

**Colorado SARS-CoV-2 Wastewater Surveillance Collaborative**  
**Memorandum of Understanding**  
**July 2020**

**Section 1 Background**

The Colorado Department of Public Health and Environment (Department) is partnering with Colorado State University, Metropolitan State University of Denver (MSU), and 17 Wastewater Utilities to develop a statewide wastewater surveillance system of SARS-CoV-2 RNA, the etiological agent of COVID19. The purpose of the surveillance system is to provide early warning (days to a week) for state and local health authorities of significant changes in fecal shedding of SARS-CoV-2 that could be used in combination with other surveillance efforts and drive action in responding to future COVID19 outbreaks. This testing could also confirm downward trends in COVID-19 outbreaks. With more data and analysis, it may also be useful for predicting community prevalence or to identify potential virus hot spots.

**Section 2 Purpose**

This agreement is being entered into by the Memorandum of Understanding (MOU) parties so that roles and responsibilities of each member of the collaborative are understood. The Department has secured \$520,000 in funding for this project and this MOU is focused on how those dollars will be leveraged. The effort is scalable and may be expanded through future agreements.

The financial obligations under this MOU are contingent upon appropriation, budgeting, and availability of specific funds to discharge those obligations. Nothing in this MOU constitutes a debt, a direct or indirect multiple fiscal year financial obligation or a pledge of a Wastewater Utilities' credit.

**Section 3 MOU Parties**

The following entities are parties to this MOU, individually referred to as Wastewater Utilities, Universities, and Regulatory Agencies.

Participating Parties	
Regulatory Agencies:	
Colorado Department of Public Health and Environment	
Universities:	
Colorado State University	
Metropolitan State University of Denver (MSU)	
Wastewater Utilities:	Participating Wastewater Facilities:
City of Aurora	Aurora Sand Creek Reuse Facility
City of Boulder	Boulder Water Resource Recovery Facility

Boxelder Sanitation District	Boxelder Sanitation District
City and County of Broomfield	City and County of Broomfield Wastewater Reclamation Facility
City and County of Denver	Sample locations to be determined in coordination with Metro Wastewater Reclamation District and Department
Colorado Springs Utilities	JD Phillips Resource Recovery Facility
	Las Vegas Street Resource Recovery Facility
Estes Park Sanitation District and Upper Thompson Sanitation District	Estes Park Sanitation District Wastewater Treatment Facility and Upper Thompson Sanitation District Wastewater Treatment Facility
City of Fort Collins	Mulberry Water Reclamation Facility
	Drake Water Reclamation Facility
City of Greeley	City of Greeley Wastewater Treatment and Reclamation Facility
City of Longmont	City of Longmont Wastewater Treatment Plant
City of Louisville	City of Louisville Wastewater Treatment Plant
Metro Wastewater Reclamation District	Robert W. Hite (Central Denver) to be listed
	Robert W. Hite (Platte River Interceptor)
City of Pueblo	James R. Dilorio Water Reclamation Facility
Cities of Littleton and Englewood	South Platte Renew
South Fort Collins Sanitation District	South Fort Collins Wastewater Treatment Plant
South Adams County Water & Sanitation District	Williams Monaco Wastewater Treatment Plant

## Section 4 Responsibilities

The following is a description of the responsibilities of the MOU parties.

### All MOU Parties

- The MOU Parties will develop a Collaborative Work Plan. The Department will lead development of the Collaborative Work Plan. The Collaborative Work Plan will provide operational details for the surveillance program and will specify how additional samples beyond the agreed upon frequency of two samples per week by each Wastewater Utility will be conducted. There will be

a phase in of sample frequency with 3 weeks of sampling one time per week vs. two. In addition, the Collaborative Work Plan will detail quality assurance and control expectations.

- The Colorado SARS-CoV-2 Wastewater Surveillance Collaborative may expand to additional Wastewater Utilities and laboratories beyond the MOU Parties. The Collaborative Work Plan will address how entities can participate in the Collaborative and explain what sampling and laboratory methods are required to ensure data consistency.

