Report on Anderson Community Environmental Quality and Health

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Background

In September and November 2019, Carolina Sunrock, LLC submitted two air permit requests to build an asphalt plant and quarry in Caswell County. Residents of the Anderson community, which is located less than ¼ mile away from the proposed site (Figure 1) developed the Anderson Community Group to communicate information about the facility to fellow community members and generally organize for health and well-being of their community.

One primary concern is that the community is already plagued with many chronic health issues, including increased health risks that COVID-19 pose. The Anderson community members requested that the Caswell County Health Department (CCHD) conduct an "imminent health risks" assessment of the proposed asphalt plant. However, the CCHD did not have the necessary resources to sustain this request and contacted the NC Department for Health and Human Services (NC DHHS) for assistance³. In response, the NCDHHS conducted a literature review on the effects of asphalt plants on community health. To examine the health-related conditions in the community, UNC Gillings School of Global Health and the NC Institute for Public health (NCIPH) was contacted by a state legislative representative to conduct a health survey. Also Dr. Courtney Woods, at UNC Gillings, who conducts community-engaged research with environmental justice (EJ) communities to lead the health survey, given the EJ implications of the proposed site.

The NC Department of Environmental Quality (DEQ) produced an Environmental Justice Report, which assessed the environmental, socioeconomic, and demographic conditions within a 2-mile radius of the proposed asphalt plant. The report cited 34% African American residents (based on 2010 census data)⁴, whereas the Anderson Community Group (led by Rev. Bryon Shoffner) learned through door-to-door surveying within a mile-radius of the proposed plant that the composition of the community is closer to 75% African American⁵. The group also conducted an informal health survey to collect additional demographic and health information from residents.⁵ The findings were compiled in a report referred to as the Shoffner Report. Following the preparation of the report, community leaders were concerned about whether the Sunrock permit request was a potential Title VI matter.^{5,6} The Shoffner report, in addition to highlighting that African American residents would likely "bear a disproportionate share of the pollution,", the report also noted issues with the NCDEQ EJ snapshot including: discrepancies in Expected Actual Emissions (tons/year) for SO, NOx, and HAP; underrepresenting the distance between the two Sunrock facilities by over 50%; lack of consideration for additional types of recycled fuel oil that could be used by burners at the plant (No. 2 and No. 4 fuel specifically); and lack of recognition of oil-fired asphalt heaters that would be present at the facilities.⁶ Sunrock was initially denied the two permits on August 24, 2020, due to a lack of compliance with National Ambient Air Quality Standards (NAAQS) levels for sulfur dioxide and nitrogen dioxide, as modeling showed that levels of sulfur dioxide would exceed NAAQS levels by up to 403%.⁷ They have since reapplied for air permits and also filed a lawsuit against several residents who have been opposed to them operating facilities in the area.8

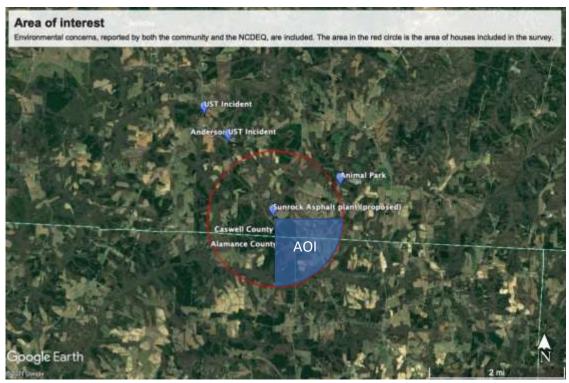


Figure 1: Map of environmental issues near Anderson Township

Methods

To conduct the community health assessment, the UNC Gilings research team utilized a community-based participatory research (CBPR) approach. The benefits of a CBPR approach are well-documented in peer-reviewed literature. 9,10 CBPR has been found to enhance the *rigor* of the research, from the design of the study to interpretation of results, the improves *relevance* of research, including what research questions are considered, and the *reach* of findings via improved dissemination strategies and application of results into practice, tools, and policies. 9

The research team utilized a survey template developed by the NCIPH. With input from Anderson Community leaders, the survey template was modified for length, accessibility, culturally sensitive language, and privacy concerns for community members. The template was also modified to not only include questions regarding health quality, but also environmental factors relevant to the community. Once finalized, the survey was input into Qualtrics, and pilot testing was conducted among research team members. The NCDEQ website and Anderson Community maps were used to locate households within a 1-mile radius of the proposed asphalt plant. The area was further refined to focus on a region of the 1-mile radius that was east and south of the facility (hereafter referred to as the Area of Interest, or AOI) based on reports of the predominant wind direction. We identified a total of 105 eligible households for the survey. The CBPR approach was instrumental to the completion of the health survey, as the initial presence of community leaders allowed outside researchers to gain the trust of the community members to complete the survey. The full survey (Appendix 1) was completed by household members 18 year or older, and an abbreviated survey (Appendix 2) was available for additional adults in the household. Respondents to the full survey were allowed to include responses for their

dependents for question 11 pertaining to health conditions. Through a combination of in-person and phone-based approaches, the team was able to conduct a total of 48 surveys. Figure 1 shows that some of AOI extends into Alamance County, but the vast majority of households are in Caswell County, and thus Caswell County will be used for additional information later in this report.

