

An Analysis of Health Data Collection for a Health Impact Assessment of the
Greenridge Landfill in Cumberland County, Virginia

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Introduction

Background

The Cumberland County, Virginia area is populated by a strong and bonded community of people who have overcome years of segregation, racism, and injustices. One major, lasting landmark in the community is Pine Grove Elementary School, a school founded in collaboration between the Pine Grove community, the Rosenwald Foundation, and Booker T. Washington.^{1, 2} In 1916, after land was deeded to the county for the school, funding was raised to support Cumberland children's education, culminating in \$1,000 from the county, \$500 from African American residents nearby, and \$50 from the Rosenwald Foundation.² Pine Grove School taught Cumberland County students from 1917 until 1964 and provided an education for many children who would otherwise have been deprived of such an opportunity. Since its closing, the building has remained an impactful community center, acting as a gathering place and venue for community events. The symbolism of the school also remains important for many Pine Grove community members, acting as a source of pride and a reminder of overcoming years of segregation and inequity.¹

The previous school and current community center has faced threats from various directions since its closing. One included a proposal to sell the school to pay for delinquent taxes.^{2, 3} In response, the Agee-Miller-Mayo-Dungy (AMMD) Family Association was started to

¹ Somers S, PHS 5620 Class. "Cumberland County Landfill: Preliminary Health Impact Assessment" Vol 1. 2nd ed. (Phua S, ed.). Charlottesville, VA: University of Virginia Public Health Department; 2022:1-52.

² AMMD Pine Grove Project. AMMD. <https://www.ammdpinegroveproject.com/about-us>. Accessed May 4, 2022.

³ Green Ridge Landfill | Virginia DEQ. Virginia Department of Environmental Quality . <https://www.deq.virginia.gov/get-involved/topics-of-interest/green-ridge-landfill>. Published March 2020. Accessed May 4, 2022.

protect the Pine Grove School. The family organization has raised funds and increased publicity about the school's importance and community health since then.²

In June 2018, a major threat to the Pine Grove historic school arose as Green Ridge Recycling and Disposal proposed that a mega-landfill be built adjacent to the school.² Mega-landfills are large, regional waste facilities that have the capacity to accommodate at least 3,500 tons of waste daily. The proposed project in Cumberland is projected to process 3,500 - 5,000 tons each day. Mega-landfills have been built disproportionately in minority and low-income communities and are linked to negative environmental, economic, quality of life, and health impacts.^{1,3} The AMMD Pine Grove project is a local organization that aims to help save the school and achieve environmental justice for the community.² One major endeavor has been to write a Health Impact Assessment (HIA) of the potential community health outcomes from the proposed landfill. An HIA is a research tool created through the combination of a variety of data sources to consider the potential health impacts from a proposed policy or project. HIAs aim to consider input from all stakeholders to create a comprehensive review of how the project in question will impact the health of the surrounding population. HIAs also provide recommendations on how to monitor and manage potential health impacts.¹

The AMMD Pine Grove Project team engaged the UVA Law Clinic, proposing a collaborative HIA. The Law Clinic also reached out to the UVA Public Health department to broaden the perspectives involved. Within the Public Health department, Associate Professor Schaeffer Somers framed a project for his PHS 5620 class to perform the preliminary scoping, strategy, and health impact research. The preliminary version of the HIA that these groups created covers a diverse range of impacts, including community cohesion; air, noise, and water

pollution; exacerbation of racial health disparities, reduced walkability and greenspace, lowered property value, and increased traffic. Creation of HIA documentation necessitates an assemblage of data sources, methods, and analysis tools to create a comprehensive document that represents the perspective of all stakeholders (*Figure 1*).¹

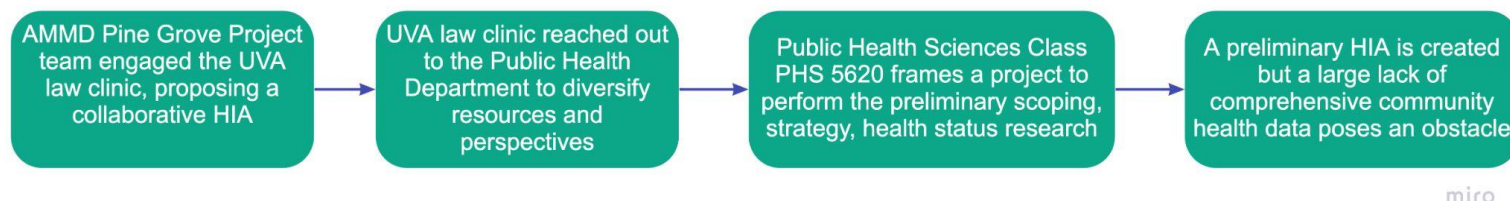


Figure 1: Preliminary HIA creation steps

One major obstacle in creating the Pine Grove Community HIA was a lack of community health data. Establishment of current health data of the community is important in many contexts, including the HIA. In comparison to other counties in Virginia, there is notably less (or no) data on air, water, noise, health conditions, and economic status through the local public health department and census data.^{4,5} To demonstrate how the proposed landfill will likely impact the health of the community, understanding the current state of health is integral. Additionally, it is important to illustrate how the health status of Cumberland County varies within the county and in comparison to other counties in Virginia. Establishment of baseline health provides data to measure future research against and informs future monitoring steps.

⁴ Piedmont Health District . Piedmont Health District Central Virginia Region. <https://www.vdh.virginia.gov/piedmont/>. Published April 26, 2022. Accessed May 4, 2022.

