controlling for maturation as children age. Derived from assessments of weight and height, BMI-for-age percentiles can be used to classify a child as underweight (< 5th percentile for age), healthy weight (\geq 5th to < 85th percentile for age), overweight (\leq 85th to < 95th percentile for age), or obese (\geq 95th percentile for age)³. BMI-for-age is determined as a part of the FitnessGram test battery, an annual assessment of the components of health-related fitness conducted by school physical educators.

Recent data reported by the National Center for Health Statistics (2015) indicate that, when viewing BMI-for-age percentiles at the national level, 17% of school-aged children (6-11 years) are obese, whereas 17% of children classify as overweight³. When underweight status is considered (comprising 3% of the youth population), roughly 37% of youth are classified as having increased health risk due to unhealthy weight³. In line with national trends, state-level indicators suggest that approximately 31% of youth in the Commonwealth are overweight or obese⁴. Results from the 2019 assessment of BMI-for-age in Roanoke indicate that 41% of local youth are overweight or obese (see Table 1 and Figure 1).

Table 1: Youth weight status

BMI-for age Classification	Boys	Girls	Total	United States
Underweight	6%	5%	6%	3%
Healthy Weight	55%	52%	53%	63%
Overweight	17%	17%	17%	17%
Obese	22%	26%	24%	17%
Total number of students (n)	2,649	2,547	5,196	n/a

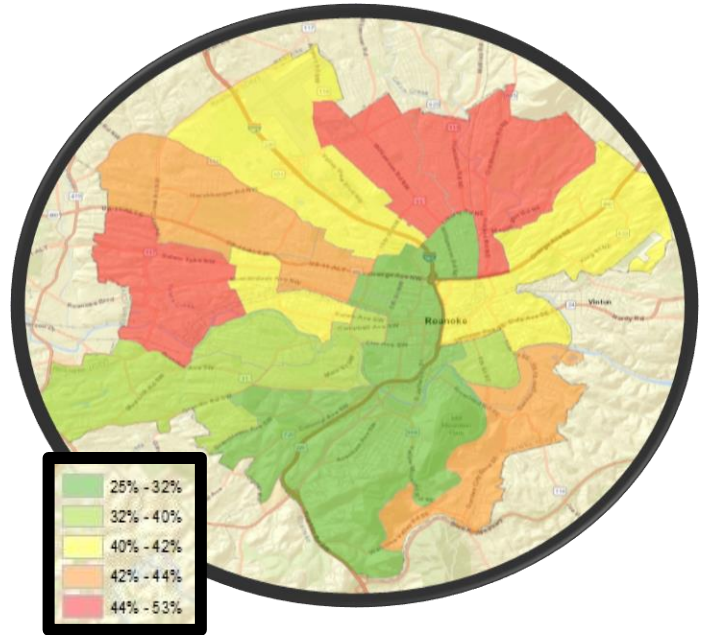
Note. The Roanoke City sample represents 71% of students enrolled in Roanoke City public elementary schools.

³ For more information on BMI-for-age, including measurement and interpretation guidelines, visit <https://www.cdc.gov/obesity/childhood/defining.html>

