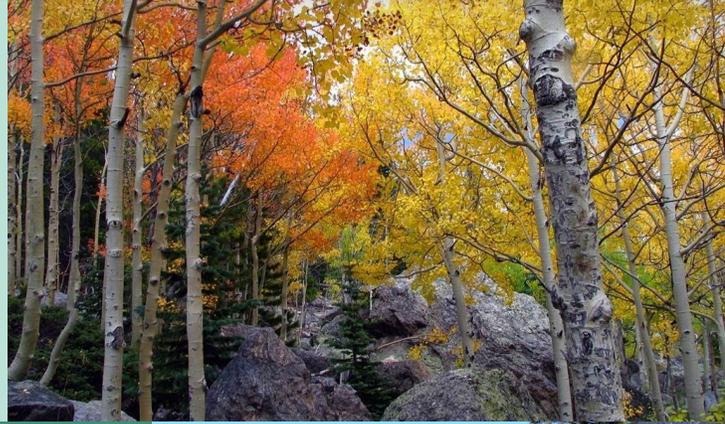


LARIMER COUNTY



ENVIRONMENTAL AND SCIENCE ADVISORY BOARD



2022 Annual
Report



January 2023

Board of County Commissioners:

This annual report outlines the Environmental and Science Advisory Board's (ESAB) activities in 2022 and sets our general goals and direction for 2023.

Despite the ongoing pandemic and associated challenges, the ESAB continued to work on important topics of discussion that included the County's response to ozone non-attainment through developing a program for monitoring air quality. Other topics included the Climate Smart and Future Ready Phase 3 engagement, revisions to the Colorado Water Plan, and reducing green-house gas emissions through use of electric vehicles (EVs) and EV charging infrastructure.

Additional information about the Advisory Board, including full minutes for its meetings, is available on the County's website at:

<https://www.larimer.org/boards/environmental-and-science-advisory-board>.

We would like to acknowledge County staff for their continued help and commitment to sound environmental management. In 2022, representatives from the Departments of Health and Environment, Natural Resources, Planning, Facilities, Fleet, Finance and the Climate Smart and Sustainability Program attended meetings to assist and inform Advisory Board members. Most meetings were held in person with a virtual option.



The ESAB even found time to do some community service through a team-building event at the Colorado State Forest Service tree nursery in Fort Collins.

We hope that the feedback we provided was useful for the County. Please feel free to contact either of us, or any of our members, if you would like to discuss specific issues in greater detail.

Jim Gerek, Chair for 2022

Rodger Ames, Chair for 2023

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**2022 ANNUAL REPORT OF THE LARIMER
COUNTY ENVIRONMENTAL AND SCIENCE
ADVISORY BOARD**

January 2023

I. INTRODUCTION

The Larimer County Commissioners established the Environmental Advisory Board in 1993. The name of the board was changed to the Environmental and Science Advisory Board (ESAB) in 2013. In July of 2021 the Board was expanded from 12 at-large members to up to 15 at-large members, appointed by the County Commissioners.

The primary role of the Board is to advise the Board of County Commissioners and appropriate County departments on environmental and science-related issues that affect Larimer County. Items considered by the ESAB come from the Commissioners, staff, the community and our own members.

The Advisory Board typically meets on the second Tuesday of each month and on an as-needed basis for special work sessions. The first agenda item of each meeting is devoted to hearing public comments about environmental issues. The list of invited guest speakers that attended the ESAB meetings in 2022 is presented in Section VI of this report.

Important discussion topics considered by the Advisory Board are noted in Section II. Section III outlines the status of issues related to its recommendations. The actual written correspondence provided by the Board is included in the Appendix.

The ESAB uses an issue index to keep track of the various issues that the board monitors and addresses. This index is updated monthly.

John Kefalas served as the County Commissioner Liaison to the Environmental and Science Advisory Board for 2022 and Shelley Bayard de Volo, from the Engineering Department, remained as the staff facilitator throughout 2022.