⁵ U.S. Census Bureau: Cumberland County, Virginia. United States Census Bureau . <https://www.census.gov/quickfacts/cumberlandcountyvirginia>. Published July 2021. Accessed May 4, 2022.

This data gap had a variety of causes, including Cumberland's rural nature, the area's status as an "internet desert," and distrust throughout the community from previous mistreatment, especially in the healthcare sector.

One substantial effort made to increase data was a preliminary community health questionnaire. This questionnaire was adapted from a previous questionnaire used in Union Hill, Virginia through collaboration of community members and environmental justice leaders like Lakshmi Fjord and Gustavo Angeles. The details of the creation and distribution of this preliminary survey are explored further throughout this project.

The Preliminary Questionnaire

While the preliminary questionnaire was able to demonstrate aversion to the proposed landfill, it failed to create a comprehensive illustration of the community's current health status. Through conversations with Lakshmi Fjord and Muriel Branch it became evident that creation of a more comprehensive questionnaire is integral to moving the HIA process forward.

The questionnaire is of integral importance for this HIA because of Pine Grove community's status of a data desert. The disparate healthcare resource access this community faces means that little data is held in health systems and census data on the population's current health.^{4, 5} Community health status is vital to establish how harmful pollutants, physical, psychological, and community cohesion outcomes from the landfill may be. Thus, this information must be collected firsthand from the community through questionnaire and survey data.⁶

⁶ Baars, Samantha. "Compressor Anxiety: Historic African American Community Alleges Environmental Racism." *C-Ville*, 6 June 2018, <https://www.c-ville.com/compressor-anxiety/>.

This project, therefore, attempts to interpret the results of the data collected from the preliminary questionnaire to inform health research for the HIA. It will also aim to synthesize the preliminary questionnaire outcomes to improve the HIA's data and hopefully inform policy to diminish detrimental health impacts from the Green Ridge Landfill. Throughout this project, main objectives will remain incorporating equity and ethical principles to evaluate the landfill's potential impacts and to develop best practices for health data collection policies. The results will be used to formulate a new strategic data collection questionnaire for Pine Grove Community and the HIA report.

Methods

Literature Review

Preliminary steps included a literature review to better understand best practice methods for HIA reports; news and publicity about the landfill; and data collection in data deserts, minority communities, and across cultural barriers. The information collected in this literature review was used to inform all future steps, strategic plan formulation, and conclusions demonstrated in this project. A diagram of major literature findings as causal pathways is included in *Figure 2*.

