

Drone-Based Photovoice: A Project Facilitation Guide for Communities and Researchers

Friendly greetings! My name is Matias Korfmacher, and I am a recent graduate of the University of Washington (having completed my Masters in Urban Planning and Masters in Public Health). I have created this guide in order to share the workflow of a drone-based photovoice (DBP) method I developed while pursuing my thesis research (“Incorporating Youth Perspectives into Disaster Planning: Piloting Drone-Based Photovoice to Map Community Assets”); I hope that it will be of use in other community and research settings. DBP adapts the photovoice method pioneered by Wang and Burris in the late 1990s to include the use of photos and video taken from a low-altitude aerial perspective. Photovoice itself is a participatory research methodology that enables community members to share both imagery and accompanying narratives, often with the aim of enacting some community change; it draws out local knowledge and experience through guided conversations around the images that participants themselves collected. DBP acknowledges the prior successes of this method, while suggesting that an aerial perspective may help provide additional spatial context, detail, or scale that cannot be adequately represented from the ground¹.

I developed and pilot tested DBP in the context of helping youth in a coastal hazard-exposed community identify and share the important places, spaces, and structures (what I referred to there as “community assets”) that helped them feel connected to place and build place attachment. This guide is thus structured to facilitate a community-engaged asset mapping project, but could be easily adapted for other purposes, such as environmental storytelling, photojournalism, or to expand the options available to photovoice projects.

This guide is not a comprehensive overview of the entire project development phase; rather, it is intended as a support resource to provide the scaffolding of a replicable workflow that communities and researchers can tailor to fit their own purposes, along with tips and lessons learned from the pilot study that can help avoid pitfalls. There are five sections to the guide: This introductory overview, a list of anticipated/suggested resources, a workbook for a mental mapping and site selection exercise, a guide to drone-based data collection, and finally a focus group facilitation guide adapting the SHOWeD method commonly used in photovoice projects². Notably, I have not included information on how to visualize or disseminate results from this process; I encourage project leads to consult closely with participants in defining project outcomes. For instance, in my pilot program, my student volunteers and I had a collaborative conversation that suggested that a geonarrative (in this case, an ESRI Storymap) would be a good way to combine the information we collected and the footage and imagery collected over the life of the project. On the following page is a suggested workflow for a DBP project, alongside outputs at each stage of the project. Once again, I hope this guide serves you well.

Warmly,

Matias Korfmacher

¹ (C. Wang and Burris 1997; C. C. Wang 1999; Caroline C. Wang et al. 1998; Caroline C. Wang 2006)

² (Caroline C. Wang 2006; Caroline C. Wang et al. 1998)

Recommended DBP Project Stages

Project Stage	Projected Output(s)
Scoping meeting	Preliminary project aims and outcomes, building rapport
Project planning	Project design document (incorporating this guide)
<i>IRB Review Process (if required)</i>	<i>IRB Approval</i>
Cohort introductory meeting	Informed consent documents/ parental consent and youth assent
Mental mapping and site selection	List of assets to document
Drone-based data collection	Imagery/footage of assets
Focus group(s)	Transcript(s) for analysis
Data analysis	Coding and analysis (e.g., matrix or analytic memo)
Data visualization and dissemination	Final project deliverable

Resources Guide

While Drone-Based Photovoice may be a good fit for a project focused on engaging youth through technology, the pilot research project involved a significant amount of funding and resources to mobilize. This section provides a rough breakdown of the key resources involved in the project, broken out by resource type and associated cost to inform the development of a project budget proposal. While different site contexts may introduce new challenges that require additional funding or opportunities for savings (e.g. a free rental space for meetings), this section should help identify the kinds of costs a project may incur.

Equipment

By far the most expensive up-front cost is likely to be the drone itself. The pilot project used the DJI Air 2S, which was selected due to its high-quality performance, relatively long flight time, and performance in inclement weather conditions. At present, DJI drones tend to be industry-standard for high-quality imaging, performance, and user-friendly operation. However, depending on project budget, aims, or other constraints, other models and manufacturers may be required. Reputable manufacturers include (among others) DJI, Autel Robotics, Freefly, and Skydio. Select the drone most suited for your project based on your budget, the local climate, image quality needs, and anticipated local flight time. In addition, the pilot program purchased a drone wetsuit (<https://www.phantomrain.org/wetsuits>) due to the frequent inclement weather at the study site.

<i>Item</i>	<i>Estimated Cost</i>
Drone kit (including batteries, controller, and bag)	\$1395
Drone Wetsuit	\$95
Adapter cable (extra)	\$10
Extra high-capacity SD card	\$10-20

Meeting costs

Study meetings have a number of associated costs, ranging from meeting space rental, payments for community partners, food, and additional educational materials. Compensation with community partners may vary greatly based on their level of involvement, as may the meeting space. Participants may also benefit from transportation to the meeting and study sites, especially in the absence of strong public transit networks.