⁴ <http://childhealthdata.org/docs/nsch-docs/virginia-pdf.pdf?sfvrsn=0>

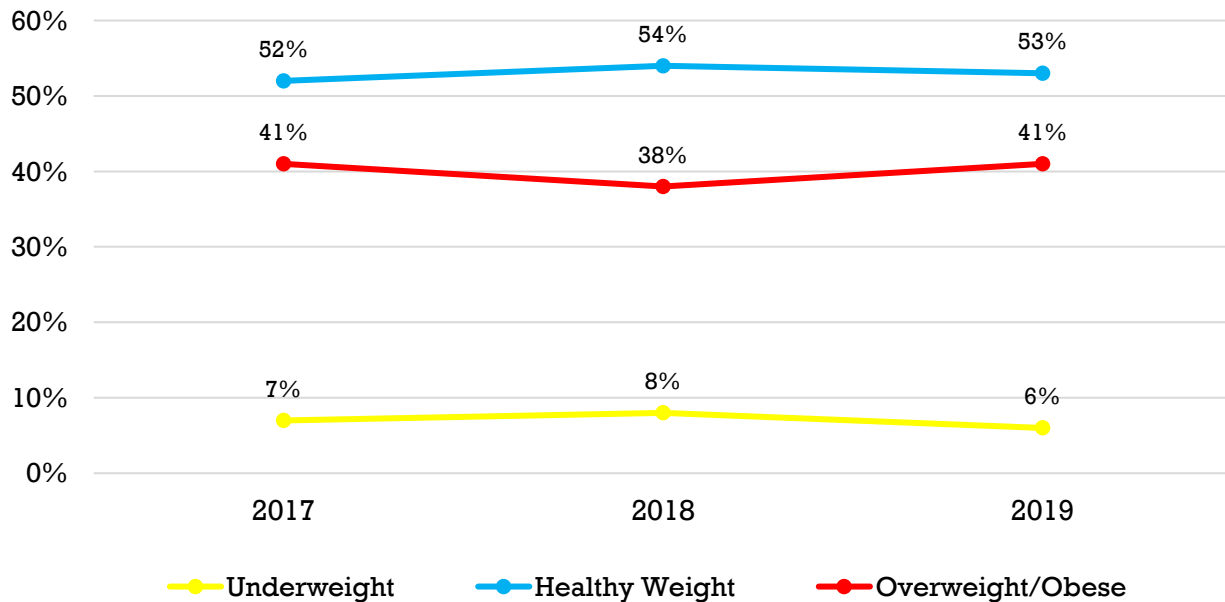
Compared to national estimates, children living in Roanoke experience higher rates of underweight (6% compared to 3% nationally), lower rates of healthy weight (53% vs. 63% nationally), comparable rates of overweight (17% vs. 17% nationally), and higher rates of obesity (24% vs. 17% nationally). When viewed collectively, 47% of children in Roanoke are at an increased health risk due to unhealthy weight compared to 37% nationally. With considerable variations in prevalence across Roanoke city neighborhoods, higher concentrations of overweight and obesity trend toward the northwest quadrant of the city (see Figure 1; prevalence rates are displayed by quantile). In 2019, overweight and obesity were more prevalent among youth at Preston Park (53% of students), Fairview (48%), Monterey (44%), and Westside (44%) elementary schools, and least prevalent among youth at Crystal Spring (25%), Fishburn Park (29%), Lincoln Terrace (33%), and Highland Park (32%) elementary schools.

Figure 1: Prevalence of overweight and obesity in Roanoke city youth



Since citywide estimates of youth health status have been included as a component of the Roanoke Valley Community Healthy Living Index since 2017, temporal patterns in youth weight status can be observed. Since 2017, the prevalence of all classifications of weight status have remained relatively stable (see Figure 2).

Figure 2: Temporal patterns in weight status among Roanoke city youth (2017-2019)



Since BMI-for-age percentiles control for maturation as children age, healthy weight status should be maintained over time. When considering age-related trends in weight status at a national level, the prevalence of obesity gradually increases with age, from 9% among youth aged 2-5 years, to 17% among youth aged 6-11 years, to 21% among adolescents aged 12-19 years³. Across Roanoke, elementary school-aged youth experience a similar trend, with rates of obesity increasing from kindergarten to fifth grade (see Figure 3). Moreover, this trend has persisted since 2017 (see Figure 4), illustrating a need for age-appropriate intervention during the elementary school years to reduce the persistence of unhealthy weight status in Roanoke city youth (and nationwide).

Figure 3: Youth weight status by grade level (2019)