Table 1: Number of addresses used in survey for Anderson Township

Address type in Anderson Township	Number of addresses
Total amount	105
Non-viable for survey	15
Total surveyed & included in subsequent data	48

Survey Results & Discussion

Demographics

Figure 2 shows demographics of the Anderson community within the AOI, including race and ethnicity, sex, age and highest level of education, along with health insurance type and nicotine use (including cigarettes, vaping, and chewing tobacco). While the survey did not include questions pertaining to income, data for Caswell County collected by the County's 2019 Community Health Assessment indicate that 21.3% of Caswell County residents are under the federal poverty line (FPL), compared to the North Carolina average of 16.1% of residents. Also, education attainment, which strongly correlates with income, shows 6% of residents with Bachelor's education or higher, compared to 22.9% or higher in Caswell County and 31.3% in North Carolina.

Health outcomes

Residents were first asked about their overall well-being and the health of their neighborhood. As shown in Figure 3, approximately one-third of residents rated both their well-being (mental and physical health) and their neighborhood as poor or fair.

Regarding well-being, residents were also asked about specific mental and emotional states (e.g., trouble sleeping, feelings of anxiousness, etc). As shown in Figure 4, reported are the three states (i.e., trouble relaxing, low energy, trouble sleeping) for which the number of residents experiencing them "more than half of the days" or "nearly every day" was close to or over 20%.

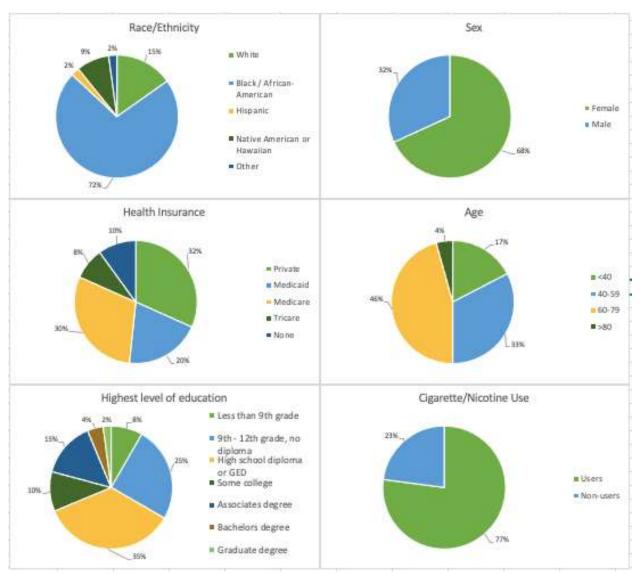


Figure 2: Demographic Information

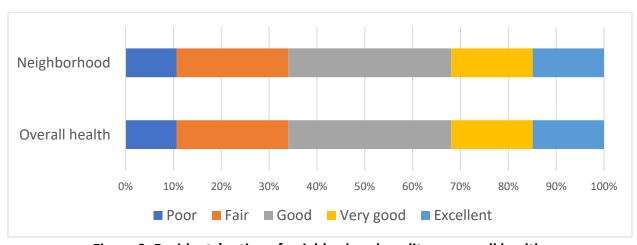


Figure 3: Residents' rating of neighborhood quality or overall health.

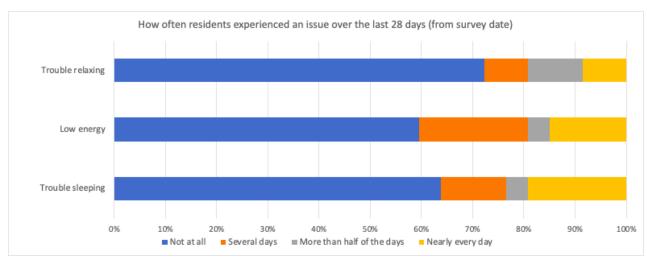


Figure 4: Emotional or general quality of life issues

Approximately 77% of residents reported a chronic illness, and 48% of residents report having three or more formally diagnosed chronic illnesses. Prevalence of specific chronic conditions are summarized in Table 2, with corresponding prevalence of Caswell County and North Carolina provided for comparison. The data are representative of individuals with formally diagnosed conditions. Parenthetical in column "Prevalence in Caswell County" and row "Overweight/ Obesity" is the percentage of residents that believed they were overweight or obese, though some may not have had a formal diagnosis. While lung disease was generally defined in the survey for ease of comprehension, the prevalence data provided for the County and state refer to COPD (and Emphysema). Six of eleven residents in the AOI who reported lung disease also reported asthma. Table 2 includes the data from all eleven residents, but in the interest of caution, we provide here the number of residents who reported lung disease and not asthma. Five residents (of n= 45) reported lung disease, a prevalence of 11%, which is still notable higher than both the County and state percentages. The term "immunocompromised" was not further defined in the survey, and thus data at the County and state level were not provided.