<i>Item</i>	<i>Cost</i>
Community partner cost	Varies based on scoped involvement
Food for meeting (Lunch, snacks and drinks)	Est. \$20-25/ person

Meeting space rental	Varies depending on venue (may be free if done at school or public building)
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Person hours

Based on the project program experiences, project staff will have to spend significant time on research activities over the project's lifespan. A breakdown of recommended hour allocations per major task is included below. Note that these costs do not include research costs such as the development of the qualitative codebook or literature review associated with the study aims. There may be additional time costs for data analysis given the increased amount of time needed to appropriately synthesize large amounts of data in projects with multiple transcripts.

<i>Item</i>	<i>Cost</i>
Project scoping	~ 20 hours
IRB approval process	~ 10 hours
Community partner engagement	~ 2-3 hours per week
Meeting planning	~1-2 hours per week
Meeting facilitation/data collection	~4-5 hours per meeting
Transcript coding	~3 hours per transcript
Data Analysis	~5 hours per transcript
Project administration	~1 hour per week

Other research-associated costs

There are likely to be other costs associated with any project; I have tried to capture some of the most important ones incurred during the pilot project. Notably, the community for the pilot project was a roughly 2.5 hour drive from my research institution, which introduced significant transportation costs.

<i>Item</i>	<i>Cost</i>
Gift cards for focus group participation	Est. \$25-50/person
Qualitative coding software license	Varies by program (free options available)
Video editing software	Varies by program (free options available)
Insurance for drone	Varies by drone cost
Focus group transcription	Estimated \$75-80 for recommended focus group length. There may be free AI options available, but this could incur additional time costs for more lengthy transcript cleaning.
Staff background checks	Est. \$25/person

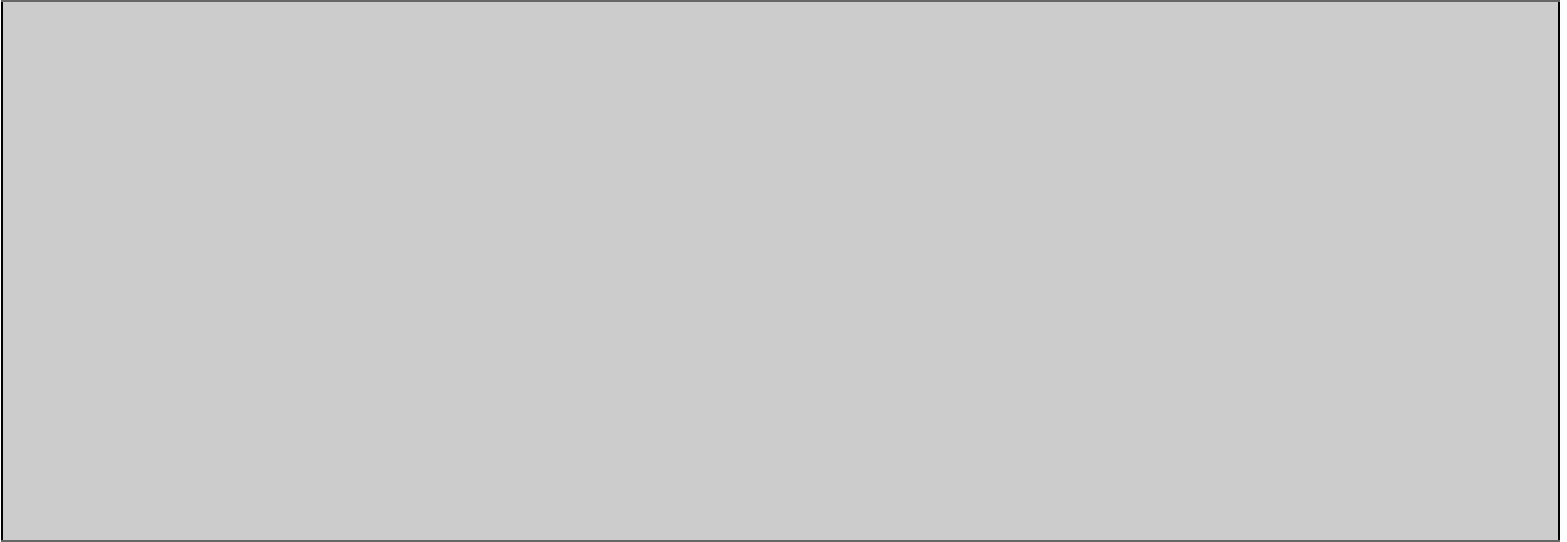
Drone-Based Photovoice: Brainstorming Exercise