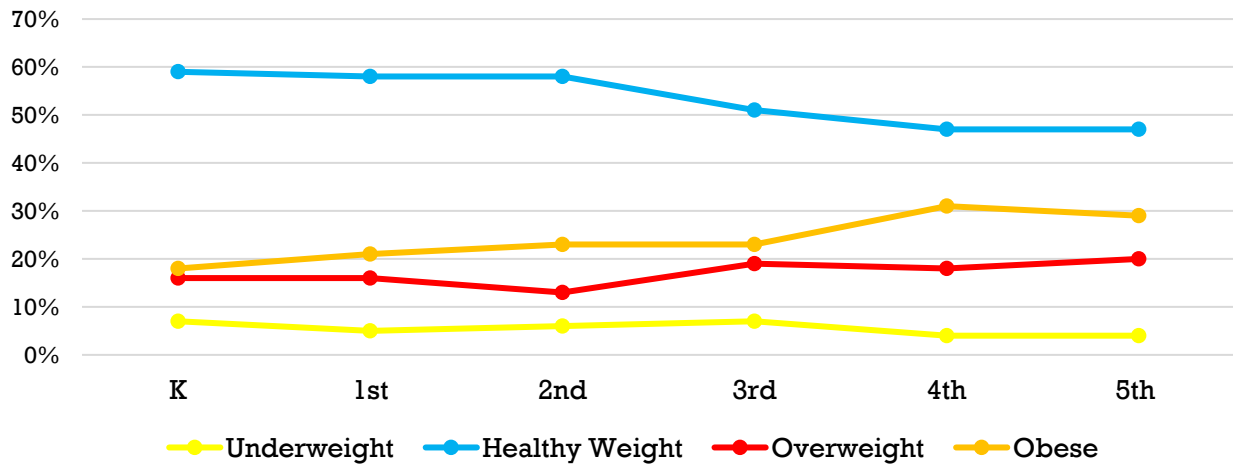
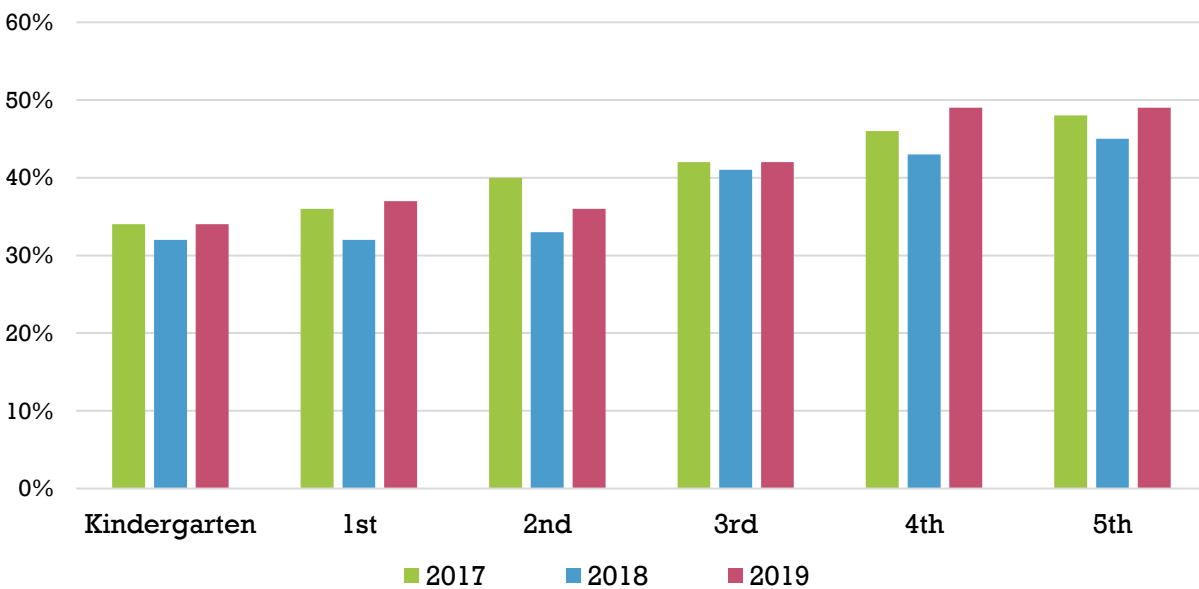
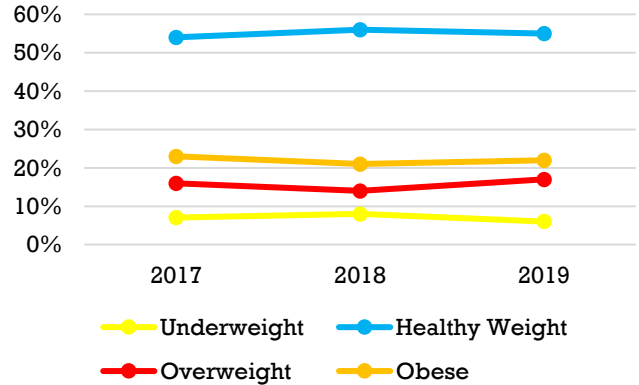


Figure 4: Temporal trends in overweight/obesity by grade level (2017-2019)



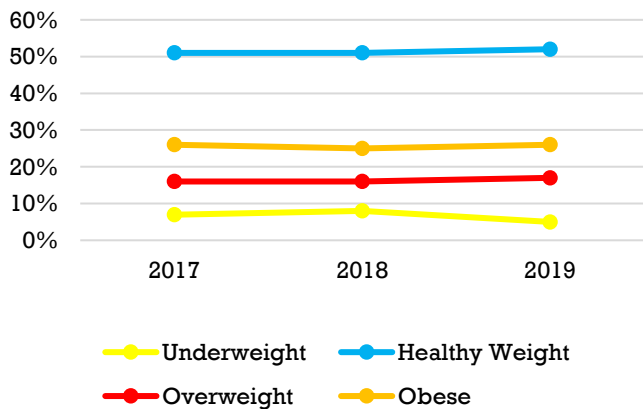
When examining sex-based trends in weight status among a nationally-representative cohort of elementary school-aged boys (6-11 years), approximately 16% of boys classify as overweight and 17% classify as obese⁴. In Roanoke, 17% of boys are overweight and 22% are obese. Since 2017, prevalence rates of unhealthy weight status in boys have remained relatively stable (see Figure 5). Among boys, overweight and obesity are most prevalent at Preston Park (53%), Fairview (46%), Monterey (44%) and Fallon Park (44%) elementary schools, and least prevalent at Crystal Spring (25%), Highland (26%), and Grandin (28%) elementary schools.