Of particular note is the high level of asthma reported in by Anderson residents. The prevalence is twice that of Caswell County, and the county rate is already much higher than the state average. High blood pressure is also reported at a higher rate in the AOI. Aforementioned lung disease rates are much higher than in the County or state.

To further illuminate the health outcomes reported, relevant information on leading causes of death from chronic conditions for Caswell County compared to the North Carolina average¹¹ are provided in Table 3.

Table 2: Health outcomes of Anderson, Caswell County, and North Carolina

Health condition	Prevalence in AOI (n) ^a	Prevalence in dependents in AOI (n=50)	Prevalence in Caswell County	Prevalence in North Carolina
Asthma	25.9% (54)	5%	13%	8.3% ¹⁴
High blood pressure	60.4% (56)	1.2%	47.33%	35% ¹⁵
High cholesterol	34.8% (54)	0.6%	33.5%	33.5% ¹⁶
Type 2 Diabetes	19.6% (54)	0%	17%	10% ¹⁵
Overweight/ Obesity	29.8% (55)	0.6%	33.01% (57.4%)	68% ¹⁵
Lung disease	24.4% (53)	0%	6.07% (COPD/	5.6% (COPD) ¹⁷
			Emphysema)	
Dementia	6.8% (52)	0%	NA	8.7% (rural) ¹⁸
Liver disease	0% (52)	0%	NA	1.8% (US) ¹⁹
Cancer	8.7% (54)	0%	11.65%	NA
COVID	8.8% (53)	1.2%	9.8%18	10%20
Kidney disease	2.3% (53)	0.6%	2.67%	10%21
Heart disease	8.9% (53)	0%	11.89%	9.7% ²²
Mental health issue	24.4% (53)	1.8%	29.37%	20% ²³
Immunocompromised	11.9% (50)	0%	NA	NA

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Table 3: Leading causes of death from chronic conditions

(2013 – 2017) per 100,000 residents

Cause of death	Caswell County ¹¹	North Carolina
Diabetes	48.2	27
Lung disease (COPD and Emphysema)	65.7	51.9
Dementia (reported only as Alzheimer's)	46.4	36.5
Cancer	292.6	191.4
Kidney disease	27.2	18.8
Heart disease	227.7	180.9

^a Number of residents responding to each question

Asthma may be triggered and other lung disease may be exacerbated by regular exposure to air pollution.²⁴ Per the *EPA Hot Mix Asphalt Emissions Assessment Report*, asphalt plants produce known carcinogens and toxic pollutants, such as particulate matter less than 10 micrometers (PM₁₀), volatile organic compounds (VOC), carbon monoxide, sulfur oxides, nitrogen oxides, polycyclic aromatic hydrocarbons (PAH), phenol, and volatile and metal hazardous air pollutants.^{25,26} A study conducted by Blue Ridge Environmental Defense League (BREDL) found that air pollution caused by asphalt plants led to higher cancer rates among residents living within a one mile-radius of the plant, including lung and primary brain cancers.^{25,27} Another study found that asphalt plant workers exposed to PM₁₀ had shorter telomere lengths, which is associated with increased risk of cancer and age-related diseases, and reduced life-expectancy.^{28,29}

In addition to industrial activity, diesel and other increased traffic associated with industrial activity pose an additional health concern. Studies have documented the negative health impacts of living near traffic and include lower life expectancy and low birthweight, and increased risks of cardiovascular disease and asthma.³⁰ A study conducted by Gauderman et al. found that children exposed to outdoor nitrogen dioxides, due to traffic-related pollution, were more likely to develop asthma and wheezing, and reported more frequent use of asthma medications.³¹ Similarly, an air toxics evaluation conducted in Tacoma and Seattle, Washington found that ambient air pollution related to motor vehicle traffic was an important driver for increased risk of cancer among residents.³²

Figure 5 reports the typical wind direction (the direction the wind is coming from) throughout the year, and the bar on top of the figure notes the predominant direction from which the wind is coming for that time period. Given that the winds from the north and from the west are the most frequent, any air emissions northwest of the Anderson Community may contribute significant airborne exposures among residents.

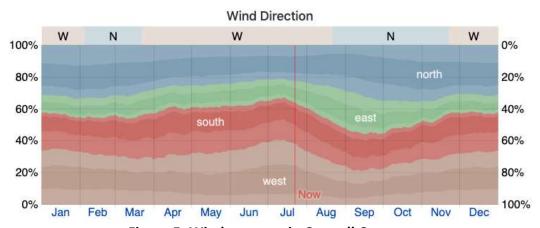


Figure 5: Wind patterns in Caswell County

(Note: this image borrowed from weatherspark.com³³ with data from NASA MERRA-2)

Physical environment

As noted in Figure 3, approximately one-third of residents rated both neighborhood quality as poor or fair. Approximately 60% of residents report plumes of smoke in their community, and 62% or residents report strange smells in their community. The nearby animal

conservator center (see Figure 1) is a major source of odor and noise complaints, with the smell of "dead animals" and "rotting meat" reported by multiple study participants. Also, 49% of respondents report "fear of encounter with wildlife" and "excessive buzzards, rodents or insects." Annoyance with odors, air pollution and noise have also been shown to adversely impact physical and mental health. 34,35

All residents in the AOI use private wells for drinking water. Residents did not report concerns with water pressure or water quality. However, the Caswell County Community Health Assessment¹¹ noted that 52% (n = 65) of water samples in the county did not meet state guidelines for chemical contaminants, 24% (n=137) tested for coliform contamination.