II. DISCUSSION TOPICS IN 2022

Presentation slides and/or other materials are available upon request to ESAB Chair or the Staff Liaison.

MONTH	TOPICS
January	<ul style="list-style-type: none">• Air Quality Monitoring<ul style="list-style-type: none">◦ Jeffrey Collett and Emily Fischer, CSU• Discuss Air Quality Monitoring Recommendations<ul style="list-style-type: none">◦ Rodger Ames• 2021 Annual Report, 2022 Workplan<ul style="list-style-type: none">◦ Jim Gerek <p>UPDATES</p> <ul style="list-style-type: none">• Commissioner's Update• EV Charging Infrastructure and Fleet EVs• Climate Smart Larimer County
February	<ul style="list-style-type: none">• Larimer County Fleet and Facilities<ul style="list-style-type: none">◦ Heidi Vilhauer, Director of Fleet and Ken Cooper, Director of Facilities <p>UPDATES</p> <ul style="list-style-type: none">• Commissioner's Update• Status on Air Quality Monitoring• Environmental Stewardship Awards• Boards and Commissions Policies, Procedures, and Compensation• ESAB Team Building Opportunities
March	<ul style="list-style-type: none">• Environmental Stewardship Awards<ul style="list-style-type: none">◦ Sub-committee Formation• Review of Wildfire-related legislation: SB21-240 Watershed Restoration Grants Program; and SB21-258 Wildfire Risk Mitigation<ul style="list-style-type: none">◦ Daniel Beveridge <p>UPDATES</p> <ul style="list-style-type: none">• Commissioner's Update• Air Quality Monitoring Sub-committee update• Climate Smart Larimer County

MONTH**TOPICS**

April

- CSLC Task Force Update and Future Planning
 - Heidi Pruess, Climate Smart and Sustainability Program Manager
- Environmental Stewardship Awards
 - Sub-committee Report

UPDATES

- Commissioner's Update
- CSLC External Task Force
- Air Quality Monitoring
- PFAS Update
- Team Building Event – Final Plans
- Bylaws and Update

May

- Coronavirus 'Pandemic' 2020 (COVID-19): Topics in Scientific Challenges and Opportunities
 - David Lehman, MD
- EV Roadmap, What is the County's role in developing EV Infrastructure?
 - Kirk Longstein

UPDATES

- Commissioner's Update
- Fleet Rooftop Solar
- Air Quality Monitoring
- Larimer County Water Open House
- Fleet and EVs
- Bag Ban – City of Fort Collins
- Environmental Stewardship Awards
- ESAB Team Building Event Follow-up

MONTH	TOPICS
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June	
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- Implementation of Oil and Gas Regulations in Larimer County
 - Matt Lafferty Principal Planner Larimer County
- Update on the Climate Smart Larimer County Process
 - Heidi Pruess, Climate Smart and Sustainability Program Manager

UPDATES

- Outgoing Member Recognition
 - Commissioner's Update
 - Air Quality Update
 - June 16th Air Quality Webinar
 - Larimer County Regional Water Planning update
 - Environmental Stewardship Awards
 - ESAB Member Applications
-

July	
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- CANCELLED
-

August	
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- Climate Smart and Future Ready
 - Heidi Pruess, Climate Smart and Sustainability Program Manager
- EV Readiness for Community and the County's Role
 - Heidi PruessCounty Fleet Alternative Fuels Planning Roadmap and Sustainability Task Force
 - Heidi Pruess
- Review of BOCC Air Quality Worksession and Next Steps
 - Rodger Ames

UPDATES

- Commissioner's Update
 - Update on Water Storage Projects
 - Selection of Subcommittee to Review Draft Colorado Water Plan
-