Figure 5: Temporal trends in weight status among boys



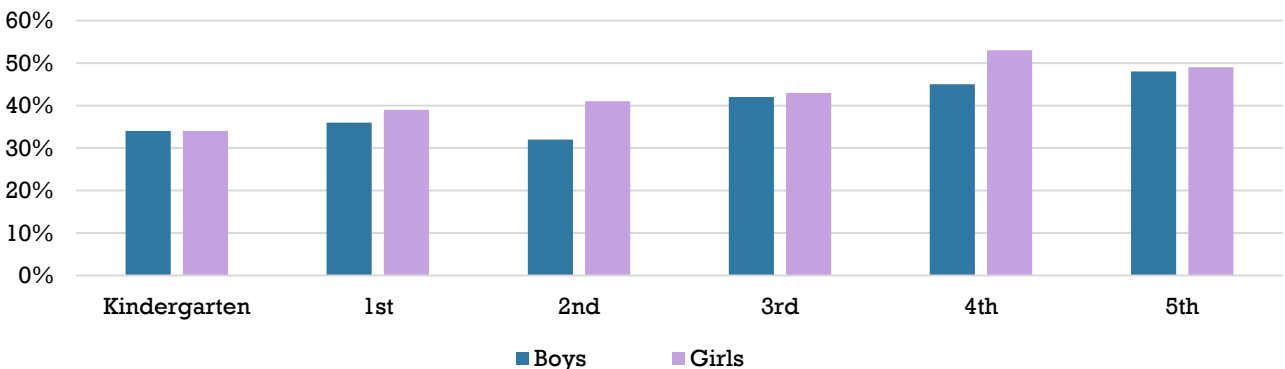
Similar to national estimates in boys, among a nationally-representative cohort of elementary school-aged girls (6-11 years), approximately 16% of girls classify as overweight and 17% classify as obese⁴. Among girls in Roanoke, the prevalence of overweight (17%) is comparable to national estimates, yet obesity is considerably higher (26%). Since 2017, prevalence rates of all classifications of weight status have remained relatively stable (see Figure 6). Among girls, overweight and obesity are most prevalent at Preston Park (52%), Westside (50%), Fairview (50%), and Garden City (47%) elementary schools, and least prevalent at Crystal Spring (26%), Fishburn (29%), and Wasena (34%) elementary schools.

Figure 6: Temporal trends in weight status among girls



As boys and girls grow in Roanoke, the weight-related changes they experience from Kindergarten to 5th grade are similar, with overweight and obesity increasing gradually over time (see Figure 7).

Figure 7: Overweight and obesity by sex and grade level (2019)



Healthy Behaviors

An individual's health status is influenced by a number of determinants, including (but not limited to) family education attainment, income and employment, genetics, the physical environment, safety, social support, access to clinical and wellness services, and engagement in healthy behaviors. Not surprisingly, as much as 20-50% of the variation in health status between individuals can be explained by healthy behaviors⁵, yet the ability to engage in healthy behaviors is largely influenced by access to healthy living resources, such as supportive infrastructure and services. To evaluate engagement in healthy behaviors and access to healthy living resources, families were asked to describe their child's physical activity and healthy eating behaviors and to rate their perceived access to resources supporting healthy living in their neighborhood. *Due to the voluntary nature of the survey, attention should be given to the sample size before generalizing this data.*



In 2019, 765 families with elementary school-aged children (representing 14 of 17 elementary schools)⁶ volunteered to complete the Neighborhood Physical Activity Assessment. This sample represents 10% of eligible families in the Roanoke City Public Elementary School system.

Physical Activity

Among families with elementary school-aged children across Roanoke, the most commonly reported physical activities include biking (65%), walking (55%), free playing (37%), playing sports (34%), running (22%), and hiking (22%). While families were generally unaware if a “Safe Routes to School” or walking school bus program existed in their home neighborhood (Figure 8), 15% of students reported walking or riding their bike to school (Figure 9); a 17% reduction in active commuting since 2017. Active commuting was reported most frequently among students attending Wasena (33% of respondents), Crystal Spring (32%), Lincoln Terrace (32%), and Virginia Heights (29%) elementary schools, and least frequently at Monterey (9% of respondents), Grandin (4%), Round Hill (4%), and Fishburn Park (2%) elementary schools. Interestingly, when examined by sex, no boys reported actively commuting at Fishburn Park and Garden City elementary schools, whereas at Monterey and Round Hill, no girls reported actively commuting.