Access to community support and healthcare

Availability of community support and healthcare is moderate to low, according to the survey and Caswell County Community Health Assessment¹¹ according to Figure 6. Approximately 47% of residents were not confident that public officials would address and/or work to improve upon environmental and health issues brought to their attention. In most cases, residents reported turning to family members, not public officials or public safety if they had an issue with any of the environmental conditions described in the survey questions 2-7.

In terms of healthcare, 57% of residents reported seeing a primary care physician when they felt sick, though they did not report where the physician was located. Approximately 28% report going to either a community clinic, urgent care or an emergency room instead. Compared to other counties in NC, Caswell has a dearth of physicians per capital. There are only 3.8 physicians per 10,000 residents, compared to the state average of 23.5. ¹¹

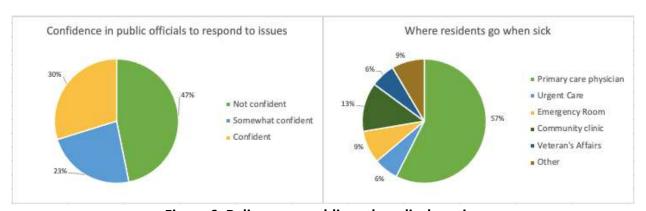


Figure 6: Reliance on public and medical service

Strengths and Limitations

There are several limitations of the study. While our research team aimed to achieve a census, with input from every unit, we instead reached a sample of residents, which we believe to be representative of the residents in the AOI. Also, as with all surveys, there is self-selection bias in who agrees to complete the survey. Recall bias may have affected participant responses to questions about physical environment and housing, depending on how recently they experienced any of the nuisances described in questions 2-7. Finally, we aimed to

create a survey that would not greatly exceed 20 min and that used plain language. Therefore, simpler descriptions of some chronic diseases were listed, which may not always correspond directly to conditions for which we have extensive county and state data for comparison. The survey was administered either face-to-face, by phone or via printed copy, though less than 10% of surveys were completed via the latter method. While we did not perceive a difference in how participants responded, there is always the potential for greater social desirability bias—the tendency to underreport socially undesirable attributes and behaviors—during the face-to-face surveys, as has been previously reported.³⁶

The major strength of the study was our collaboration with local leaders, to ensure that the survey was culturally appropriate and a suitable length. The collaboration undoubtedly enhanced our ability to gain access to residents get such a fairly high survey completion rate (53%) within a short period of time. Our research team included members of the predominant racial group of the community, which likely improved response rates for the in-person surveys.

Conclusions and Implications

This report serves as a brief summary of some health and quality of life-related conditions in the Anderson community of Caswell County. Based on health conditions that residents report, we believe there is sufficient evidence that this community would be particularly vulnerable to any exposures from a polluting industry, and where possible, the Anderson community should be protected. The prevalence of several chronic conditions, including asthma, high blood pressure, diabetes and lung disease exceed state and county rates, and there is a wealth of research to demonstrate that these conditions may be exacerbated by exposure to ambient air pollution. Furthermore, access to physician care is significantly lower in Caswell County, in comparison to the state average. With the potential for cumulative impacts, limited access to medical care, presumably limited financial resources and skepticism in support from public officials, this community would likely be hampered in their ability to avoid exposure and may be reluctant to pursue action via local and state officials to mitigate exposure. Furthermore, as a community with a substantial proportion of residents identifying as people of color, public officials must increase efforts to understand community concerns and meaningfully incorporate their involvement and input in decision making.

Several states have recently implemented policies that encourage greater public participation of impacted communities and EJ-related inquiry as a part of the permitting process. Some examples include Connecticut's Public Act 20-6, which that "residents of an environmental justice community have an appropriate opportunity to participate in decisions about a proposed facility or the expansion of an existing facility that may adversely affect such residents' environment or health."³⁷ New Jersey has made permitting of new and existing facilities contingent on the absence of impacts on marginalized communities. In their Senate Bill 232, the Department of Environmental Protection is required "to evaluate environmental and public health stressors of certain facilities on overburdened communities when reviewing certain permit application" and can deny permits if sufficiently adverse impacts are expected on an overburdened community³⁸. They define an overburdened community as census blocks with either 35% or more percent of the households qualifying as low-income households, 40% or more of residents identify as minority or members of a State recognized tribal community or where 40% or more of the households have limited English proficiency.