MONTH	TOPICS
September	<ul style="list-style-type: none"> • Introduction to Larimer County's Purchasing Policy and Procedures <ul style="list-style-type: none"> ◦ Carol Block, Finance Director • Colorado Water Plan 2023 Draft, ESAB Comments <ul style="list-style-type: none"> ◦ Water Plan Sub-Committee <p>UPDATES</p> <ul style="list-style-type: none"> • Commissioner's Update • NFRMPO Draft GHG Plan • Larimer County Pollinator Protection Resolution • Open Position for ESAB Vice-Chair • Oils and Gas Update -Prospect Energy Krause Site • Reschedule November Meeting - Election Day
October	<ul style="list-style-type: none"> • Larimer County Air Quality Monitoring Strategy <ul style="list-style-type: none"> ◦ Rodger Ames • Vice-Chair Position and ESAB Leadership moving forward <ul style="list-style-type: none"> ◦ Jim Gerek • Issue Index review and update <ul style="list-style-type: none"> ◦ Jim Gerek <p>UPDATES</p> <ul style="list-style-type: none"> • Commissioner's Update • Climate Smart and Future Ready • Colorado Water Plan submission • Fall Team Building Option – Clean up at Horsetooth Reservoir Shoreline 11/22
November	<ul style="list-style-type: none"> • Air Quality Monitoring Draft Resolution <ul style="list-style-type: none"> ◦ Rodger Ames • DRAFT 2023 ESAB Workplan <ul style="list-style-type: none"> ◦ Jim Gerek <p>UPDATES</p> <ul style="list-style-type: none"> • Commissioner's Update • Climate Smart and Future Ready update • Xcel Partners in Energy • Board Elections coming in December

MONTH	TOPICS
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December	
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- ESAB Air Quality Monitoring Proposal status
 - Rodger Ames
- New Advisory Board Processes – workplans, bylaws, and noticing sub-committee meetings
- 2022 Annual Report, 2023 Workplan - DRAFT
- 2023 Board Elections

UPDATES

- Climate Smart Future Ready update
 - Weld County O&G Comprehensive Area Plan
-

III. STATUS OF ESAB RECOMMENDATIONS IN 2022

The table below outlines the formal recommendations made by the Advisory Board and provides a brief statement about the status of those recommendations. As an advisory board, the ESAB’s written recommendations are submitted to the Board of County Commissioners or a requesting County department. The actual correspondence is shown in the Appendix.

Issue	Principal ESAB Actions and Recommendations	Status
Air Quality Monitoring	<p>The ESAB air quality sub-committee worked throughout the year to learn about current air quality monitoring science and technologies. They invited several speakers to present to the board on the topics. They developed a memo on options to expand air quality monitoring in Larimer County (Appendix A).</p> <p>Lea Schneider, LCDHE , requested that one ESAB member, be designated to coordinate with LCDHE and City of Fort Collins staff on their EPA grant application. Rodger Ames, was designated (Appendix B).</p> <p>Further coordination involved working with researchers at Colorado State University to explore data gaps in the County’s air quality monitoring program, adopted by the BOCC mid-year 2022. A resolution to fund a project to measure ozone precursors to address the region’s ozone nonattainment designation was forwarded for consideration by the BOCC (Appendix F).</p>	<p>The ESAB’s resolution was received and considered by the LCDHE and the BOCC who recommended the project be considered for 2024.</p>

Issue	Principal ESAB Actions and Recommendations	Status
Climate Smart and Future Ready Larimer County	Shelby Sommer continued to participate with the Phase 2 outreach. Later in the year Program Manager, Heidi Pruess requested the ESAB designate a member to participate as a workgroup member with the Phase 3 outreach. The ESAB responded by letter (Appendix C) that they designated Tasha Carr and Ted Hendrickx.	Shelby Sommer finished her assignment with the end of the Phase 2 process. Tasha Carr and Ted Hendrickx are currently representing the ESAB in the Phase 3 process.
Resolution to protect pollinators	A draft resolution recognizing the importance of protecting and supporting pollinators in Larimer County was presented to the ESAB. Tasha Carr suggested several edits to the language and provided those edits to Commissioner Kefalas prior to BOCC approval (Appendix D).	Suggested edits were later agreed to by the Agricultural Advisory Board and incorporated in the final resolution.
Draft 2023 Colorado Water Plan	The ESAB Watershed Health subcommittee reviewed relevant sections of the draft 2023 Colorado Water Plan. They commented and recommended edits to the draft language, which was presented to, and then adopted by the entire Board.	The memo with recommendations were received and considered by the BOCC, who then passed them onto the Colorado Water Conservation Board during their open public comment period (Appendix E).