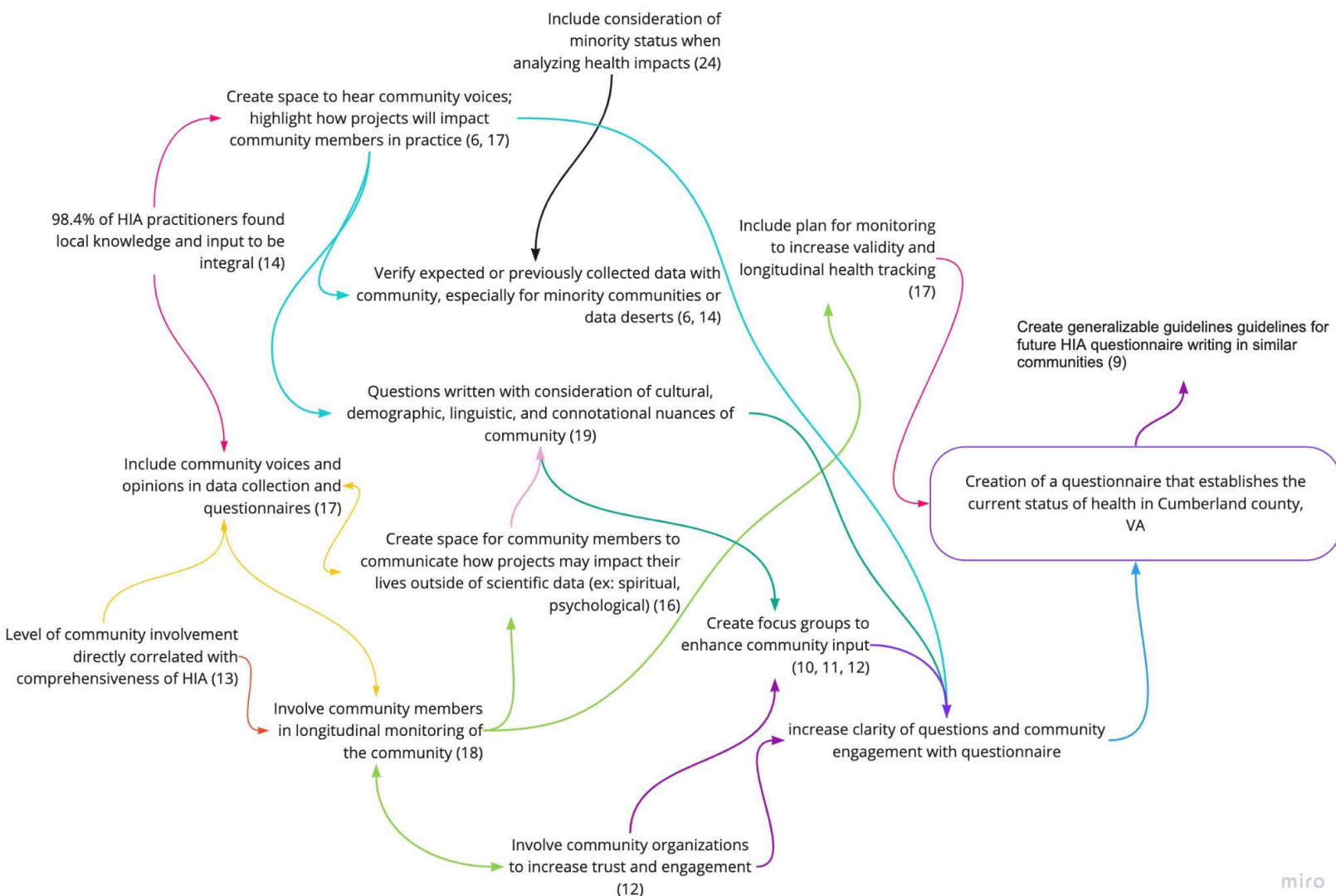


Figure 2: Diagram of major literature findings as causal pathways. Note: parenthetical citations in this figure refer to footnotes throughout this paper.

Meeting with Original Questionnaire Writers

Due to limitations in time and coordinating with community members, it was not possible to meet with the entire questionnaire development and distribution team.

Fortunately, two point persons, Muriel Branch and Lakshmi Fjord, were able to meet over Zoom and correspond over email to communicate the questionnaire process. Muriel Branch is a major

leader of the AMMD Pine Grove Project and a resident of Cumberland County. Lakshmi Fjord is an environmental justice advocate with ample experience in HIA writing and work with minority communities.

Meetings with Muriel Branch were conducted in group settings with PHS 5620 Class and in small group meetings over the last year. Additionally, AMMD Pine Grove Project graciously created time and space for presentation and discussion of this project at AMMD monthly meeting in Spring 2022. This was an invaluable time during which community members offered feedback and perspectives on community engagement methods. Community members were also able to share important cultural norms and values and inform the language used to speak about their community in this paper.

Meetings with Lakshmi Fjord were also conducted in group settings with PHS 5620 Class and in small group meetings over the last year. Lakshmi also attended individual meetings in-person and online in Spring 2022, during which she shared information about creating and conducting the original questionnaire and offered her expertise on best practices for creating a new questionnaire. Her knowledge and edits were vital to creating a comprehensive and accurate deliverable.

Review of Preliminary Questionnaire Questions

The preliminary questionnaire was sent as a digital copy via email by Lakshmi Fjord. Paper copies of questionnaire responses were shared in-person by Lakshmi Fjord. The questionnaire contains 17 questions in total (*Figure 3*).

CODE# _____ RESIDENT QUESTIONNAIRE DATE: _____
Pine Grove Project

1. How many people live in your home? _____
2. How many children? _____ What are their ages? _____
3. Is there anyone who is 65 or older? _____ What are the ages? _____
4. Does anyone in your family have heart or lung disease or any other illnesses that would be worsened by living near a landfill? _____
5. Do you have a family history here (even if not born in Cumberland)? How far back does it go? Explain. _____

6. Do you know if any of your relatives were Freedmen? _____

7. If any history is known back to plantation and Freedmen time, this is important information for both Black and White families, so please describe what you wish to share on this: _____

8. Is there anyone else in your family who may know? Could we contact them? _____

9. Do you have any gravesites, family burial plots or a cemetery on your property? _____ If so, family name of deceased and approximate dates _____
10. Would it possible for someone from our organization or a historian photograph the gravesites? _____

11. Do you rent or own your home? _____ If you rent, what is the owner's name? _____
12. To have accurate race data, please tell us what race you and your family members identify as:
☐ African American ☐ Caucasian ☐ Hispanic ☐ Native American ☐ Other

13. Have you or anyone in your family attended Pine Grove School? _____
Name(s) and Years _____
14. How long have you lived in the Pine Grove area? _____
15. Would you like to know more about how the landfill will affect your air and well water quality, health and safety and community history? _____ Would you be interested in attending meetings regarding the future of your community and our efforts to stop the landfill? _____
16. Have you signed Green Ridge's Property Value Assurance Program and Property Value Assurance Agreement? _____
17. Can we contact you by email or phone? _____

Name of Resident _____
Street Address and Mailbox# _____
Contact Phone # _____
Contact Email _____

Figure 3: Preliminary Questionnaire

The questionnaire, as well as a synthesis of the 70 responses obtained were analyzed in terms of question content, wording, response options, responses received, and delivery methods.

Ultimately, information from stakeholders like Lakshmi and Muriel was then applied in conjunction with the questionnaire results and literature review to synthesize an analysis of areas for potential improvement in the questionnaire and distribution processes.

Results

Analysis of Questionnaire Process and Results

In in-person, written, and video communications with Lakshmi Fjord and Muriel Branch, it was shared that the original questionnaire was adapted from a questionnaire used in Union Hill, Virginia, by Lakshmi Fjord and Gustavo Angeles, two environmental justice advocates. This was done to expedite the results so that they could be applied to the HIA as quickly as possible to stall the landfill approval. Union Hill, like Pine Grove, is a Virginia community founded by freed slaves that was facing a vast environmental injustice when a fracked gas pumping station was proposed without sufficient consideration of community, health, and historic impacts. The similarities between these two cases made adaptation of the questionnaire contents to the “needs and threats to the Pine Grove community” possible.⁷

A major obstacle in implementation of the original questionnaire was balancing training questionnaire distributors sufficiently with obtaining questionnaire results quickly enough to include them in the preliminary questionnaire. Therefore, distribution became more of a ‘trial

⁷ Condlin ET. Interview with Muriel Branch. 2021-2022

and error process' than would be ideal. As Muriel recounted, they found that unless a trusted member of the community was in attendance to present the questionnaire during door-to-door distribution, community members were unwilling or highly hesitant to participate.^{8,9}

In Union Hill, this questionnaire found a 70% response rate, which is incredibly high for a survey of this kind; however, in Pine Grove, the original questionnaire only received responses from 70 households. Due to gaps in questionnaire training and planning, it was not recorded how many houses were visited in total. These 70 responses accounted for 161 residents, including 38 children and 26 elders. The races of those who responded were 22.5% African American, 70.8% Caucasian, 1.2% Hispanic, 0.6% Native American, 1.2% Native American/Canadian, and 3.1% Hispanic/Native American/African American.