At minimum, the NC Department of Environmental Quality must ensure that it is upholding its own rules, including Subchapter 01c of the North Carolina Environmental Policy Act and ensure compliance with federal non-discriminatory laws, such as Title VI of the Civil Rights Act. Finally, NC DEQ should consider establishing a permanent role for their Equity and EJ Board in environmental decision making and permitting and establishing a process for by which input from the impacted community plays an integral role in in permitting. Similar efforts to center impacted communities in local city council and planning board decisions will also move our most marginalized NC communities towards more protective and more just outcomes.

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Appendix 1. Anderson Community Environmental Quality and Health Survey-Full Version

Part 1: Housing, Physical Environment and Family

This set of questions are about housing and your physical environment. Remember, the answers you give for this survey will not be linked to you in any way and you can indicate "I prefer not to answer" for questions that you don't wish to answer.

1.	In ge	neral, how would yo	u ra	ank the q	uality of life in your	neighborhood? Would you
	say					
	0	Excellent	0	Fair	0	I prefer not to answer
	0	Very good	0	Poor		
	0	Good	0	Don't kn	ow/not sure	
Now v	ve are	going to ask about s	om	e specific	issues that could in	iterrupt quality of life in your
neight	orho	od.				
2.	How	frequently do you se	ер	lumes of	smoke in your com	munity?
		Daily	•		•	•
	0	Once or twice a week				
	0	Once or twice a mont	h			
	0	A few times a year				
		I don't ever recall eve	r se	eing plum	nes of smoke	
		I prefer not to answ		01		
3.	How	frequently do you sme	ll st	range odd	ors in your community	ι?
	0	Daily				
	0	Once or twice a week				
	0	Once or twice a mont	h			
	0	Once or twice a year				
	0	I don't ever recall sme	ellir	ng strange	odors (skip question	to Question 5)
	0	Other				
	0	I prefer not to answ	er			
4.	How	would you characterize	e th	e odors?		
		Gas smell				
		Rotten egg smell				
		Decomposing trash sr	nel	l		
		Animal odors				
		Other	_			
		I Don't know				
		I prefer not to answ	er			
5.	-		urc	e of the pl	ume or foul odor? (<i>Sk</i>	rip this question if you don't
	recall_	plumes or odor)				
		I don't know				
		I prefer not to answ	er			

6.	Do you experience any of the following issues or nuisances within your community? (at least
	once a week) Check all that apply.
	☐ Low or no water pressure
	☐ Discolored or foul-smelling tap water
	☐ Excessive or disruptive noises
	☐ Danger or fear of encounter with animals or wildlife
	☐ Excessive traffic
	☐ Excessive light
	☐ Excessive animals (like buzzards, rodents or insects)
	☐ Nuisance flooding (e.g., areas where water drains very slowly)
	□ Other
	□ None of the above
	☐ I prefer not to answer
	in prejer not to unswer
7.	
	following do you do to avoid the nuisance/issue? Check all that apply.
	☐ Buy bottled water
	☐ Go indoors
	☐ Leave the neighborhood
	☐ Go to sleep
	☐ Engage in comforting or joyful activities
	☐ Keep the kids indoors
	☐ Change schedule/plans to avoid the nuisance
	☐ Other
	☐ None of the above
	☐ I prefer not to answer
8.	Who do you turn to most frequently to discuss any of the issues you just mentioned?
	Check all that apply.
	☐ Neighborhood community leader(s)/community group
	□ Police
	Public official (for example, councilperson, mayor, planning board, state official)
	☐ Local agency (health department, social services)
	☐ Faith leader
	☐ Co-worker(s)
	☐ Family member(s)
	☐ Other:
	☐ None of the above
	☐ I prefer not to answer
9.	How confident are you that local or public officials will respond to the issue if you

bring it to their attention? Would you say....

ConfidentSomewhat confident	O Not cor	nfident r not to an	swer	
Part 2: Personal Health Status and A This next set of questions is about your 10. Considering both your mental a health is	own persoi	nal health	•	
O Excellent O For O Very good O P	oor		O I prefer not to ar	nswer
O Good O D 11. Now I have a list of health cond if you have been diagnosed with dependents or minors in the horse of the past year, has a doct with any of the following illness would prefer not to answer.	th the cond ousehold ha or, nurse, o	I would li ition and t ave also be r other he litions? Yo	then ask how many of een diagnosed with the alth professional diagr	your e condition. nosed you
			dependents/mir	nor
a. Asthmab. High blood pressurec. High cholesterol	O Yes O Yes	O No O No	O I prefer not to answer O I prefer not to answer	Enter # (0, 1, 2 etc.)
 b. High blood pressure c. High cholesterol d. Type 2 Diabetes (not during pregnancy or Type 1) e. Overweight/Obesity f. Lung disease including COPD g. Dementia/Short-term memory loss h. Liver disease (hepatitis) 	_	_	O I prefer not to answer	Enter # (0, 1, 2
 b. High blood pressure c. High cholesterol d. Type 2 Diabetes (not during pregnancy or Type 1) e. Overweight/Obesity f. Lung disease including COPD g. Dementia/Short-term memory loss 	O Yes	O No O No O No O No O No	O I prefer not to answer	Enter # (0, 1, 2