IV. ONGOING COMMITTEE WORK

Issue	Principal ESAB Activities	Active ESAB members
Ozone and Air Quality Monitoring	ESAB is working with the Larimer County Department of Health and Environment and the City of Fort Collins on their air quality monitoring program.	Rodger Ames Katrina Winborn-Miller
Climate Smart and Future Ready - Phase 3	The ESAB is supporting community engagement by sitting on the CSLC Task Force. An invitation for one member to participate was made and accepted (Appendix C).	Tasha Carr Ted Hendrickx

V. ENVIRONMENTAL STEWARDSHIP AWARDS

Each year, the Environmental & Science Advisory Board and the Board of County Commissioners recognize significant environmental efforts of county residents, businesses, organizations and/or agencies by awarding the Larimer County Environmental Stewardship Awards. These Environmental Stewardship Awards were first issued by Larimer County in 1995.

The board looks for individual or group activities that are innovative and proactive, and that demonstrate exceptional effort and concern for the stewardship of the environment. Projects can be either one-time efforts, or ongoing activities. Both types are judged on their degree of difficulty and the results they achieve. Each year the Environmental and Science Advisory Board solicits nominations, reviews them and makes recommendations for the awards to the Board of County Commissioners.

In 2022, the ESAB reviewed nine nominations, all of which provided good examples of the important activities local citizens are engaged in to protect and improve our environment. The recommended five projects produced positive environmental results locally and provided good examples of what others can do. These five were recommended to the BoCC for consideration of the award and were ultimately presented with their Stewardship Award at a public ceremony by the BoCC. The 2022 awardees were:

1. Lempka Family Farm - Protecting Water Quality in the Little Thompson River by Reducing Nonpoint Source Pollution

The Lempka Family Farm, in cooperation with Colorado State University, the Little Thompson Watershed Coalition and the Colorado Dept. of Health and Environment (CDPHE) is implementing a water quality control measure to treat irrigation return flows from their farm. The “edge of river grass filter strip” reduces soil particulates, nitrogen, phosphorous and e-coli from the farm’s return flows thus treating the water before it re-enters the Little Thompson River. This project is important because it provides an example of how agricultural producers can reduce nutrient pollution, an important goal of Colorado’s Water Quality Regulation 85.

2. Mike E Corbin – Leadership in Restoring Trails Following the Cameron Peak Fire

Following the 2020 Cameron Peak Fire, 120 miles of Forest Service recreation trails were affected in the Canyon Lakes Ranger District of the Roosevelt National Forest. Poudre Wilderness Volunteers (PWV), under Mike Corbin’s leadership, started their work in Spring of 2021 and by August most trails were open to the public. The work consisted of 44 workdays completed by the public, Poudre Wilderness Volunteers, and local businesses, who removed nearly 3000 trees from the trails and improved drainage on 11 miles of trails thereby reducing erosion. Their work ultimately cleared 60 miles of fire impacted trails and allowed the public to get out and enjoy our mountain wilderness.

3. Northern Colorado Wildlife Center - Rehabilitating and Advocating for Injured Wildlife, and Educating the Community on Stewardship of Wildlife Habitats

Northern Colorado Wildlife Center plays a vital role in our community. Their mission is to rehabilitate injured wild reptiles and amphibians, as well as all types of wildlife, educate the community on environmental stewardship, and improve local natural areas and open spaces through coordinated tree plantings and litter removal. Prior to their establishment as a rescue, they estimated that ~2000 wild animals were euthanized each year because there were no other options for care and rehabilitation. But now, under their care, nearly 95% of their patients annually are released back into the wild including many turtles, snakes, lizards, and other wildlife species.