Participant ID Number: _____

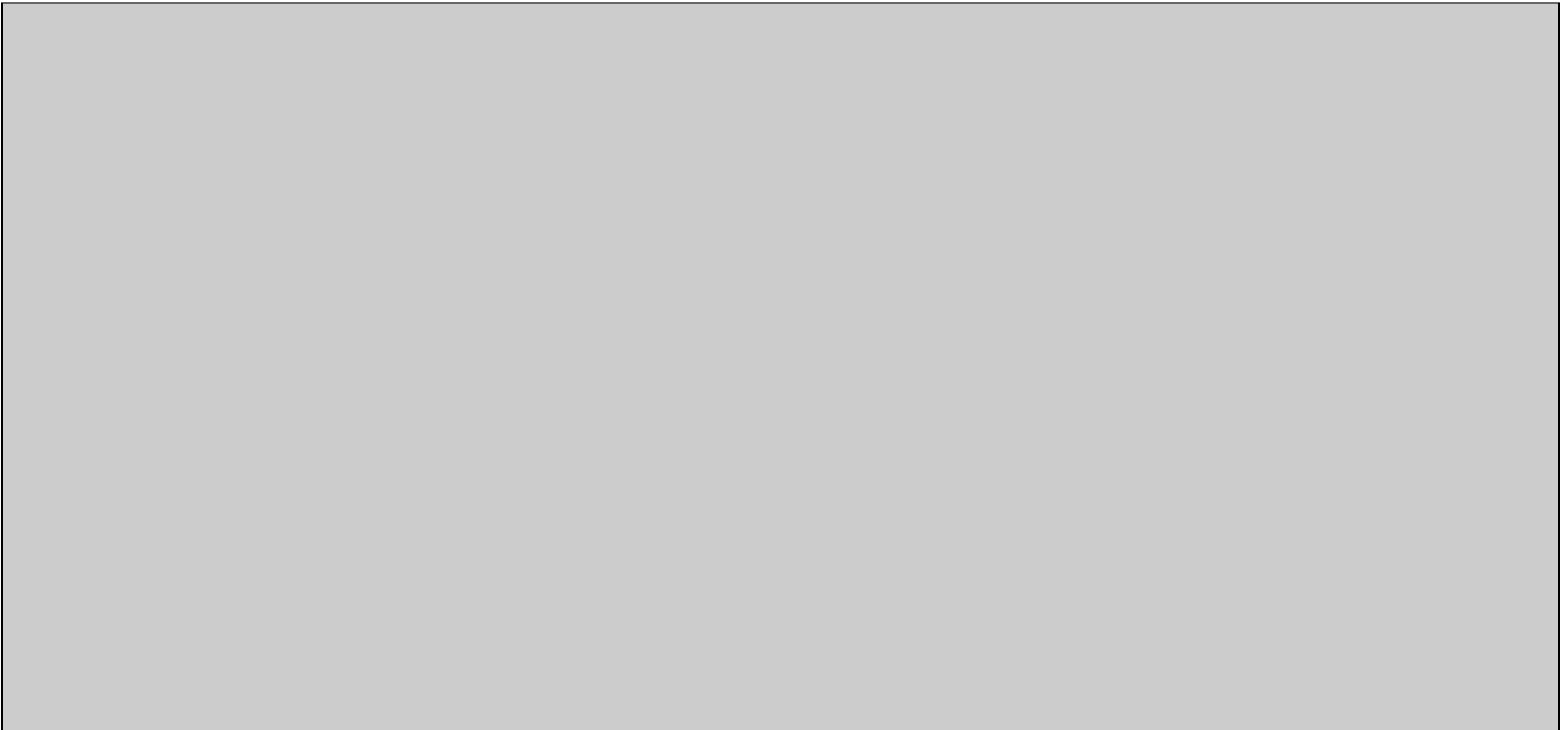
This worksheet is designed as a space for you to brainstorm and record some of your thoughts about what community means to you and what is important to you in the area you live. Please record your thoughts as we go through the slide deck together.

Part I: Defining Community and Values

What does “community” mean to you? What are some communities or groups that you belong to?



What are some of the things that these communities or groups value? Think about what is important to you, your peers, and the community as a whole. Some examples might include what makes your community feel unique, your hopes for the future, and parts of your community’s history you think are still embodied today.



Part II: Brainstorming Community Assets

Here, we'll be brainstorming some of the resources that help make your community **resilient**. We'll be referring to these as **community assets**. While there are many ways to think about community assets, we're going to use some broad categories below to make sure we cover as many types as possible. These categories are based on findings from both research and practice, and we have provided some general examples to help get you started. Depending on how different people use it, one community asset may fit into multiple categories—that's fine! Our goal here is to be inclusive as we come up with as many assets as possible. For that reason, there is also an "other" category for you to record any community assets that you feel don't fit neatly into any category we have provided.

People and their "Gifts"

(skills, knowledge, qualifications, passions, leadership positions, relationships, social networks, etc.)



Organizations

(school, clubs, city gov't, nonprofits, employers, volunteer organizations, healthcare, religious centers, etc.)



Built Environment

(parks, sport fields, playgrounds, industrial areas, marina, water tower, paths/trails, etc.)



Natural Environment

(natural resources, forests, beaches, birds, oyster beds, fisheries, etc.)