#### Colorado Department of Public Health and Environment

The Department will complete the following efforts:

- Utilize the data to inform ongoing response to the COVID19 pandemic.
- Provide technical assistance to Local Public Health Agencies on the data.
- Work with Colorado State University, MSU and the Wastewater Utilities to optimize data collection and display of results.
- Work with Colorado State University, MSU and the Wastewater Utilities to align wastewater collection catchment geographic information with COVID19 disease reporting information for correlation and display of results.
- On a weekly basis, provide weekly surveillance data (case counts and positivity rates) aggregated by wastewater facility boundary or sewershed. This information will be used in the dashboard.
- Will publish a link to the dashboard for Local Public Health Agencies and eventually the public.
- Coordination with Centers for Disease Control with any national efforts to use wastewater surveillance.

#### Colorado State University

Colorado State University will complete the following:

- Complete RNA extraction for wastewater influent samples. RNA will be extracted and concentrated via centrifugation, filtration and/or precipitation.
- Viral RNA copy number will be quantified using reverse transcription PCR - either real-time PCR (for comparison to established procedures), or digital PCR (for increased sensitivity)
- Data will be reported to the WWTP/State of Colorado as viral copies per liter. Trends in the data over time will also be reported.
- Will lead development of and host the dashboard. Coordinate with the Department and the Wastewater Utilities on required GIS layers, information needed to calculate viral loads, and surveillance data to be displayed on the dashboard. Depending on length of surveillance effort the dashboard may eventually be transferred to the Department for ongoing updates and maintenance.
- Laboratory capacity to process 38 samples/week (1,860 samples over course of 52 week period).

#### Metropolitan State University of Denver

MSU will complete the following:

- MSU will work with the Department to identify specific questions associated with the statewide wastewater surveillance effort, and conduct experiments designed to answer these questions. MSU and the Department will get input on these questions from other members of the collaborative. The Department will prioritize the questions to align with the budget and MSU laboratory capacity. Examples of applicable projects might include questions about RNA stability, potential extraction techniques, and optimal sample processing prior to shipping.
- Complete RNA extraction for wastewater influent samples. RNA will be extracted and concentrated via centrifugation, filtration and/or precipitation.

- Viral RNA copy number will be quantified using reverse transcription PCR - real-time PCR (for comparison to established procedures)
- Data will be reported to the WWTP/State of Colorado as viral copies per liter. Trends in the data over time will also be reported.

#### Participating Wastewater Facilities

The Wastewater Facilities listed in Section 3 will complete the following efforts:

- Sample their wastewater influent or potentially at upstream locations in their collection system based on direction from the Department in coordination with Local Public Health Agencies and based on the Collaboration Work Plan.
- Sample their wastewater at least two days per week (Mondays and Thursdays) per the Collaborative Work Plan. There will be a phase in of sample frequency with 3 weeks of sampling one time per week vs. two.
- Sampling will be conducted for 52 weeks.
- Samples will be shipped to the designated laboratory on the same day as the sample is complete.
- Furnish GIS layer of catchment area to CSU in support of dashboard development.

### **Section 5 Special Provisions**

The following details special provisions of the MOU.

#### Nonbinding Agreement

The parties agree that this MOU is to memorialize the intent of the parties regarding the Program but does not create a legal agreement between the parties. It is agreed by the parties that nothing in this MOU will be deemed or construed as creating a joint venture, trust, partnership, or any other legal relationship among the parties. This MOU is for the benefit of the parties and does not create third party rights.