4. Energy Resource Center - Serving the Community with Home Energy Efficiency Upgrades

Energy Resource Center (ERC) is a nonprofit that focuses on free home energy efficiency upgrades for low income-qualifying clients. ERC evaluates a resident's home, conducts an energy audit and provides a means for their customers to replace old appliances and add weatherization improvements to their homes - all at no cost to residents. They also provide home improvements focused on health and safety (plumbing, wiring, venting, structural). Since 2018, ERC has served an important role in our community, helping residents in underserved communities save 25% or more on their annual utility bills. This year they anticipate assisting 70 households in Larimer County.

5. Folsom Grazing Association - Land Stewardship in the Mountain to Plains Ecosystem through Conservation Grazing Practices

Folsom Grazing Association (FGA) consists of 7 producer members who have collaborated with the City of Fort Collins Natural Areas Program at the Soapstone Prairie Natural Area to develop and implement a model for conservation grazing. Since 2004, this partnership has enhanced the ecological conditions and environmental services on the unique Mountains to Plains Corridor in Northern Larimer County. The FGA implements adaptive land management with the goal of promoting rangeland health, wildlife habitat, cultural resources, recreation, and education. They provide an example of how producers can achieve their production goals while also engaging in land stewardship.

VI. INVITED SPEAKERS AND GUESTS FOR MONTHLY MEETINGS

Month	Person	Speaker's Topic
January	Emily Fischer, CSU Jeffrey Collett, CSU	Air Quality Monitoring
February	Heidi Vilhauer, Director of Fleet Services Ken Cooper, Director of Facilities	EV's and Charging Infrastructure Facility Energy Efficiency
March	No Guests	
April	Heidi Pruess, Climate and Sustainability program manager	CSLC Task Force update and future planning
May	No Guests	
June	Matt Lafferty, Principal Planner, Community Development	Implementation of oil and gas regulations in Larimer County
July	Cancelled	
August	Heidi Pruess, Climate and Sustainability program manager	Climate Smart Future Ready Update. EV Readiness for community and the County's role. County Fleet alternative fuels planning roadmap and sustainability task force.
September	Carol Block, Director of Finance	Introduction to Larimer County's Purchasing Policy and Procedures
October	No Guests	
November	Jeffrey Collett, CSU Lea Schneider, Larimer County Department of Health and Environment	Air Quality Monitoring
December	No Guests	

VII. ENVIRONMENTAL AND SCIENCE ADVISORY BOARD MEMBERS

Board Member	Status for 2022
Rodger Ames, Interim Vice-Chair	Active
Daniel Beveridge	Active
John Bleem	Active
Tasha Carr	Appointed June 2022
Jim Gerek, Chair	Active
Ted Hendrickx	Active
David Lehman, Vice-Chair	Term ended June 2022
Allyson Little	Active
Barry Noon	Appointed September 2022
Kirk Longstein, Vice-Chair	Resigned August 2022
Kaitlin Rainsberger	Active
George Rinker	Active
Travis Rounsaville	Active
Catriona Smith	Active
Shelby Sommer	Active
Katrina Winborn-Miller	Active
Christopher Wood	Active

Note: This list includes all Advisory Board members who served during the year. At any given time, the Board consists of a maximum of fifteen members.

VIII. YEAR 2023 WORKPLAN

This workplan provides information about the general direction the Environmental and Science Advisory Board (ESAB) considers taking in 2023. Because conditions or priorities in the County can change, a considerable degree of flexibility needs to be maintained.

