



NATIONAL™  
WASTEWATER  
SURVEILLANCE  
SYSTEM



COLORADO  
Department of Public  
Health & Environment



# Colorado National Wastewater Surveillance System Center of Excellence

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## Considerations for Site Selection Video Companion

*Note: This summary provides a concise overview of the Considerations for Site Selection Video (insert link). For more details, refer to the educational resources on our [website](#).*

### Introduction to the case study

For the purposes of this video, we will use a case study to help make concepts clearer. The case study information is as follows: You are in charge of public health response at a university, and you are tasked with monitoring and controlling outbreaks of a respiratory virus. You will conduct wastewater surveillance to provide insight on the presence of the respiratory virus in the dormitories.

### Defining Your Programs Objectives

In order to determine the physical location(s) where you will collect wastewater samples, you need to first define the goals of your surveillance program. Considerations Include:

#### What is the purpose of your program?

What actions will you pursue as a result of what you find in your surveillance?

In the example of our case study, there are several tools that you may choose to use to reduce transmission of the virus. These include:

- Facility-wide medical testing (including employees and residents) to identify cases
- Recommendations for those who test positive for the virus to control further transmission
- Deployment of PPE (personal protective equipment), such as respirators and face masks
- Environmental cleaning and disinfecting

#### What is the scale of your program?

Are you identifying pathogens at the community, neighborhood, or building level?

In the example of our case study, we are concerned with detection within a dormitory. The scale of this project is building-level surveillance.

#### How Is Your Project Funded?

Depending on the entity responsible for this project and conducting wastewater surveillance, there are many possible sources of funding, such as research and state or federal grants. In the example of our case study, funding is a state or federal grant. Be sure you fully understand the requirements attached to your funding as they may dictate where samples must be collected.

## What is Your Budget?

What type of devices and actions can you afford?

Consider the following costs to decide the type and frequency of wastewater sampling:

Staffing

Sampling supplies and equipment

Laboratory testing

Shipping materials

Courier service to deliver your samples to the laboratory you will use for processing

PPE

Safety supplies such as traffic cones, safety vests, etc.

## Agility

Objectives can pivot based on the prevalence of disease. New and emerging research or public health guidelines can also shift your objectives. To the extent possible, build your surveillance system so that it is agile enough to be changed quickly.

## Building Your Team

### Stakeholders

The success of your program depends on being able to keep all stakeholders engaged in the project and willing to help when needed.

In the example of our case study, you will want to involve representatives from public health departments who have jurisdiction over your area, school leadership, building engineer, and/or facilities manager, and an HR representative.

### Team Members

Build a comprehensive team that includes staff members who collect samples, representatives from the lab you will work with who will process and analyze the samples, employees who will analyze and interpret the trends for public health action, and those who oversee the facility. You may want to set up regular check-ins to share information across the roles and tasks.

When assembling your team, consider the following skill sets that you might need:

- Capable of lifting a manhole
- Basic lab experience and understands PPE and sample control and custody
- Data analysis experience
- Epidemiology and public health experience
- Assistance with purchasing
- Knowledge of wastewater systems
- Employee safety and risk management knowledge to ensure employees who collect samples do so safely
- Medical professionals
- Communications professionals

Establish credibility and build trust through open and consistent communication.

What is our shared goal?

Who is the primary decision maker for this project?

What are potential issues?

How will wastewater surveillance data be shared?

What public health action will be taken based on results?

What might other members of the team need to know about my roles and responsibilities of this project?

## Accessing your site

- Ask yourself these questions as you navigate permissions through the sampling process:
- Who controls access and whom should you notify? (i.e. - City or county? Private individual? Institution?)
- Do I have permission to take a sample from this location? There may be more than one authority from which approval is needed.
- Does the person who gave me permission have the authority to provide access to this location?
- Do I need to obtain additional permission?

In the example of our case study, the access point that you selected for the dormitory is located in a public street, so you will disrupt traffic to collect your sample. The facility manager does not have jurisdiction to remove the manhole cover for sampling, so you will need to obtain permission from the municipality for sampling.

## Selecting your sample site

### Minimize extraneous flow

In order to determine the best access point for sampling, obtain a diagram of the dormitory's wastewater system. When deciding on the best location to obtain samples, consider:

What other inputs are flowing into this stream?

Isolate your sampling location so that you minimize the amount of wastewater coming from sources that are not part of the population your project is monitoring.

You will want to eliminate any non-human wastewater sources, if possible.

Examples would be a storm drain where wildlife are known to gather; additional water volume from the laundry facility, which will dilute the sample; and the kitchen, which might introduce chemical contaminants or extra materials, oils, surfactants, food waste, etc.

### Consider proximity to the source

Sometimes the closest access point to the building is not the closest access point to the wastewater stream from the population you are monitoring.

Is there access to a single wing of the building to get more targeted results?

If a manhole is not accessible, is there a sewer cleanout that can be used?

In this case study, use the diagram to determine which access points correspond to which wings of the dormitory. To obtain samples that are representative of the entire population of the building, you may need to collect samples from multiple sampling locations. This may also help you trace outbreaks to specific wings in the building to make disease control decisions.

### Plan for a safe sampling

When sampling, be responsible for keeping the public safe while you are accessing a public space. A best practice is to sample with another person for safety, heavy lifting, avoiding spills, etc.

Survey the surrounding area for potential hazards to yourself or the public.

Do you need signage? Safety officers? Institutional security? Police?

Some examples of safety gear you might need are:

Tyvex suit

Protective gloves

Protective masks

Respirators

Eye protection

Safety vests

Traffic cones

Manhole cover tool or lifter

For this case study, the manhole you are sampling from is located on a busy public road. The municipality requires that they be present to remove the manhole for sampling so that they can set up safety cones, signage, and direct traffic for safety.

### **Coordinate logistics ahead of time**

As you prepare to begin sampling, here are some logistical factors to consider:

How much coordination is needed for each access?

Is it a secure facility? Do you need a security clearance or to submit paperwork for access?

Do you need to be accompanied by someone from the facility each time?

Establish a schedule among stakeholders to set you up for success.

### **Summary/exit**

There are many considerations when picking a sampling site. Think about the overall goals of your wastewater surveillance project, budget, population being monitored, and more. More written materials to support your project planning, including site selection, are available on the Colorado National Wastewater Surveillance System Center of Excellence's website.