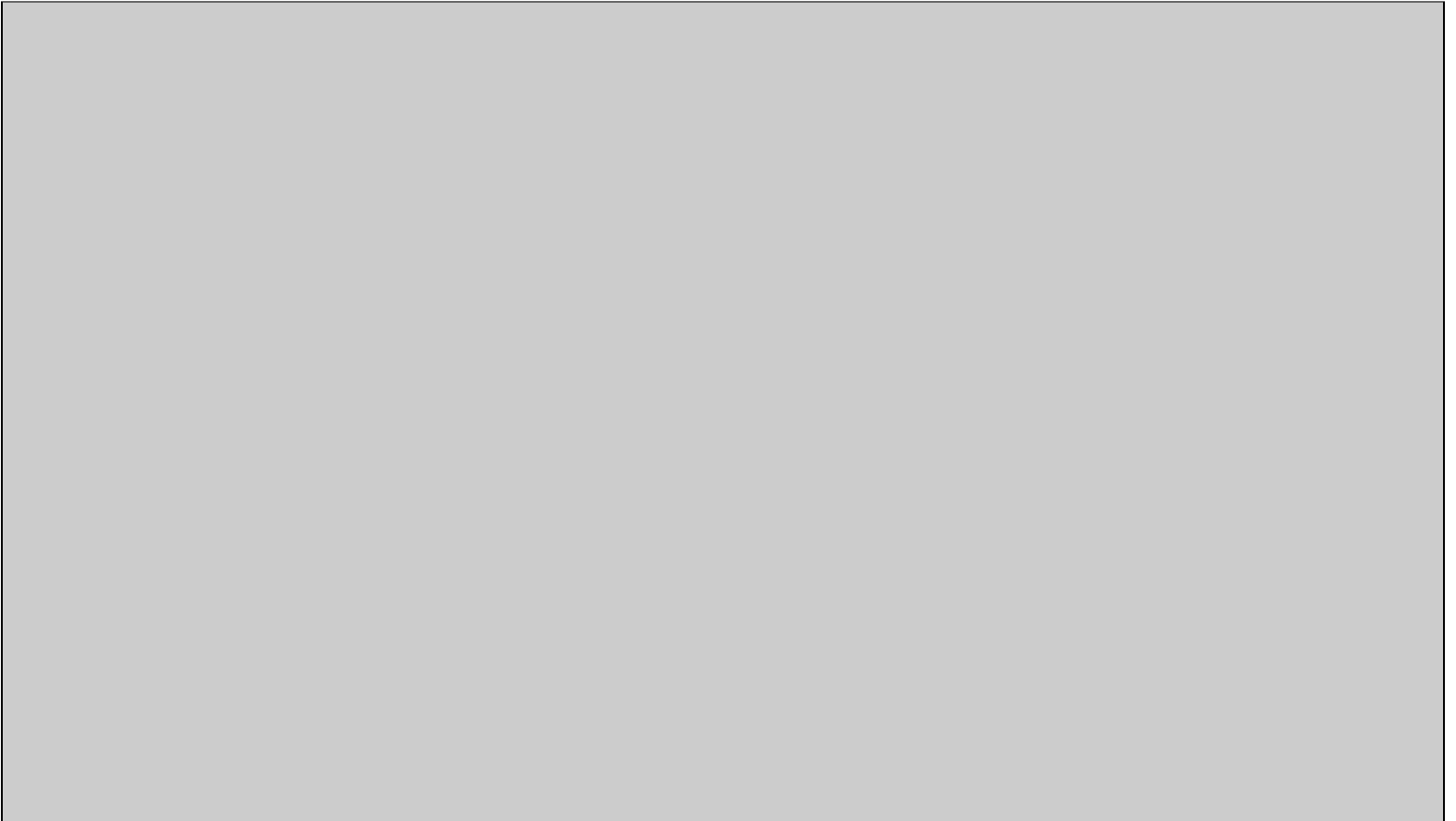
Cultural Events and Activities

(fairs, markets, festivals, traditions, historical memory, media and sources of information, etc.)

A large, empty rectangular area with a light gray background, intended for users to enter information related to cultural events and activities.

Other

(Anything that doesn't fit the other categories)

A large, empty rectangular area with a light gray background, intended for users to enter information that does not fit into the other categories.

Part III: Mental Mapping

Use the space below to draw a map of your community as best as you can from memory.

Part IV: Putting It All Together

Now it's time to pull in everything we've talked about so far. Think about the community assets you brainstormed in Part II. Can you think about where those assets are located? For some, that's easy—it's a physical asset you can visit. Others, like groups or events or networks, might be trickier. But think about the places, structures or spaces they commonly use—that can help! Even after thinking about these assets for a while, you might find that some really have no real location. That's fine, too—we've given you space to record them.

With our remaining time, use the following symbols on the mental map you drew to mark some of the community assets you've identified:

 **< People and their "Gifts"**

 **< Organizations**

 **< Built Environment**

 **< Natural Environment**

 **< Cultural Events and Activities**

 **< Other**

Use the box below to list assets that really have no location:

Ocosta-UW Drone Youth Photovoice Site Selection Survey

Participant ID Number: _____

Thank you for agreeing to participate in the Ocosta-UW Drone Youth Photovoice research project! Now that you've learned a little bit about asset mapping and have had some time to think about what community means to you, we're ready to begin our data collection. Our first research activity is this **short survey to identify places, structures and spaces that are important to you and your community**. The goal of this survey is to learn about the places you like in your town and how disasters might impact them. We will use the results of this survey to plan our drone flights and to categorize the community assets you list, so please try to be as accurate and thorough as possible when describing the places below.