#### Communications

Any communications affecting the operations covered by this agreement given by the Department, Metropolitan State University of Denver, Colorado State University, or Wastewater Utilities is sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

- To the Department, Metropolitan State University of Denver, or Colorado State University at the address specified in the MOU.
- To Wastewater Utilities, at Party's address shown in the MOU or such other address designated within the MOU.
- All communications with the media will be coordinated with CDPHE prior to issuance of press releases and interviews

#### Access to records and data flow

- Nothing in the agreement shall be deemed to waive or modify any public access or provision of the Colorado Open Records Act.
- All data related to the project will be provided to the Department including, but not limited to, sample locations, frequencies, collection methods, analysis methods, results, and any analysis statistics. Laboratory results will also be made available to the wastewater entity that generated the samples. Results will also be made available to all MOU parties.

- All data will be analyzed by the Department and provided to the MOU parties and Local Public Health Agencies concurrently. Once a public facing dashboard is developed, data will be published to the public dashboard 24 hours after being provided to the MOU Parties and Local Public Health Agencies.
- Data will be made available to outside researchers or national efforts upon request.

#### Effective date

This agreement shall become effective on the date of execution by the last signatory party. It may be amended or extended upon the mutual agreement of the MOU Parties. The MOU may be terminated by any party after thirty (30) days advance written notice. The MOU will expire on September 30, 2021.

#### **Section 6 Approvals**

The following pages include the approval of this MOU by the MOU Parties.

City of Aurora

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Marshall Brown  
General Manager of Aurora Water  
City of Aurora

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Date

**City of Boulder**

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Jane Brautigam  
City Manager  
City of Boulder

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Date

## Boxelder Sanitation District

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Brian Zick  
District Manager  
Boxelder Sanitation District

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Date



**City and County of Broomfield**

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David Allen  
Director of Public Works  
City & County of Broomfield

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Date

City and County of Denver

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Name

Title

City & County of Denver

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Date

## Colorado Springs Utilities

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David Padgett  
Environmental Services Officer  
Colorado Springs Utilities

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Date

## Estes Park Sanitation District

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Name

Title

Estes Park Sanitation District

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Date

**City of Fort Collins**

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Name

Title

City of Fort Collins

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Date

City of Greeley

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Sean Chambers  
Water and Sewer Director  
City of Greeley

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Date

**THE CITY OF LONGMONT,**  
a municipal corporation

\_\_\_\_\_  
MAYOR

ATTEST:

\_\_\_\_\_  
CITY CLERK

\_\_\_\_\_  
DATE

APPROVED AS TO FORM:

\_\_\_\_\_  
ASSISTANT CITY ATTORNEY

\_\_\_\_\_  
DATE

\_\_\_\_\_  
PROOFREAD

\_\_\_\_\_  
DATE

APPROVED AS TO FORM AND SUBSTANCE:

\_\_\_\_\_  
ORIGINATING DEPARTMENT

\_\_\_\_\_  
DATE

CA File: 20-000822

City of Louisville

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Heather Balser  
City Manager  
City of Louisville

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Date



**Metro Wastewater Reclamation District**

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Jim McQuarrie  
Director of Comprehensive Planning & Innovation  
Metro Wastewater Reclamation District

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Date

City of Pueblo

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Nick Gradisar  
Mayor  
City of Pueblo

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Date

## Cities of Littleton and Englewood

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Pieter Van Ry  
Director  
South Platte Renew

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Date

## South Fort Collins Sanitation District

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Chris Matkins  
General Manager  
South Fort Collins Sanitation District

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Date

## South Adams County Water & Sanitation District

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Jim Jones  
District Manager  
South Adams County Water and Sanitation District

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Date

## Upper Thompson Sanitation District

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Chris Bieker  
District Manager  
Upper Thompson Sanitation District

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Date

**Colorado Department of Public Health and Environment**

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John Putnam  
Director of Environmental Programs  
Colorado Department of Public Health and Environment

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Date

The Board of Governors of the  
Colorado State University System,  
acting by and through **Colorado State University**

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Name

Title

Colorado State University

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Date



**Metropolitan State University of Denver**

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Name

Title

Metropolitan State University of Denver

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Date