Figure 8: Neighborhood safe routes

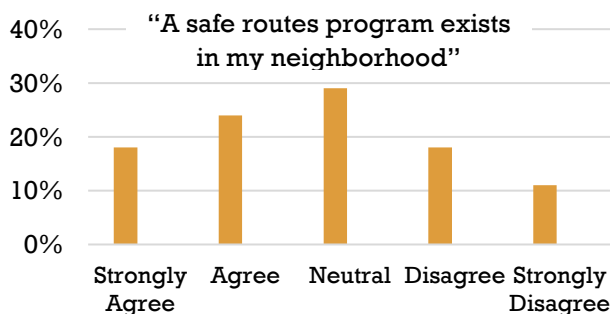
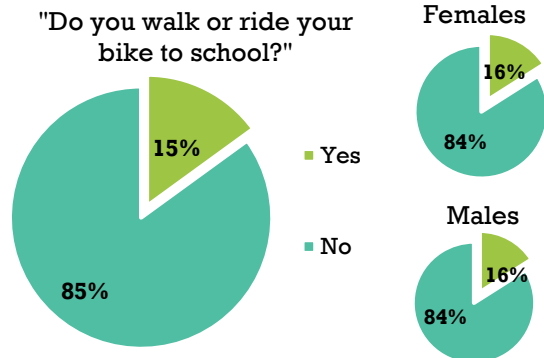


Figure 9: Active commuting

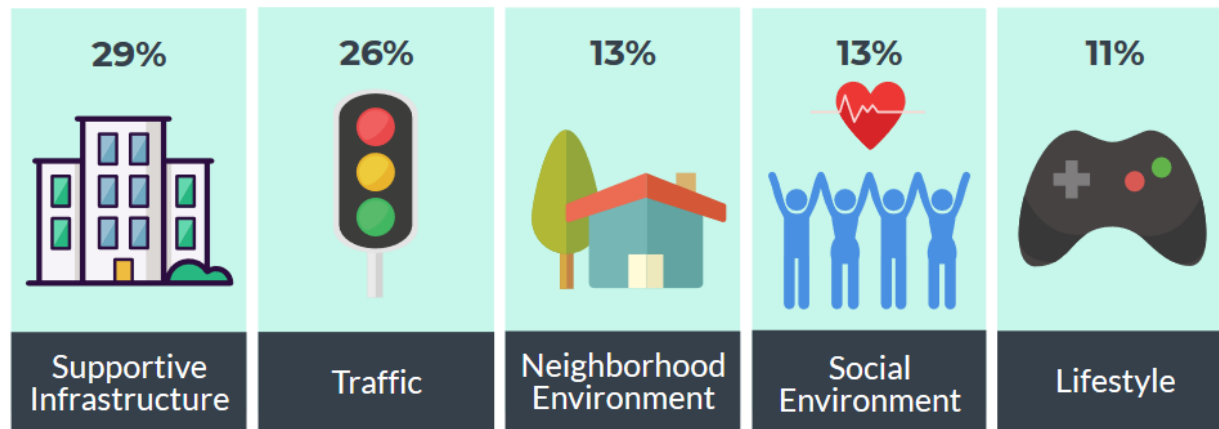


⁵ Infographic developed by the Bipartisan Policy Center: <https://bipartisanpolicy.org/library/what-makes-us-healthy-vs-what-we-spend-on-being-healthy/>.

⁶ Note: Surveys were not returned from Westside, RAMS, or Hurt Park elementary schools

When asked to identify barriers to engaging in neighborhood-level physical activities, the most commonly reported barriers related to **infrastructure** [29% of responses, including insufficient sidewalks (50%), lack of park access (8%), and insufficient lighting (5%)], **heavy traffic** [26% of responses, including speeding (43%), road congestion (26%), and lack of signage (9%)], **environmental factors** [13% of responses, namely weather (60%) and hilly terrain (30%)], **lack of social support** [13% of responses, including a lack of trust (24%), insufficient activities (21%), bullies (15%), and the presence of “others” (12%)] and **lifestyle factors** [11% of responses, including lack of time (64%) and physical limitations of the child’s guardian (39%)]; see Figure 10.

Figure 10: Barriers to physical activity



Perceived Access to Resources Supporting Physical Activity

To better understand neighborhood-level resources supporting engagement in physical activities, students (with the help of their parents/guardians) were asked to rank their perceived level of access to infrastructure supporting physical activity. Among respondent families, 76% believe they have sufficient access to parks and recreational facilities supporting physical activity in their neighborhood (see Figure 11; compared to 74% in 2017). When asked to consider the safety of these resources, 44% of respondents perceived their neighborhood parks, sidewalks, and parking areas were sufficiently lit to be considered safe (compared to 40% in 2017; see Figure 12).