Our survey has **four parts**: describing a place that makes you feel at home ("**My Place**"), a place that you feel is important to a group that you belong to ("**Our Place**"), and a place that you believe is important to all or most people who live in the area ("**The Public's Place**"). When answering the questions below, try to be specific as possible about the place or space you have identified. If the place is bigger than a single property, that is ok—but please try to describe what makes the broad area important, as well as any specific places within it that are important to you. Try **NOT** to select places in your community that are used mostly for living or working (e.g. your home, another private residence, or a large employer in town) **UNLESS** they serve an additional important function (if so, please describe). Instead, consider assets that you or others in your community could use as a resource to address specific needs you might have (e.g., a park, church, community center, store, trail, beach, etc.).

This survey typically takes about **15-20 minutes to finish**. All your answers are private. The survey does not include questions that could identify you. You can skip any question you don't want to answer, and you can stop taking the survey at any time. I will be around to answer any questions you have; just raise your hand!

I. MY PLACE

The following questions are about a place or space that is important to you and makes you feel connected to your community.

1. When you think about your coastal community, what place makes you feel most at home/like you belong?

Place Name and Location (please be as specific as possible): _____



2. **How important** are the following reasons to why this place makes you feel at home/like you belong?


	Not at all	Slightly	Moderately	Very	Extremely
Provides essential needs/services – Food/water, information, education, healthcare, child/elder care	1	2	3	4	5
Personal preferences –This place supports my or my family’s specific needs	1	2	3	4	5
Supports community gatherings or sense of community - Cultural/community/sports events or farmers’ or art markets, or other key spaces that make your community unique	1	2	3	4	5
Supports my personal wellbeing - I feel comfortable in this space, like I belong, I feel safe, and/or less stressed here	1	2	3	4	5
Opportunities for civic engagement – This space provides opportunities to participate in decision-making in my community (e.g., planning commission, tribal council, neighborhood associations)	1	2	3	4	5
Supports personal connections – This place allows me to connect with family or friends	1	2	3	4	5
Supports my interests —This place allows me to explore my interests (e.g., sports club, service clubs, support groups), and/or engage in religious or spiritual activities	1	2	3	4	5
Exposure to nature – This place provides access to natural landscapes, the ocean, and/or coastal areas.	1	2	3	4	5
Other reasons (please describe):	1	2	3	4	5

3. Please describe how you use this place or space. If you see others using it similarly or differently, you are encouraged to comment on that as well.

4. **How important** is it to protect the place you listed in question #1 from major disasters (e.g., earthquake/tsunami, flood, forest fire) before they happen?

Not at all Important 1	Slightly Important 2	Moderately 3	Very Important 4	Extremely Important 5
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5. Would you go to this place during the **first two weeks after** a major disaster (e.g., earthquake/tsunami, flood, forest fire)?

<input type="checkbox"/> YES, I would go here because: <i>(select all that apply)</i>	<input type="checkbox"/> NO, I would not go here. I would prefer to go (name or place description): _____
<input type="checkbox"/> Critical resources (shelter, first aid, food, information) would be available here	 I would go to this place because <i>(select all that apply):</i>
<input type="checkbox"/> Friends/family would come here	<input type="checkbox"/> Critical resources (shelter, first aid, food, information) would be available here
<input type="checkbox"/> I would feel safe here	<input type="checkbox"/> Friends/family would come here
<input type="checkbox"/> This place is likely to be accessible and not damaged (to the best of my knowledge)	<input type="checkbox"/> I would feel safe here
<input type="checkbox"/> Other reasons: _____	<input type="checkbox"/> This place is likely to be accessible and not damaged (to the best of my knowledge)
	<input type="checkbox"/> Other reasons: _____

6. Is there anything else you want to tell us about this place?

II. OUR PLACE

The following questions are about a place or space that helps you feel connected to some group in your area.

1. When you think about your coastal community, what place makes you feel like part of a group? What is the group?

Group, Place Name and Location (please be as specific as possible): _____



2. **How important** are the following reasons to why this place makes you feel connected to this group?


	Not at all	Slightly	Moderately	Very	Extremely
Provides essential needs/services – Food/water, information, education, healthcare, child/elder care	1	2	3	4	5
Personal preferences –This place supports my or my family’s specific needs	1	2	3	4	5
Supports community gatherings or sense of community - Cultural/community/sports events or farmers’ or art markets, or other key spaces that make your community unique	1	2	3	4	5
Supports my personal wellbeing - I feel comfortable in this space, like I belong, I feel safe, and/or less stressed here	1	2	3	4	5
Opportunities for civic engagement – This space provides opportunities to participate in decision-making in my community (e.g., planning commission, tribal council, neighborhood associations)	1	2	3	4	5
Supports personal connections – This place allows me to connect with family or friends	1	2	3	4	5
Supports my interests —This place allows me to explore my interests (e.g., sports club, service clubs, support groups), and/or engage in religious or spiritual activities	1	2	3	4	5
Exposure to nature – This place provides access to natural landscapes, the ocean, and/or coastal areas.	1	2	3	4	5
Other reasons (please describe):	1	2	3	4	5

3. Please describe how you and/or the group you belong to use this place or space. If you see others using it similarly or differently, you are encouraged to comment on that as well.