Overall: The ESAB strives to inform, and be informed about, County government-related policies, decisions, issues and actions that have environmental, community and economic implications. To that end the ESAB will:

1. Serve as an informational resource that provides science-based recommendations to the Board of County Commissioners (BoCC) and County departments, and other County Advisory Boards pointing out areas of uncertainty and suggesting appropriate ways to address them;
2. Identify environmental and science-based issues and opportunities for the consideration of the County Commissioners so that the BoCC can be proactive in their responsibilities to the environment and the community. To that end, the ESAB will solicit, from its membership, ideas with respect to current environmental issues, and develop a consensus of the most relevant topics to be forwarded to the BoCC;
3. Develop and maintain an attitude of trust and respect among the ESAB, the Commissioners, County departments and other boards and commissions;
4. Foster a cooperative working relationship with local and state organizations who are connected to topics the ESAB considers as part of their Issue Index; and
5. Provide updates on current environmental topics to enhance the common knowledge base of its members.

Response to Referrals or Requests:

1. Respond in a timely manner to issues raised by the BoCC, County departments, other boards and commissions, and ESAB members; and
2. Facilitate the response to community questions/comments received by the Advisory Board in cooperation with the BoCC and appropriate County departments.

Current Environmental Topics:

1. Consider the regional implications of important environmental issues and consider ways to address those issues across local jurisdictional boundaries. Examples of current issues include planning for ozone air quality compliance, enhancement of forest and watershed health, build-out of Electric Vehicle (EV) infrastructure, and mitigating impacts of hydraulic fracturing in oil/gas

development;

2. Monitor important water issues including long-term watershed planning, water quality and significant proposed water projects. The Northern Integrated Supply Project (NISP) and the Halligan Reservoir expansion projects are examples of current water issues;
3. Monitor solid waste management issues such as landfill operations, recycling and hazardous waste disposal. Follow the Solid Waste Policy Council as it develops facilities and policies for the next 10-50 years;
4. Monitor the status of conventional, renewable and alternative energy development and, as requested, consult with County departments and the BoCC regarding potential environmental implications. Wind energy, solar energy, and oil and gas development are current topics of interest;
5. Consider important ecological impacts associated with large-scale events such as wildfire, floods, droughts, climate change and biological events (i.e., emerald ash borer, pine bark beetle). Promote the incorporation of wildfire preparedness (e.g., Firewise USA development), resiliency, mitigation, and recovery into planning and emergency management of such large-scale events;
6. Support the creation and revision of major County policies and plans, including the Regional Water Study, the Climate Smart and Future Ready program, and the internal Climate and Sustainability Action Plan;
7. Consider policies and mechanisms to support the County's air quality monitoring objectives. Examples include projects to improve the region's ozone nonattainment status, and to develop a representative air quality monitoring program for the County; and
8. Inform County leadership of the integration of diversity, equity, and inclusion with all above topics.

Stewardship Awards:

1. Coordinate the County's annual Environmental Stewardship Awards in partnership with the BoCC.

Communications and Process:

1. Maintain open communications with the County Commissioner liaison assigned to the ESAB in order to facilitate dialogue about environmental concerns or issues identified by either the BoCC or the Advisory Board;
2. Use the Commissioners' Work Sessions and Administrative Matters meetings, as appropriate, for communication on important environmental and science issues as they arise;

3. Provide knowledgeable ESAB members, as requested, to participate with ad hoc County Task Forces and Stakeholder Groups addressing topics with environmental and/or science implications; and
4. Continue the practice of assigning interested ESAB members monitoring tasks for select environmental issues, and then providing periodic updates to the full Advisory Board.

Future Schedule for Regular Agenda Items	
Q1	<ul style="list-style-type: none"> • 2022 Annual Report – 2023 Workplan – Adopt • ESAB Bylaws – Review • Environmental Stewardship Awards – Nomination Period • Climate Smart and Future Ready – Phase 3 Participation • Engagement on Air Quality Monitoring for Ozone Precursors
Q2	<ul style="list-style-type: none"> • ESAB Bylaws – Adopt Revisions • Environmental Stewardship Awards – Award Period • Climate Smart and Future Ready – Phase 3 Participation • New Member Recruitment and Interviews
Q3	<ul style="list-style-type: none"> • New Member Onboarding – Training and Orientations •
Q4	<ul style="list-style-type: none"> • 2023 Annual Report • ESAB Board Elections

APPENDIX: WRITTEN CORRESPONDENCE

These documents were prepared by the Environmental and Science Advisory Board as part of their activities in 2022.