Four households reported having severe asthma, three reported high blood pressure, three reported critical heart disease, one reported a history of stroke, four reported heart or lung disease (one of which was critical), one reported Parkinsons, and one reported COPD.

Another observation from the original questionnaire was that questions pertaining to health data were most likely to be left blank by those who did fill out the questionnaire. Lakshmi posits that this is a result of many community members not understanding the purpose of the questionnaire. They may worry that if they report such data, someone will try to come do further tests or research on them or they may think that someone will come provide them healthcare. In the future, emphasis should be placed on communicating the purpose of such health questions before and during questionnaire delivery.

⁸ Condlin ET. Web-Based Interview with Lakshmi Fjord. 2021-2022.

⁹ Condlin ET. In-person Interview with Lakshmi Fjord. April 2022.

The results of the preliminary questionnaire, while valuable to an extent, fail to create a comprehensive perspective of the health of the entire community.

Strategic Plan for Revision of Questionnaire Creation Processes

Various studies have shown that data collection methods for minority and previously oppressed communities like Pine Grove must be approached in an intentional and collaborative manner.^{10, 11, 12} While adaptation of a questionnaire that found success in another minority community (Union Hill) was a logical preliminary step, creation of a questionnaire for Pine Grove residents specifically may lead to more engagement and a higher response rate within the community. Additionally, with such a small sample size, while physical and psychological health impacts will likely be endured in this community, a statistically significant result cannot be achieved. A revised questionnaire should aim to increase community engagement and response as well as including space for community members to voice individual concerns. The new questionnaire writing plan could include a four-step process (*Figure 4*):

¹⁰ Jabot, Alexandre François. “A proposal for conversational questionnaires.” Aimée Lahaussais; Marine Vuillermet. *Methodological Tools for Linguistic Description and Typology*, 16, pp.155-196, 2019, Language Documentation & Conservation Special Publications, 978-0-9973295-5-1. <hal-02061237>

¹¹ Duff, L. A. “Evaluating Satisfaction with Maternity Care in Women from Minority Ethnic Communities: Development and Validation of a Sylheti Questionnaire.” *International Journal for Quality in Health Care*, vol. 13, no. 3, 2001, pp. 215–230., <https://doi.org/10.1093/intqhc/13.3.215>.

¹² Carayon, P., et al. “Evaluating Causes and Consequences of Turnover Intention among It Workers: The Development of a Questionnaire Survey.” *Behaviour & Information Technology*, vol. 25, no. 5, 2006, pp. 381–397., <https://doi.org/10.1080/01449290500102144>.

Workshop

Design and implement workshops comprised of community members and community organizations

Review

Review and practice new questionnaire in follow-up workshops and incorporate further feedback

2

4

1

3

Revise

Revise questionnaire content and language to reflect feedback from workshoping sessions

Advertise

Advertise when, why, and by whom new questionnaire will be distributed

Figure 4: Steps for strategic plan for revision of questionnaire.

Questionnaire workshop. Data collection in minority communities poses a variety of unique challenges, especially overcoming cultural barriers. One study found that the level of community involvement in an HIA or data collection process is directly correlated with comprehensiveness and diversity of considerations.¹³ Furthermore, nearly all (98.4%) of HIA practitioners find that incorporation of local knowledge increases local engagement and broadens perspectives; however, many HIAs still fail to fully incorporate such local voices in their data collection process.¹⁴ Involvement of local and trusted organizations has been shown to be an impactful first step in engaging other community members.¹⁵ For the Pine Grove questionnaire, a first step should be to ask members of the AMMD Pine Grove Project to attend

¹³Chilaka, M.A. "Vital Statistics Relating to the Practice of Health Impact Assessment (HIA) in the United Kingdom." *Environmental Impact Assessment Review*, vol. 30, no. 2, 2010, pp. 116–119., <https://doi.org/10.1016/j.eiar.2009.05.006>.

¹⁴ Chilaka, Marcus A. "Drawing from the Well of Community Participation: An Evaluation of the Utility of Local Knowledge in the Health Impact Assessment Process." *Community Development*, vol. 46, no. 2, 2015, pp. 100–110., <https://doi.org/10.1080/15575330.2015.1014060>.

¹⁵ Haigh, Fiona, et al. "What Makes Health Impact Assessments Successful? Factors Contributing to Effectiveness in Australia and New Zealand." *BMC Public Health*, vol. 15, no. 1, 2015, <https://doi.org/10.1186/s12889-015-2319-8>

and support a workshop to rework the questionnaire. Additionally, Muriel and Lakshmi have shared that the Cumberland County Landfill Awareness group; pastors, receptionists, or other leaders in black churches; New Hope School; and Pine Grove School are all organizations that should be involved to increase awareness and engagement. While church pastors in this community are often the most difficult to engage because of their hesitancy to make political statements, they are some of the most trusted and respected community members: their support could be integral in increasing attendance at workshops.^{7, 8, 9}

With the help of these community leaders and organizations, workshop sessions can be publicized at major community events, centers, and church services. Incorporation of a shared meal or refreshments may help increase interest by providing a time for building community cohesion and having fun amidst the stress of combatting the proposed landfill.