Figure 11: Resources supporting physical activity

"Parks and other areas are available for people of all ages to be active in the neighborhood"

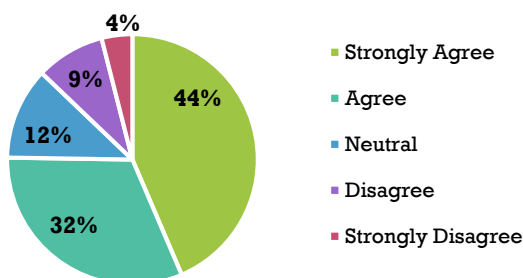
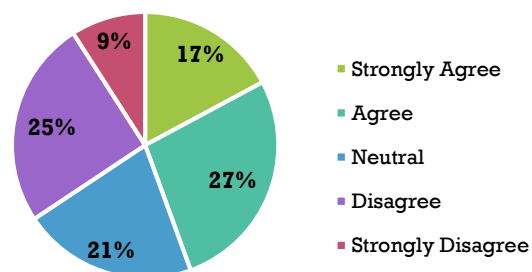


Figure 12: Safety of resources

"Sidewalks, parks, and parking spots in the neighborhood are well lit at night to keep us safe"



Perceived Safety for Engaging in Neighborhood-Level Physical Activity

Because safety is a significant determinant of physical activity in youth, families were prompted to provide more detail regarding safety-related concerns in their neighborhood. According to 54% of respondent families in Roanoke, heavy traffic and inappropriate driving speeds were perceived as significant dangers in their neighborhood (compared to 56% in 2017; see Figure 13).

When prompted to describe police presence in areas supporting physical activity, respondents were generally positive or impartial about the visibility of police officers in their neighborhood, with 75% of families reporting adequate levels of police presence in areas supporting physical activity⁷ (see Figure 14); this represents a 9% increase in perceived police presence since 2017.

Figure 13: Perceived traffic safety in areas supporting physical activity

"Car drivers obey speed limits in the neighborhood and stop for people crossing the street"

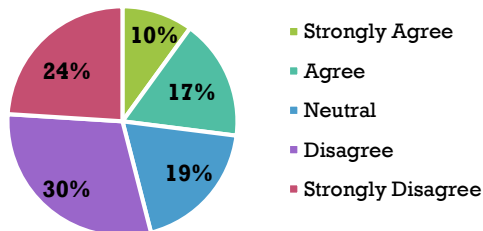
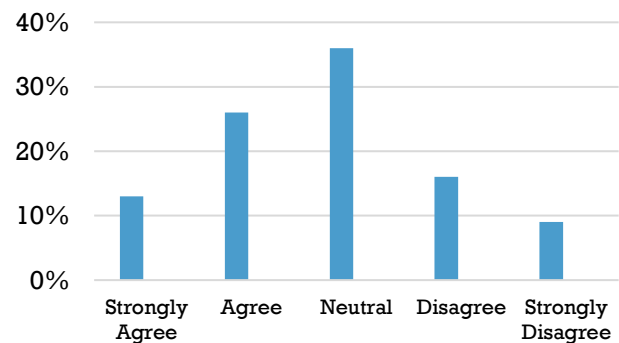


Figure 14: Perceived police presence in areas supporting physical activity



Regarding perceived safety for engaging in physical activities at home, 62% of respondent families perceive their neighborhood is safe for supporting engagement in daytime physical activity (see Figure 15), whereas 50% of families perceive the neighborhood is safe for supporting physical activity in the evening⁸ (see Figure 16; this represents a 6% increase in perceived safety in the evening since 2017). When examining differences in perceptions of safety across the city of Roanoke, more families with children at Virginia Heights (81%), Grandin (76%), Crystal Spring (75%), and Wasena (74%) elementary schools report adequate safety for engaging in daytime physical activities compared to families with children at Fallon Park (50%), Round Hill (48%), and Lincoln Terrace (36%) elementary schools

Figure 15: Perceived daytime safety

"People who walk and bike in the neighborhood during the day feel safe"

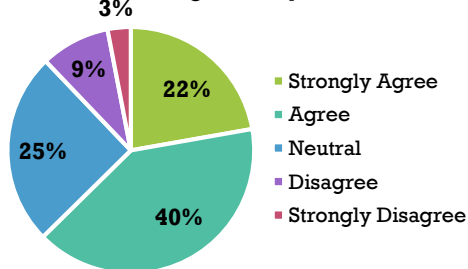
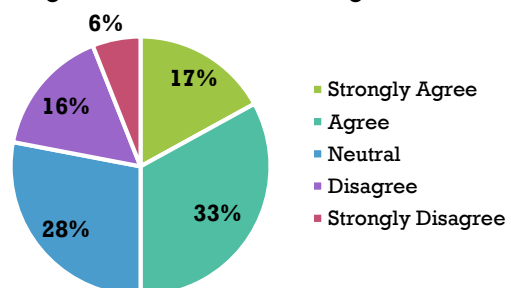


Figure 16: Perceived evening safety

"People who walk or bike in the neighborhood in the evening feel safe"