4. **How important** is it to protect the place you listed in question #1 from major disasters (e.g., earthquake/tsunami, flood, forest fire) before they happen?

Not at all Important 1	Slightly Important 2	Moderately 3	Very Important 4	Extremely Important 5
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5. Would you go to this place during the **first two weeks after** a major disaster (e.g., earthquake/tsunami, flood, forest fire)?

<p><input type="checkbox"/> YES, I would go here because: <i>(select all that apply)</i></p> <ul style="list-style-type: none"><input type="checkbox"/> Critical resources (shelter, first aid, food, information) would be available here<input type="checkbox"/> Friends/family would come here<input type="checkbox"/> I would feel safe here<input type="checkbox"/> This place is likely to be accessible and not damaged (to the best of my knowledge)<input type="checkbox"/> Other reasons: _____	<p><input type="checkbox"/> NO, I would not go here. I would prefer to go (name or place description): _____</p> <p style="text-align: center;"></p> <p>I would go to this place because <i>(select all that apply):</i></p> <ul style="list-style-type: none"><input type="checkbox"/> Critical resources (shelter, first aid, food, information) would be available here<input type="checkbox"/> Friends/family would come here<input type="checkbox"/> I would feel safe here<input type="checkbox"/> This place is likely to be accessible and not damaged (to the best of my knowledge)<input type="checkbox"/> Other reasons: _____
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6. Is there anything else you want to tell us about this place?

III. THE PUBLIC'S PLACE

The following questions are about a place or space that is important to many people living in your area.

1. When you think about your coastal community, what place is important for many people in the area?

Place Name and Location (please be as specific as possible): _____



2. **How important** are the following reasons to why this place is important for people in your area?


	Not at all	Slightl y	Moderatel y	Very	Extremel y
Provides essential needs/services – Food/water, information, education, healthcare, child/elder care	1	2	3	4	5
Personal preferences –This place supports my or my family’s specific needs	1	2	3	4	5
Supports community gatherings or sense of community - Cultural/community/sports events or farmers’ or art markets, or other key spaces that make your community unique	1	2	3	4	5
Supports my personal wellbeing - I feel comfortable in this space, like I belong, I feel safe, and/or less stressed here	1	2	3	4	5
Opportunities for civic engagement – This space provides opportunities to participate in decision-making in my community (e.g., planning commission, tribal council, neighborhood associations)	1	2	3	4	5
Supports personal connections – This place allows me to connect with family or friends	1	2	3	4	5
Supports my interests —This place allows me to explore my interests (e.g., sports club, service clubs, support groups), and/or engage in religious or spiritual activities	1	2	3	4	5
Exposure to nature – This place provides access to natural landscapes, the ocean, and/or coastal areas.	1	2	3	4	5
Other reasons (please describe):	1	2	3	4	5

3. Please describe how you use this place or space. If you see others using it similarly or differently, you are encouraged to comment on that as well.

4. **How important** is it to protect the place you listed in question #1 from major disasters (e.g., earthquake/tsunami, flood, forest fire) before they happen?

Not at all Important 1	Slightly Important 2	Moderately 3	Very Important 4	Extremely Important 5
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5. Would you go to this place during the **first two weeks after** a major disaster (e.g., earthquake/tsunami, flood, forest fire)?

<input type="checkbox"/> YES, I would go here because: <i>(select all that apply)</i> <input type="checkbox"/> Critical resources (shelter, first aid, food, information) would be available here <input type="checkbox"/> Friends/family would come here <input type="checkbox"/> I would feel safe here <input type="checkbox"/> This place is likely to be accessible and not damaged (to the best of my knowledge) <input type="checkbox"/> Other reasons: _____	<input type="checkbox"/> NO, I would not go here. I would prefer to go (name or place description): _____  I would go to this place because <i>(select all that apply):</i> <input type="checkbox"/> Critical resources (shelter, first aid, food, information) would be available here <input type="checkbox"/> Friends/family would come here <input type="checkbox"/> I would feel safe here <input type="checkbox"/> This place is likely to be accessible and not damaged (to the best of my knowledge) <input type="checkbox"/> Other reasons: _____
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6. Is there anything else you want to tell us about this place?

If you have time, please add any additional thoughts about your community and disaster impacts here:

Drone Photovoice Data Collection Protocol

Pre-Flight Planning

- Ensure at least one member of the data collection team has their FAA Part 107 Small US license on them, and that the license is valid.
- Double check that the drone is in proper working order.
 - Charge the drone's batteries, and clear the memory card ahead of the flight.
- Review local weather conditions, regulations related to flying drones, and no-fly (or restricted flight areas)
- Before going out in the field, make a plan with the participants about which assets you will sample and what order you will sample them in. Use the results of the site selection survey, the interest of the participants, and local conditions to inform your planning.
 - Make sure that your plan complies with local regulations. If necessary, submit the relevant flight plans.
 - If you are planning to document private property, such as a business, encourage the participants to talk with someone associated with the property.
- Check that all participants attending the data collection session are familiar with operating a drone. If they are not, it is recommended that you give them a brief safety talk about drone operation based on FAA regulations (there are many online guides about drone safety that can be used as future reference). For this exercise, participants will need to be familiar with the drone's flight controls, photo and video settings, and pre-programmed flight paths (if any).
- For this exercise, it is helpful to have a small group of participants (roughly 3-5). At minimum, 2 participants should be present alongside a certified drone operator (usually a project team member): one to pilot the drone, and an extra visual observer. Having multiple observers is a significant benefit, especially when operating in reduced visibility or in populated areas.
 - Alternate between which participants are flying the drone and which are serving as visual observers.
 - Encourage any participants not currently flying the drone or serving as a visual observer to take notes in the field; these will be helpful for the focus group discussion(s)