Workshops should be led by community members; however, HIA/questionnaire writers should be present to take notes. Muriel Branch, as a leader in this project, is willing and able to spearhead the workshop. As a highly respected and well-known community member, her leadership will be vital to increasing attendance as well as encouraging community members to speak up about their opinions during the workshop. Initial workshops should be held in spaces community members find familiar and comfortable.

All steps must be taken with intentionality to incorporate the expertise and experiences of all community members. Pine Grove community members identify with a diverse conglomeration of groups, including rural, black, heritage black, historic, and historic indigenous. Many community members have low internet and cable, if any, and very weak cellular service. Thus, careful consideration of who is represented and who is representing will

be vital to ensuring the community's voice is amplified and all stakeholders can understand the proposal and the landfill's potential impacts.

One study found that many community members wish they could voice their concerns *outside* of “hard” or “scientific” data in regard to projects in their communities, especially in terms of spirituality or connection to certain lands.¹⁶ A preliminary set of workshop questions may be able to achieve incorporation of such subjective values in a way that traditional health questionnaires cannot. Workshops can be used to determine what values, hesitations, fears, and impacts are most important to community members living in the vicinity of the project. A proposed set of workshop questions is presented in *Figure 5*; however, workshop questions should be adapted with feedback from community members. This questionnaire is much more open-ended than a health data collection questionnaire and should be presented to participants in a group setting where they are encouraged to discuss the questions rather than answering them immediately or individually.

¹⁶ Chuengsatiansup, Komatra. “Spirituality and Health: An Initial Proposal to Incorporate Spiritual Health in Health Impact Assessment.” *Environmental Impact Assessment Review*, vol. 23, no. 1, 2003, pp. 3–15., [https://doi.org/10.1016/s0195-9255\(02\)00037-9](https://doi.org/10.1016/s0195-9255(02)00037-9).

Pine Grove Questionnaire Workshop

1. What potential impacts from the Green Ridge Landfill most concern you? These may include physical, community, spiritual, psychological, or landscape concerns:
2. Would you and/or your neighbors open your door to fill out the questionnaire if it was presented by a community member and a non-community member working on the HIA?
 - a. If not, what could we change to encourage people to open their doors?
 - b. What do you think most deters people from opening their doors?
3. In what setting would you be most willing to fill out a questionnaire about the landfill project?
4. Would you be willing to answer questions about your family's history or gravesites in the questionnaire if they may help stop or stall or landfill?
5. Would you be willing to participate in health monitoring of the community if the landfill is approved?
6. Would you like to know more about how the landfill will affect your air and well water quality, health and safety and community history?
 - a. Would you be interested in attending meetings regarding the future of your community and our efforts to stop the landfill?
 - b. What modes do you think would be most efficient and effective to help the whole community understand the impacts of the landfill
7. Have you heard of or signed Green Ridge's Property Value Assurance Program and Property Value Assurance Agreement?

Figure 5: Example of Proposed Workshop Questions

Workshops should be designed to allow for whole-group discussions rather than immediately breaking off into smaller focus groups. Lakshmi shared that in communities similar to Pine Grove, she has found that small groups tend to have one dominant member, usually from a powerful family, who voices their opinion first. This often discourages debate, counterpoints, or sharing of alternate ideas. If the larger group is maintained, there are often multiple, different powerful community members or members of prominent families present, all of whom feel comfortable sharing their perspectives. Additionally, Lakshmi shared that community members sharing tangential comments or stories is much more common in larger

groups. These tangents are often some of the most informative statements and may catalyze sharing of other information by the group. Still, this should ultimately be left to the discretion of Muriel and the workshop group in the case that they feel more efficient by splitting into groups and reconvening to discuss perspectives later.^{7,8,9}

Of note on the set of questions in *Figure 5*, workshop members would be asked whether they are willing to participate in “monitoring.” HIA practitioners present at the focus group should explain the importance of the HIA monitoring phase, which may include steps like further questionnaires to track health changes if the landfill is approved. Many HIAs struggle to ensure that longitudinal monitoring is performed.^{16, 17} Thus, preemptively creating a group of community members to aid in such a task may help catalyze monitoring in the long-term to understand how community health status changes.¹⁸ Further, the workshopping group is a good target population for the monitoring team because they have already demonstrated interest and investment in bettering the health of the Pine Grove community facing the landfill project.

Successful monitoring and follow-up distribution of this questionnaire may have multiple benefits. Firstly, if the landfill is constructed as proposed, it will be able to demonstrate health changes before and after the landfill. Still, health monitoring in this community has

¹⁷ “A Review of Health Impact Assessments in the U.S.: Current State of Science, Best Practices, and Areas for Improvement: Bradley Autrey.asp1.” *A Review Of Health Impact Assessments In The U.S.: Current State Of Science, Best Practices, And Areas For Improvement* | Bradley Autrey.asp1, United States Environmental Protection Agency, Dec. 2013, <https://www.epa.gov/sites/default/files/2015-03/documents/review-hia.pdf>.

¹⁸ Sohn, Elizabeth Kelley, et al. “Avenues of Influence: The Relationship between Health Impact Assessment and Determinants of Health and Health Equity.” *Journal of Urban Health*, vol. 95, no. 5, 2018, pp. 754–764., <https://doi.org/10.1007/s11524-018-0263-5>.

benefits that transcend the landfill project. If the questionnaire is distributed in following years as well, a more comprehensive picture of health status in Pine Grove may be created to support increasing health resources and support for this community.