to	it I have a list of disabilities I would the following statements. You may uld like.	•		-	
a.	Are you deaf, or do you have serio hearing?	us difficulty	O Yes	O No	O I prefer not to a
b.	Are you blind, or do you have serious seeing, even when wearing glasses	•	O Yes	O No	O I prefer not to a
c.	Because of a physical, mental, or e condition, do you have serious difficoncentrating, remembering, or m	ficulty	O Yes	O No	O prefer not to an:
d.	Do you have serious difficulty walk stairs?	king or climbing	O Yes	O No	O I prefer not to a
e.		bathing?	O Yes	O No	O I prefer not to a
f.	Because of a physical, mental, or e condition, do you have difficulty do such as visiting a doctor's office or	oing errands alone	O Yes	O No	O I prefer not to a
dai ciga are	you currently smoke cigarettes or uly basis? This could include smokeld arettes, vape pens or juuls. (E-cigar electronic devices that heat a liquidar inhales.)	ess tobacco like di ettes, vape pens a	p or chewi and juuls (p	ng tobacco), e- l "jewels")
0	•	O Don't know	/Not Sure		
0	No	O I prefer not	to answer		
the	nere do you go most often when yo one they say. If they cannot think openses. Choose only one please.)			=	
	Doctor's office (primary care)	O Community C	Clinic		
0	Health department	O Other:			
	Hospital Emergency Room	O None of the a			
О	Urgent Care Center	O I prefer not to	o answer		
	he past 12 months, have you had t				
=	rself or your dependents from any scriptions, mental treatment or otl		-	mciuaing,	
-	Yes	O I prefer not t		skip to O1	8)
	No <i>(skip <u>to</u> Q18)</i>	O i prejer not t	.o answer	5.11p <u>to</u> Q11	~,

-	• •			r or facility, did you o	-	-	ıber	
have tro	uble getting heal	th care from?	۱w	rill read out a few ans	swers	If I don't		
mention	one, please let n	ne know and	l wil	l write it down.				
☐ Den	tist			Pediatrician				
	care/ optometrist/		ist	☐ Pharmacy				
	eral practitioner/p	rimary care		☐ Substance abo			r	
	Ith department			Urgent Care C				
☐ Hos	•			☐ Specialist (Wh	nat typ	ne?)		
	dical Clinic					-		
	ntal health care pro	vider		Other				
□ OB/	GYN			☐ I prefer not to	answ	ver		
17. What we	ere the reasons th	nat prevented	l voi	ı or your family mem	ber f	rom getting t	he	
	are you needed?	•	•	,		0 0		
□ No	health insurance.			Pharmacy hours did	n't wo	ork with my		
☐ Inst	rance didn't cove	er what		schedule.				
I/w	e needed.			Pharmacy was too fa	ar awa	ay.		
☐ Sha	re of the cost (de	ductible		No way to get there.				
/co-	-pay) was too higl	า.		Service was not avai	lable	near me		
	tor would not tak	ке		Not enough provide	rs offe	er the service		
my,	our insurance or			Didn't know where t	o go.			
Me	dicaid.			Couldn't get an appo	ointm	ent.		
☐ Hos	pital would not to	ake		The wait was too lor	ıg.			
	our insurance.			I didn't have childca	re.			
•	ntist would not tal	ke		Other:				
my	our insurance or			I prefer not to answer				
• •	dicaid.							
18. Now this	nking about your	state of mind	, ha	ve you felt any of the	e follo	owing in the p	ast 3	30
	= -			erience the feeling?		= -		
=	=	= =	-	rly every day, or that		=	·	
answer.	• •	• •				•		
Sadness	O Not at all	O Several day	s	O More than half the days	0	Nearly every day	0	I prefer not to answer
Nervousness	O Not at all	O Several day	s	O More than half the days	0	Nearly every day	0	I prefer not to answer
Trouble sleeping Trouble	O Not at all	O Several day	s	O More than half the days	0	Nearly every day	0	I prefer not to answer
concentrating	O Not at all	O Several day	S	O More than half the days	0	Nearly every day	0	I prefer not to answer
Trouble relaxing (anxious)	O Not at all	O Several day	S	O More than half the days	0	Nearly every day	0	I prefer not to answer
Low energy/ tire		O Several day	s	O More than half the days	0	Nearly every day	0	I prefer not to answer
Annoyed / irrita	O NOT at all	O Several day	s	O More than half the days	0	Nearly every day	0	I prefer not to answer
Afraid Worried	O Not at all	O Several day		O More than half the days	0	Nearly every day	0	I prefer not to answer
	O Not at all	O Several day		More than half the days	0	Nearly every day	00	I prefer not to answer
		O Several day	S	O More than half the days	0	Nearly every day		I prefer not to answer