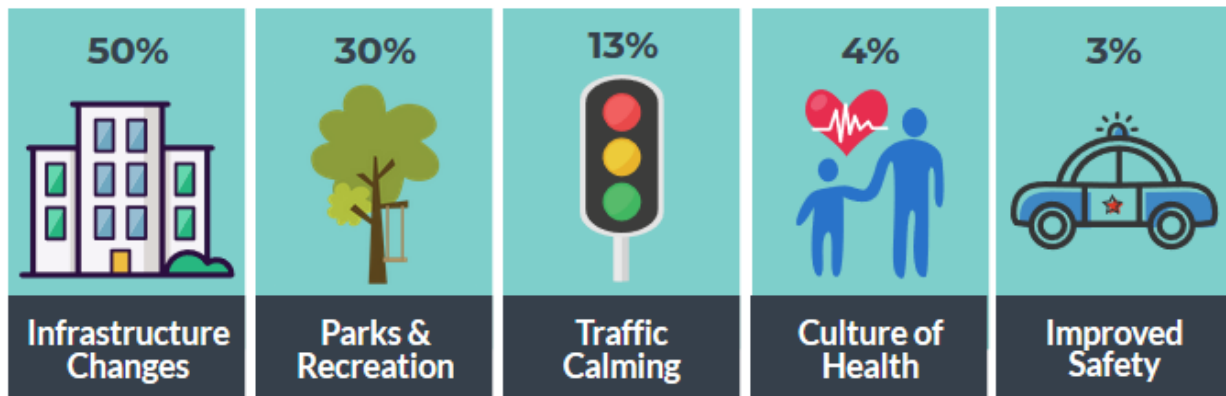
⁷ As indicated by a "neutral", "agree", or "strongly agree" response to the prompt "Police officers watch areas used for physical activity, like parks and playgrounds, to keep us safe".

⁸ As indicated by a "strongly agree" or "agree" response to the prompts, "People who walk and bike in the neighborhood during the day feel safe" or "People who walk and bike in the neighborhood in the evening feel safe".

Recommendations for Promoting Neighborhood-Level Physical Activity

To enhance participation in neighborhood-level physical activities, respondent families suggest that attention be given to **enhancing neighborhood infrastructure** [50% of responses, including improvements to sidewalks (77%), lighting (10%), roads (8%; especially bike lines), and adding crosswalks (6%)], **improving neighborhood park/recreation facilities** [30% of responses, including park upgrades (30%) and improved access to existing parks (25%), more rec facilities [32%; especially pools (32%), dog parks (12%), libraries (12%), community centers (12%), and bike trails (12%)], **enhancing traffic calming measures** [13% of responses, especially through speed limit enforcement (38%) and better signage (32%)], **improving the neighborhood culture of health** [4% of responses, including more neighborhood activities (48%), a stronger sense of “community” (39%), and anti-bullying efforts (17%)] and **improving safety** [3% of responses, including police patrolling (48%) and drug/crime prevention strategies (24%)]; see Figure 17.

Figure 17: Recommendations for enhancing neighborhood physical activity



Healthy Eating

Perceived Neighborhood-Level Access to Healthy Foods

Participating students (with the help of their parents/guardians) were asked to describe the level of access to healthy foods in their home neighborhood. Whereas 71% of respondent families perceived they have sufficient access to stores offering healthy foods in their neighborhood⁹ (see Figure 18; compared to 69% in 2017), only 41% of families agreed that incentives were provided by neighborhood stores to encourage healthy eating¹⁰ (see Figure 19).

Figure 18: Perceived access to healthy foods

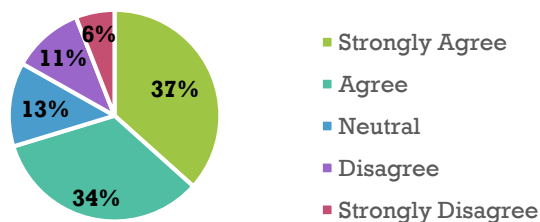
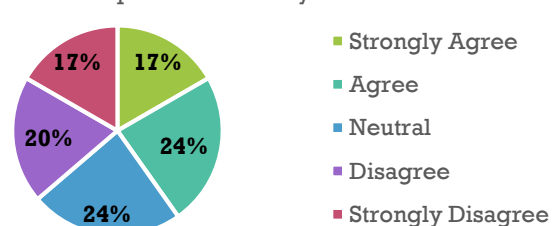


Figure 19: Incentives for healthy foods



⁹ As indicated by responding “agree” or “strongly agree” to the statement, “Food stores offering healthy foods are in walking distance or are easy to get to by bus”.

¹⁰ As indicated by responding “agree” or “strongly agree”.

When examining neighborhood-level trends in perceived access to healthy foods, families with children attending Virginia Heights (87%), Wasena (85%), Grandin (78%), and Crystal Spring (78%) reported the highest level of access, whereas families with children at Fairview (64%), Highland Park (55%), and Lincoln Terrace (37%) report the lowest level of access.