Revise questionnaire to reflect feedback. Using the workshopping question set and information, a revised community questionnaire should be created by HIA practitioners and involved community members to include the values the workshopping groups prioritized most. Though all questions should be informed by community members, following literature review and conversations with Muriel and Lakshmi, some proposed additions may include:

- How far do you live from the proposed landfill?
- How far do you have to travel to see a doctor, physician's assistant, or nurse practitioner?
- Have you heard/read about Green Ridge's proposed landfill in Cumberland County?
 - If yes, do you support Green Ridge's landfill in Cumberland County? Please explain some reasons why you do or do not support it. (Open ended question)
- Would you be interested in getting involved in fighting the Green Ridge Landfill?

This questionnaire should be presented at a follow-up gathering of the workshopping group and initial impressions should be recorded. "Conversational questionnaires" are a method sometimes used to overcome linguistic barriers when researchers attempt to collect health data from communities with languages different than their own.¹⁰ This conversational method is done by researchers asking each question on the questionnaire and explaining what information they are trying to gain. Community members then ask questions and discuss the

wording and content of the questions. They finish by repeating the questions back to the researchers using their own vernacular.

This approach could be highly valuable to overcome cultural barriers between HIA or questionnaire writers and the Pine Grove community. As Lakshmi noted in one meeting, “the cultural differences are so profound that [researchers] cannot bridge them [alone, they] have to be bridged by respected community elders. You have to be carried across these barriers by the community.”⁹ This highlights how vital it is to have community members involved in the wording of the questionnaire. Community members’ feedback can highlight how understanding local demographics, the health resources, and the health literacy a community possesses can increase the validity of health data tools.¹⁹ In this setting, HIA practitioners would present community members with a question and explain what information they are trying to glean. Community members should be encouraged to ask questions and share if they do not understand content, wording, or why a question is necessary. If the issue is content or wording, researchers and community members can work together to reword the question. If, on the other hand, the issue centers around why a question is necessary, more work may be needed. Questions that potentially seem unnecessary to the community are often left unanswered or decrease engagement with the questionnaire.^{8,9} Therefore, the question’s purpose should first be explained and discussed, and the community members should offer feedback as to whether this questionnaire is the best method to ask for this information. Additionally, community

¹⁹ Martz, Michael. “Under Questioning by 4th Circuit at Pipeline Hearing, State Concedes Union Hill’s Racial Status.” *Richmond Times-Dispatch*, 29 Oct. 2019, https://richmond.com/news/virginia/plus/under-questioning-by-4th-circuit-at-pipeline-hearing-state-concedes-union-hills-racial-status/article_2f37c452-6238-595f-bce0-be4e70583850.html.

members can aid in rewording or crafting an explanation of the question to help others understand its purpose. Finally, special attention should be paid to these questions during questionnaire distribution training to maximize response rate to the question.

After discussion and rewording of the questions, community members should work in pairs, with one community member giving the questionnaire to another. Lakshmi, Muriel, and any other HIA practitioners present should observe and take note of conversations, questions and issues that arise.

The group should then reconvene and share their experiences with giving and receiving the questionnaire. Using feedback about wording and content, the HIA team and involved community members would then reconvene to edit the questionnaire.

Advertisement of the questionnaire and its purpose. In a meeting in 2020, Muriel Branch discussed how difficult it was for the original questionnaire distribution team to initiate involvement of community members. Unless a trusted and known community member was present during door-to-door distribution, Pine Grove residents were unwilling or hesitant to participate. Still, even if a known and trusted community member was present, there was notably low engagement in Pine Grove. It has been shown that in general, blacks report a statistically significantly higher level of fear associated with being a research participant than whites or Hispanics.²⁰ This fear, which is rooted in a vast history of misconduct, inequity, and

²⁰ Katz, Ralph V., et al. "The Tuskegee Legacy Project: Willingness of Minorities to Participate in Biomedical Research." *Journal of Health Care for the Poor and Underserved*, vol. 17, no. 4, 2006, pp. 698–715., <https://doi.org/10.1353/hpu.2006.0126>.

use of the black community, must be shown empathy and taken into account when attempting to increase participation

One method could be to advertise when, by whom and why the questionnaire would be distributed. This clarity may prepare the community for researchers at their doors and potentially decrease hesitancy. Advertisement should be done through trusted community members rather than fliers or postings. From her previous experience in similar communities, Lakshmi presumed that if fliers are used, it may just inform people of when the questionnaire will be so that they will *not* answer their door for it.⁹ If instead trusted leaders and community members like pastors or AMMD Pine Grove Project members announce and explain the questionnaire at community events, they may be able to encourage engagement and urge people to participate.

Advertisement would also be a good step during which to emphasize the purpose of health questions. Explanations that the questionnaire will not be followed by further testing or clinical research and that healthcare will not be provided directly from this information may increase participation and decrease fear.²⁰ As always, this is a step that should be discussed at workshops and designed with the help of community members themselves. These steps to increase knowledge of the purpose and timing of the questionnaire will hopefully increase the sample size of data collected.