Collecting Drone Footage

- Before documenting the asset, do a safety check of the surroundings to ensure an area clear of obstructions for takeoff and landing. Mark this spot with a physical marker if possible as a reminder of where the drone's "home point" is.

The team should collect different types of drone shots based on the scale of the asset.

For assets that are a structure size (or sit on a single parcel), collect the following:

- **A top down, “plan view” photo.** Rotate the camera angle to 90 degrees. Position the drone directly over the center of the asset and rise to an elevation at which the entire site is visible.
- **360-degree fly around.** Rotate the camera angle to between 30 and 60 degrees. Pick a center point on the asset and ascend to an elevation where the entire site is visible. Steadily circle the asset at the same elevation and keeping the center point in the middle of the field of view.
 - The purpose of this shot is to show the asset in its entirety; it should end up looking like a 3D model.
 - Some drones have this flight path pre-programmed; this may help participants who are less confident in their flying abilities or on windier days.
- **A “Dronie”.** Rotate the camera angle to sit between 30 and 60 degrees. Position the drone so the entire front (or the most interesting) side of the asset is visible as a default. Slowly ascend while also pulling away from the asset, keeping it in view.
 - The goal of this shot is to reveal the local context around the asset; you may want to collect multiple iterations of this shot based on what surrounds the asset. Encourage the operator to pick the perspectives that make the most sense to them.
 - Some drones have this flight path pre-programmed; this may help participants who are less confident in their flying abilities or on windier days.
- **Operator’s Choice.** Encourage the participant to take another photo or video that they think would be interesting, aesthetically appealing, or reveal something new about the asset.

For assets that are larger than can be captured at the desired detail in their entirety from a single vantage point (e.g. multi-building assets, large structures, or those taking up multiple parcels), especially those that might contain several smaller-scale assets “nested” under them (e.g. a market district or school campus), collect the following:

- **An isometric photo.** Rotate the camera angle to 30 to 45 degrees. Position the drone in a location and elevation where as much of the asset is visible as possible.
- **Cinematic Flyover.** Rotate the camera angle to sit between 30 and 60 degrees. Pick a flight path that will take you across the entirety of the asset. Flying steadily along this flight path, document the entire asset, then turn around and follow the flight path in reverse.
 - In order to fly the length of an asset, you may need to proceed on foot to maintain visual contact. In this case, try to match the speed of the drone with the speed of the group so there are not significant periods where the drone is sitting still. The visual observer or another participant may also want

to observe ground conditions to make sure that the team is safe from hazards (e.g. traffic or uneven terrain).

- **Operator's Choice.** Encourage the participant to take another photo or video that they think would be interesting, aesthetically appealing, or reveal something new about the asset.

Collecting Ground Photos.

Collect a set of still photos from the ground—this is used in traditional photovoice.

- Have one participant take 1-3 photos of the asset (highlighting its most important features) with your phone. Instruct them to use their best judgment about the kind of shot they want to take--- what do they want their photo to show about the asset the team is documenting?
 - After collecting images, have the participants share the ground images with the research team. Using a shared drive can be helpful to ensure that both you and the participants have access to the data they collect.

Post-flight Wrap-Up

- Briefly debrief with the team. Take notes if possible and consider using them to inform follow-ups or prompts during the focus group discussion.
 - Sample debrief questions: What did they enjoy about the day's activities? What did they dislike? Did they learn or discover anything new? Was anything surprising to them? Do they have any questions or concerns about the research process?
 - Ask if the day's activities had prompted them to identify any other assets they may want to sample.
 - Alternatively, this can be done while in the field if there is an asset in the area that would be appropriate to sample.
- If participants took notes, encourage them to share them with the research team or else to keep them in a safe place to refer to ahead of the focus group discussion.
- Upload all drone footage to a shared drive that both you and participants have access to.

Protocol for Drone-Based Photovoice Focus Group Facilitation

Estimated duration: 100 minutes (with a 10-minute break after about 45 minutes)

Instructions: Before the focus group, fill in the information in [brackets] with context relevant to your community and project. Take the imagery and footages that participants have collected, and sort it by asset. You may find it helpful to then group the assets by type (e.g. museums, restaurants, natural areas, etc.) or by geographic location. Depending on the amount of footage collected, it may also be helpful to combine all of the ordered footage into a single compilation video. Using a video editing software (e.g. Adobe Premiere Pro) can also help reduce the overall video of time by speeding up individual video clips. On the day of the focus group, show the participants the collected images and footage so that they can decide which they wish to discuss; at minimum, try to get through three distinct assets. You will go through the same set of focus group questions (1-6) for each asset. An example of an introductory script is included below to introduce the exercise and ensure that participants are aware of their role in the research process. Researchers should ensure that they have obtained institutional and local IRB approval and are in compliance with local regulations related to human subjects research prior to commencing any research activities.