☐ Private or employer provided insurance	☐ Community Care Plan
	E community care man
	☐ ACA Marketplace / Obamacare
☐ Medicaid	☐ I do not have health insurance
☐ Medicare	☐ Other (specify):
□ NC Health Choice	☐ I prefer not to answer
☐ TriCare (Military or veteran's	T prejer not to answer
insurance	
insurance	
20. Cines the start of the COVID 10 years down	in have very hard translate and the site of the
	ic, have you had trouble getting either of the
following:	
☐ Getting a COVID test	☐ Other COVID-related resources
☐ Getting COVID vaccine	(specify):
☐ No troubles	☐ I prefer not to answer
Part 2: Domographics	
Part 3: Demographics	
	ve just a few more questions to ask. Remember
everything you share with us will remain con	•
21. What is your age in years?	(enter age)
O I prefer not to answer	
22. How do you describe your gender?	
O I prefer not to answer	
23. Are you an essential worker who is <u>not</u>	currently working from home?
23. Are you an essential worker who is not O Yes O No	currently working from home? O I prefer not to answer
O Yes O No	O I prefer not to answer
O Yes O No 24. Which category or categories best descri	
O Yes O No 24. Which category or categories best description apply.	O I prefer not to answer ribes your racial/ethnic identity? Check all that
 Yes No Which category or categories best description apply. American Indian or Native American 	○ I prefer not to answer ribes your racial/ethnic identity? Check all that □ Native Hawaiian and other Pacific Islander
O Yes O No 24. Which category or categories best description apply.	O I prefer not to answer ribes your racial/ethnic identity? Check all that
 Yes No Which category or categories best description apply. American Indian or Native American 	○ I prefer not to answer ribes your racial/ethnic identity? Check all that □ Native Hawaiian and other Pacific Islander
 O Yes O No 24. Which category or categories best description □ American Indian or Native American □ Asian (Chinese, Japanese, Korean, 	○ I prefer not to answer ribes your racial/ethnic identity? Check all that □ Native Hawaiian and other Pacific Islander □ White/Caucasian
 ○ Yes ○ No 24. Which category or categories best descrapply. □ American Indian or Native American □ Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) □ Black or African American 	☐ I prefer not to answer ribes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin	☐ I prefer not to answer Fibes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto	☐ I prefer not to answer ribes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin	☐ I prefer not to answer Fibes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian)	☐ I prefer not to answer Fibes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify ☐ I prefer not to answer
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian) 25. What is the highest grade or year of sch	☐ I prefer not to answer Fibes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian) 25. What is the highest grade or year of schone)	☐ I prefer not to answer Fibes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify ☐ I prefer not to answer col you completed? (Read if necessary, choose
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian) 25. What is the highest grade or year of schone) O Less than 9th grade	☐ I prefer not to answer Tibes your racial/ethnic identity? Check all that Native Hawaiian and other Pacific Islander White/Caucasian Middle Eastern Other race or ethnicity, please specify I prefer not to answer Odd you completed? (Read if necessary, choose Odd Associate's Degree or Vocational
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian) 25. What is the highest grade or year of schone) Cless than 9th grade O 9-12th grade, no diploma	☐ I prefer not to answer ribes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify ☐ I prefer not to answer Ool you completed? (Read if necessary, choose ☐ Associate's Degree or Vocational ☐ Training
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian) 25. What is the highest grade or year of schone) Less than 9th grade 9-12th grade, no diploma High school graduate (or GED/	☐ I prefer not to answer Tibes your racial/ethnic identity? Check all that Native Hawaiian and other Pacific Islander White/Caucasian Middle Eastern Other race or ethnicity, please specify I prefer not to answer Ool you completed? (Read if necessary, choose O Associate's Degree or Vocational Training O Bachelor's degree
O Yes O No 24. Which category or categories best descrapply. American Indian or Native American Asian (Chinese, Japanese, Korean, Vietnamese, Asian Indian) Black or African American Hispanic, Latino or Spanish origin (Mexican, Mexican American, Puerto Rican, Cuban Salvadorian, Columbian) 25. What is the highest grade or year of schone) Cless than 9th grade O 9-12th grade, no diploma	☐ I prefer not to answer ribes your racial/ethnic identity? Check all that ☐ Native Hawaiian and other Pacific Islander ☐ White/Caucasian ☐ Middle Eastern ☐ Other race or ethnicity, please specify ☐ I prefer not to answer Ool you completed? (Read if necessary, choose ☐ Associate's Degree or Vocational ☐ Training

26. Including yourself, how many people live in your home?	(Enter #)
27. How many dependents live your home?	
	(Enter #)
28. What are the ages of the dependents?	
29. If you would like to receive additional information about provide an email address so we can contact you. Note the address here, your confidentiality in your previous response.	at by giving your email

Thank you so much for your time! We will share the summary results (not individual results) with The Anderson Community Group, who will be following up on some of the issues and concerns raised by the community. Thank you again for your time.