Strategic Plan for Revision of Questionnaire Distribution Training Process

Formulation of a questionnaire that the community can clearly understand and will be receptive to is vital; however, if distribution of the questionnaire is not designed, taught, and

practiced with intentionality and specificity, the data collection process will still fail. HIA practitioners must be trained to distribute the questionnaire in an efficient manner that will be accepted within the specific cultural norms of a community. Research looking at community engagement across many HIAs found that there exists a strong link between “the process of engaging with the local community members and the quality of local knowledge they gained.”¹⁹ If community engagement methods were flawed or inadequate, the local knowledge gleaned was also inadequate and incomplete.¹⁴ Therefore, this study concluded that we need a variety of techniques to form comprehensive HIAs, however, clear, full representation of community voices are one of the most important sources of evidence and must be collected with great care to ensure valid representation.¹⁴

Suggestions for revision of the distribution training process include multiple practice sessions, strategic composition of team members, and efficient mapping of distribution sites. Practice sessions could involve community members and the HIA practitioners rehearsing the door-to-door process and receiving feedback from a diverse group of participants. A major area of practice should be introducing oneself and the project to convey the importance of the questionnaire. If the community member giving the questionnaire does not know the resident personally, they should begin by attempting to make connections such as going to a common church or knowing a family member. When possible other HIA practitioners should accompany them to add another perspective to the team as well as taking notes so the community members can fully engage in conversation.

To create distribution routes, on-the-ground mapping will be necessary. A preliminary map has been created from census data, however, in rural data deserts, these maps are often not entirely accurate (Figure 6).^{7,8,9, 21}

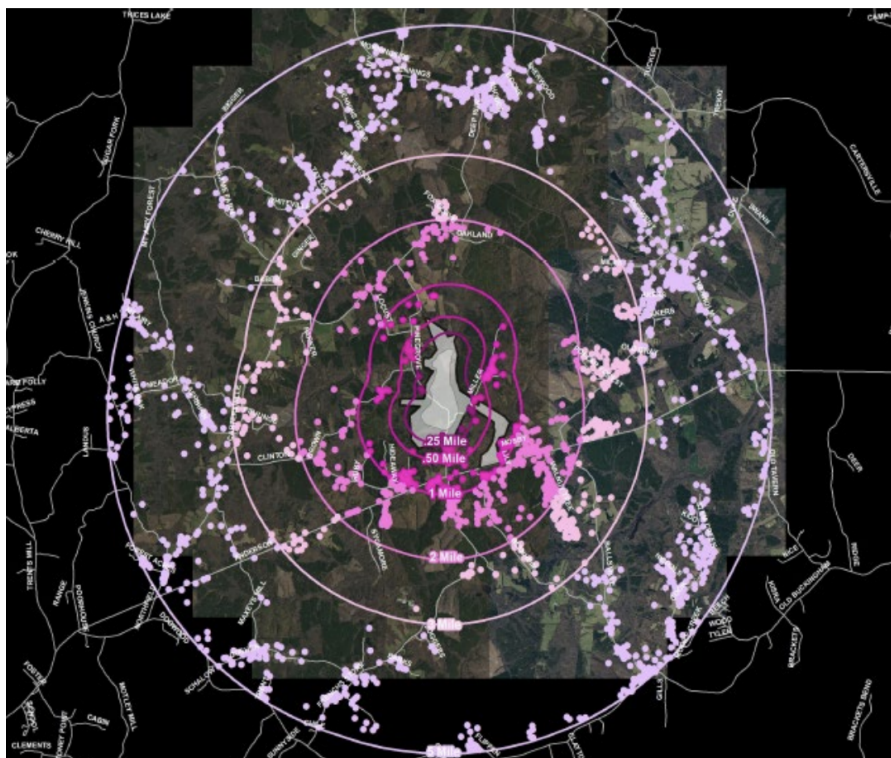


Figure 6: Preliminary mapping of Pine Grove residences radiating outward from Pine Grove School and the landfill site²²

This means that someone will need to travel the surrounding streets to confirm addresses and the number of homes. This can then be compared to the census data to understand how accurate our current map is. Then, an accurate map of all residences can be used to assign streets to distribution teams. Distribution teams should always consist of a trusted and knowledgeable member of the AMMD Pine Grove Project or other qualified

²¹ Center for Health, Environment, and Justice. Vol 1. 1st ed. Charlottesville, VA: University of Virginia; 2019:1-32.

²² Center for Health, Environment, and Justice. Vol 1. 1st ed. Charlottesville, VA: University of Virginia; 2019:1-32.

community member; ideally, each team would have a community member who lived on or near the street so that residents will recognize them. The map will also be a helpful tool to track the houses that have been visited and whether they have completed the questionnaire.

This plan for revising and distributing the questionnaire will be more time intensive than the preliminary questionnaire. Due to the time constraints this HIA faces as Green Ridge continues to move their landfill's proposal forward, efficient distribution becomes increasingly crucial. Maps should be created so that each team can be assigned an area of homes to survey. Their assignments should be ordered in an efficient route and should begin with households closest to the proposed landfill site (most affected) and radiate out to further households (likely less affected).

Ethical Considerations

While equity and ethical best practices have been a major consideration in all strategic planning thus far, the Green Ridge project poses various ethical considerations and challenges that should be explicitly recognized. Firstly, the cultural significance of the Pine Grove school and surrounding land must be considered. The Pine Grove community, comprised majorly of freed slaves, worked with the Rosenwald foundation to raise money, and start the Pine Grove School in 1917 during segregation.²³ Without these efforts, many ancestors of current Cumberland County residents and some current Cumberland County residents would have never received an education. Though the school adjourned in 1964, it still acts as a major

²³ A Tuskegee Rosenwald School. AMMD Pine Grove Project. <https://www.ammdpinegroveproject.com/a-rosenwald-school>. Accessed May 4, 2022.

community center where events and gatherings take place. Additionally, many families have historic family gravesites or burial plots in Cumberland and near the Pine Grove school.