Focus Group Number: [Use if conducting multiple focus groups.]

Participants involved: [Use participant ID numbers. At least 3 members are needed, 4-6 are ideal, but no more than 8].

Location: [Insert as appropriate]

Welcome

- Thank you for agreeing to participate in our focus group today. My name is [Insert name and background here]. [Describe involvement with the participants to date]. Today, we are going to be holding a group discussion to reflect on the drone-flown footage and images you have all been collecting.
- The purpose of this discussion is to help us understand [Discuss research project and goals].

Explanation of the process

- We are using a small group discussion format, sometimes called a focus group, to encourage an in-depth discussion between you all. We hope to hear from you the ways in which the places we've documented are important to making you feel at home, as well as your thoughts on the whole research process. There are no wrong answers. We're not trying to achieve consensus; we're gathering information.
- The session will last roughly 1 and 1/2 hours with a short break in the middle.
- We will be taking notes and recording so that we can refer to the discussion later.
- We may write up our findings in a report or for publication in a peer-reviewed journal. We will not refer to you by name in any report or publication without your prior explicit permission. [Modify based on intended study outputs].
- Your participation is voluntary. You can refuse to answer any question, and you can leave the discussion at any time. You will not be penalized for not answering any question or for leaving the session.
- If at any point you have additional questions about the study, our team is available to answer any questions you may have, even about things that are not in this focus group. It is our responsibility to give you the information you need to make a decision and to give you time to think about whether or not you want to participate. If you feel you have been harmed by participating, you can contact us about that too. My number is [Introduce the study team's contact information here]
- [If the study has been approved by an Institutional Review Board (IRB)]: If you want to talk about the study with someone who is not part of the study team, talk about your rights as a research subject, or to report problems or complaints about the study, contact [insert IRB contact information]

Ground Rules

- We do have a few ground rules. We hope everyone will participate and chime in during the discussion. Information provided in the discussion must be kept confidential. Please do not share what was said or who was here. Please stay with the group and avoid distractions.

Questions and consent

- Does anyone have any questions before we begin?
- Do you consent to participate in this focus group and to this discussion being recorded? [Ask everyone to provide a verbal “yes”]
- Turn on recording apps.
- One more time, do you consent to participate in this focus group and to this discussion being recorded? [Ask everyone to provide a verbal “yes”]
- Before we begin, can you please share your participant ID number?

Community Assets (Based on SHOWeD methodology):

- I will now be showing you a presentation of the footage you have all been collecting over the past few months. These have been grouped together by each individual site and general location. As we watch through this, pay attention to any that really grab your attention as important places for making you feel at home or as a part of the community, and feel free to take notes on the provided paper. When we finish, I will ask you what those places are, and we will go through a guided discussion about the ones that you select.
- [The following questions are adapted from the SHOWeD methodology. A table showing how these questions line up with the original SHOWeD questions is attached following the questions. Feel free to tailor the questions to suit your study’s purposes].

Play through footage

- Having seen the footage, which of the document assets do you want to talk about?

For questions 1-6, when an asset is selected, return to it and replay before proceeding through the questions. Repeat the questions for each asset you discuss

1. What do you see in this aerial imagery and footage?
 - a. Can you describe the scene?
 - b. What about these images are appealing to you? What do you not like about them?
 - c. Did anything about the imagery and footage surprise you?

2. What can you tell us about this place beyond what you see in the images?

3. How do you use or interact with this place?
 - a. Who else uses this place?
 - b. How do they use it?

4. Why is this place important to you, your social groups and/or your community?

5. How could your community use these images and footage?
 - a. Could these be used for educational purposes?

6. What hazards could impact this place? And how do you think those impacts could be lessened?
 - a. If protected, how could these places be utilized after a disaster to help the community?

7. Is there anything that you would like to tell us that we have not already discussed?

SHOWeD Crosswalk Table

This table illustrates how traditional SHOWeD questions were adapted for this purpose. Generally, this was done to add clarity and specificity about the research team’s interest in the given images. The adapted questions can be further modified to fit a project’s specific aims or research goals; in particular, follow-up questions and prompts are likely to vary significantly from project to project.

SHOWeD Questions	Adapted Questions
“What is Shown here?”	What do you see in this aerial imagery and footage?
“What is really Happening here?”	What can you tell us about this place beyond what you see in the images?
“How does this relate to Our lives?”	How do you use or interact with this place?
“ Why does this concern, situation, or strength exist?”	Why is this place important to you, your social groups and/or your community?
“How can we become Empowered through our new understanding?”	How can we empower or educate your community through these images and footage?
“What can we Do ?”	What hazards could impact this place, and how do you think those impacts could be lessened?

References

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