Appendix 2. Anderson Community Environmental Quality and Health Survey-Abbreviated Version

Part 1: Personal Health Status and Access to Care

This next set of questions is about your own personal health and your access to health care

s next se	t of questions	is about yo	ur own pers	onal health (and y	our access to health care.
30. Con:	sidering both	your menta	ıl and physi	cal health, v	vould	you say that, in general, your
heal	th is					
0	Excellent	0	Fair		0	I prefer not to answer
0	Very good	0	Poor			
0	Good	0	Don't know	v/not sure		

31. Now I have a list of health conditions that I would like to ask you about. I will first ask if you have been diagnosed with the condition and then ask how many of your dependents or minors in the household have also been diagnosed with the condition. If someone else in your household has already answered for these dependents, do not respond here.

So, in the past year, has a doctor, nurse, or other health professional diagnosed you with any of the following illnesses or conditions? You can tell me yes or no or that you would prefer not to answer.

> Diagnosis (You) How many of your

> > dependents/minor

o. Asthma	O Yes	O No	O I prefer not to answer	Enter # (0, 1, 2
p. High blood pressure	O Yes	O No	O I prefer not to answer	etc.)
q. High cholesterol				
r. Type 2 Diabetes (not during pregnancy	O Yes	O No	O I prefer not to answer	
or Type 1)	O Yes	O No	O I prefer not to answer	
s. Overweight/Obesity	O Yes	O No	O I prefer not to answer	
t. Lung disease including COPD	O Yes	O No	O I prefer not to answer	
u. Dementia/Short-term memory loss	O Yes	O No	O I prefer not to answer	
v. Liver disease (hepatitis)	O Yes	O No	O I prefer not to answer	
w. Cancer				
If yes, what kind of cancer have you been	O Yes	O No	O I prefer not to answer	
diagnosed with:	O Yes	O No	O I prefer not to answer	
x. COVID-19	O Yes	O No	O I prefer not to answer	
y. Kidney disease				
z. Heart disease				
aa.Mental health diagnosis (depression,				
anxiety, etc.)Are you	O Yes	O No	O I prefer not to answer	
immunocompromised?	O Yes	O No	O I prefer not to answer	
bb. Other health conditions or symptoms	O Yes	O No	O I prefer not to answer	
for which you don't have a formal	O Yes	O No	O I prefer not to answer	
diagnosis				

32.		ollowing statement		to ask you about. Ple choose to skip any o		-			
	g. Are	you deaf, or do you	O Yes	O No)	0	I prefer not to answer		
		you blind, or do yo en wearing glasses?	O Yes	O No)	0	I prefer not to answer		
		ause of a physical, r e serious difficulty o	O Yes	O No)	0	prefer not to answer		
	ma	king decisions?	O Yes	O No)	0	I prefer not		
	j. Do	you have serious di	O Yes	O No)	0	I prefer not		
	k. Do	you have difficulty o	O Yes	O No)	0	I prefer not		
33.	 I. Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping? 33. Now thinking about your state of mind, have you felt any of the following in the past 30 								
	days, and if so, how frequently did you experience the feeling? You can say not at all, several days, more than half the days, nearly every day, or that you prefer not to answer.								
No Tr Tr cc Tr (a Lc Ai	edness ervousness ouble sleepir ouble oncentrating ouble relaxin nxious) ow energy/ ti nnoyed / irrit fraid	O Not at all O Not at all O Not at all	O Several days	O More than half the day	Nearly	y every day	00000 0 00000	I prefer no	ot to answer of to

Part 2: Demographics

Alright! Thank you for your everything you share with a 34. What is your age in year O I prefer not to answer	us will remain confiders?	dentid	a few more questions to ask. Remember Il and anonymous. ter age)		
35. How do you describe y ○ I prefer not to answer	our gender?				
36. Are you an essential w ○ Yes	orker who is <u>not</u> cu O No	ırrent	ly working from home? O I prefer not to answer		
37. Which category or cate apply. □ American Indian or Na □ Asian (Chinese, Japane Vietnamese, Asian Indian or Spane) □ Black or African Amer □ Hispanic, Latino or Spane (Mexican, Mexican American, Cuban Salvador	ative American lese, Korean, lian) lican lanish origin	□ Na □ W □ Mi □ Ot	ur racial/ethnic identity? Check all that ative Hawaiian and other Pacific Islander hite/Caucasian addle Eastern her race or ethnicity, please specify refer not to answer		
 38. What is the highest grace One) O Less than 9th grade O 9-12th grade, no diple O High school graduate equivalent) O Some college (no degrade) 	oma e (or GED/	0	completed? (Read if necessary, choose Associate's Degree or Vocational Training Bachelor's degree Graduate or professional degree I prefer not to answer		
39. Including yourself, how40. How many dependents41. What are the ages of the	s live your home?		(Enter #)		
 41. What are the ages of the dependents?					

Thank you so much for your time! We will share the summary results (not individual results) with The Anderson Community Group, who will be following up on some of the issues and concerns raised by the community. Thank you again for your time.