Clearly, this space and the land surrounding it hold a strong cultural significance to the Pine Grove people, acting as a symbol of perseverance and a current space for community cohesion. Therefore, Green Ridge and developers must strongly consider whether the benefit that can be gained from placing a landfill - a place that symbolizes unwanted waste - really outweighs what the Pine Grove community will lose from destruction of such a valuable community space. Creation and implementation of a questionnaire that can clearly illustrate the potential health impacts - both physical and psychological - of the landfill may help demonstrate how devastating the landfill can be in this community.

Furthermore, the demographics and history of this specific community must be considered. One study, which examined how infrastructure affects health, concluded that communities defined as minority, rural, or 'resource deserts' face much more drastic health impacts as compared to other communities experiencing the same projects or infrastructure changes.²⁴ This study asserts that impacts should be weighted more heavily in such communities to account for the added health impacts residents will face as they attempt to adapt to changes without the support of all necessary resources. Such considerations are important in looking at Pine Grove as the site for the landfill. Other communities that have more health resources or higher income rates are perhaps at a better baseline health status may provide better potential sites for Green Ridge's project. If the questionnaire successfully

²⁴ Harris, Patrick, et al. "'Stop Talking around Projects and Talk About Solutions': Positioning Health within Infrastructure Policy to Achieve the Sustainable Development Goals." *Health Policy*, vol. 124, no. 6, 2020, pp. 591–598., <https://doi.org/10.1016/j.healthpol.2018.11.013>.

establishes the Pine Grove community's baseline health status, it could be compared to neighboring counties to support relocation of this project.

As mentioned above, many black research participants face increased fear rooted in previous mistreatment and inequities, especially within the healthcare sector. While this questionnaire has no intention other than to benefit the Pine Grove community through survey data, any refusal to participate must be acknowledged as a valid hesitancy and treated with compassion and respect.¹⁷

Discussion and Conclusion

Analysis of the literature review, preliminary questionnaire questions and practices, and community meetings informed the creation of this strategic plan for future questionnaire revision and distribution training. The central goal remains establishing a questionnaire that is rooted in community values and demonstrates a comprehensive illustration of current health status in Cumberland Country. While community engagement and input can be a slow and time-consuming process, the payoff from investing time in this community-centered plan will hopefully be an exponentially higher response rate than the preliminary questionnaire was able to gain (Figure 7).

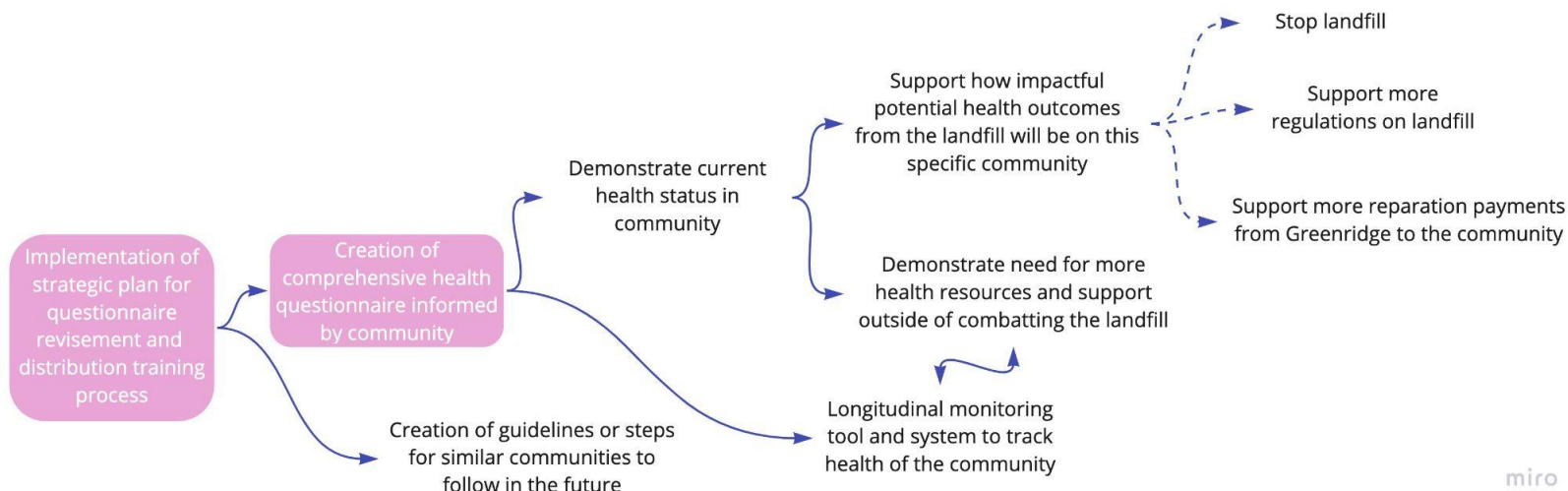


Figure 7: Logic Model of health outcomes of synthesized approach

Additionally, the results of the questionnaire may have impacts that transcend just this HIA and landfill project. Establishment of health status data in Cumberland may support movement of more health resources into the community. The questionnaire will also hopefully be used longitudinally to implement health monitoring to create health data in the future for the Pine Grove Community (Figure 7).

Creation of the new questionnaire questions was outside the scope of this project because such a deliverable can only be created with the input and direction of community members upon completion of workshopping, revision, and practice. One benefit of such a limitation is that this project becomes actionable as a set of generalizable, dynamic guidelines that may be applied to communities similar to Cumberland County. Such applications of this project should be critically adjusted to conform to the cultural norms and values of each community in which it is being practiced (Figure 7).

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