Healthy Living

Neighborhood Culture of Healthy Living

To better understand neighborhood culture supporting healthy living across Roanoke’s diverse neighborhoods, participating students (with the help of their parents/guardians) were asked to describe their interactions with neighbors relative to healthy living behaviors (namely, physical activity and healthy eating). Among respondent families, 47% reported being physically active with their neighbors (see Figure 20; representing a 7% increase from 2017) and 38% of reported serving healthy foods when neighbors gather (see Figure 21; compared to 33% in 2017).

Figure 20: Culture of physical activity

"Neighbors spend time together being physically active (walking, jogging, playing sports)"

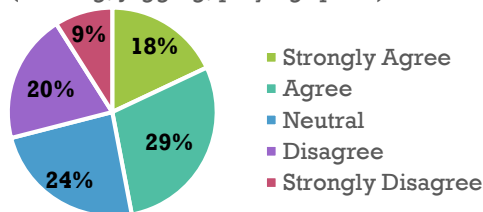
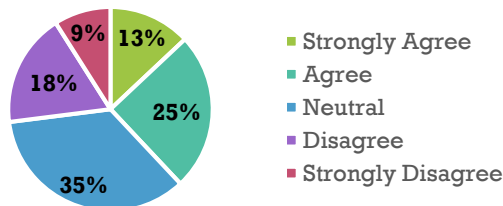


Figure 21: Culture of healthy eating

"When neighbors get together, healthy foods are served"



Reflecting levels of neighborhood engagement in healthy behaviors reported by respondents, 37% of families report having a group of individuals in their neighborhood who are enhancing their neighborhood culture of health (Figure 22; consistent with findings from 2017). According to respondent families, support for promoting a culture of health is most prominent among families with children attending Grandin (59%), Crystal Spring (59%), Wasena (51%) and Garden City (41%) elementary schools, and least prominent among families with children at Round Hill (17%), Lincoln Terrace (18%) and Morningside (15%) elementary schools. When prompted to report if neighbors had been engaging in a culture of health, 33% of families agreed or strongly agreed (Figure 23; representing a 5% increase from 2017), with more engagement reported from families with children at Wasena (49%), Crystal Spring (48%), Highland Park (48%), and Grandin (41%) elementary schools, and less engagement reported by families in the Round Hill (18%), Fallon Park (18%), and Monterey (17%) school zones.

Figure 22: Promoting a culture of health

"We have a group of people in the neighborhood who can help make our neighborhood more healthy"

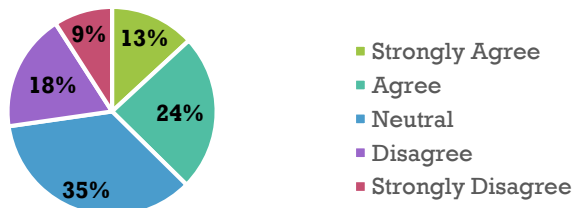
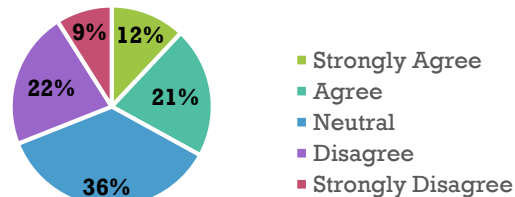


Figure 23: Engaging in a culture of health

"In the past year, people in our neighborhood have done something to make the neighborhood more healthy or safe"



Actionable Recommendations



GET INVOLVED!

The Roanoke Valley Community Healthy Living Index was developed to support actionable planning across Roanoke's diverse neighborhoods.

There are numerous ways to get involved to make our neighborhoods healthier. Consider becoming involved with one or more of the following groups or initiatives listed on this page.



JOIN YOUR NEIGHBORHOOD FORUM

All of Roanoke's historic neighborhoods are supported by a neighborhood group. These groups are served by residents who are working to realize their vision for a thriving community. To learn more, visit <https://www.roanokeva.gov/1073/Neighborhood-Services>.



ADVOCATE

Policies encouraging healthy living, including healthy eating and physical activity, need support from community members like you! Contact your local elected officials and community leaders to advocate for health in all policies or to serve on a local advisory commission (vacancies can be found at <http://www.roanokeva.gov/1066/Vacancies>).



LEARN HOW OUR CITY WORKS

To promote a stronger sense of community and resident involvement in decision making, the City offers a free, 9-week community leadership program teaching residents how to use a variety of city resources. To sign up or learn more about this opportunity, visit: <https://www.roanokeva.gov/1194/Leadership-College>.

We'd love to hear from you! To share your ideas with the Center for Community Health Innovation, contact us at healthinnovation@roanoke.edu.