- A. December 15th, 2021. The memo *Options to Expand Air Quality Monitoring in Larimer County* was not included in the 2021 Annual Report, so it is included here. This memo was a kick-off for the additional air quality monitoring activities the Board engaged in for 2022.
- B. January 11th, 2022. Response to request to designate an ESAB member to serve as an advisor to the LCDHE and City of Fort Collins on the effort to develop an air quality monitoring grant application to EPA. Email request and response.
- C. August 26th, 2022. Response to request to designate an ESAB member(s) to serve on the Climate Smart and Future Ready Phase 3 workgroup, as assigned. Letter requesting a designee.
- D. September 14th, 2022. Recommended edits to draft County resolution recognizing the importance of protecting and supporting pollinators in Larimer County. Submitted by member Tasha Carr to Commissioner Kefalas via email.
- E. September 15th, 2022. Comments on the Draft 2023 Colorado Water Plan. Memo with selected recommendations and detailed suggestions. Provided through email to Board of County Commissioners, who submitted with additions via online portal to the Colorado Water Conservation Board.
- F. November 16th, 2022. Resolution to recommend funding an additional air quality monitoring project in 2023, that complements four other projects to be implemented by the LCDHE in 2023. Email submission to the BoCC, ESAB resolution, and project budget and Scape of Work.

APPENDIX A

December 15th, 2021

Options to expand Air Quality Monitoring Memo

INSERT



20211616 Air
Quality Monitoring



Shelley Bayard de Volo <bayardsh@co.larimer.co.us>

Air Quality Monitoring Objectives

Cassie Archuleta <carchuleta@fcgov.com> Thu, Dec 16, 2021 at 10:07 AM
 To: Shelley Bayard de Volo <sbayard@larimer.org>, Travis Rounsaville <travis.rounsaville@gmail.com>, George Rinker <1011Rinker@runbox.com>, Allyson Little <allyson.c.little@gmail.com>, John Bleem <bleemj@outlook.com>, Jim Gerek <jmgerek@frontiernet.net>, Kirk Longstein <klongstein@gmail.com>, Ted Hendrickx <ted.hendrickx@gmail.com>, "Smith, Catriona V." <CVSmith@trcsolutions.com>, Kaitlin Rainsberger <kaitlin.e.fishburn@gmail.com>, Daniel Beveridge <azc cougar@gmail.com>, Katrina Winborn Miller <katalice@gmail.com>, Shelby Sommer <shelbyasommer@gmail.com>, "Lehman, David W" <DAVID.LEHMAN@cuanschut.z.edu>, Christopher Wood <chrisrwood@gmail.com>, Rodger Ames <rodger.b.ames@gmail.com>, John Kefalas <kefalajm@co.larimer.co.us>, Lea Schneider <schneils@co.larimer.co.us>

Thanks Shelley and members of the ESAB!

Really appreciate all of this interest and support in a regional collaboration. I will forward this to the City's Air Quality Advisory Board. Looking forward to getting all of these monitoring conversations aligned so that we can leverage each other's efforts!

Cassie

.....
CASSIE ARCHULETA
 Air Quality Program Manager
 City of Fort Collins

From: Shelley Bayard de Volo <sbayard@larimer.org>
Sent: Thursday, December 16, 2021 9:37 AM
To: Travis Rounsaville <travis.rounsaville@gmail.com>; George Rinker <1011Rinker@runbox.com>; Allyson Little <allyson.c.little@gmail.com>; John Bleem <bleemj@outlook.com>; Jim Gerek <jmgerek@frontiernet.net>; Kirk Longstein <klongstein@gmail.com>; Ted Hendrickx <ted.hendrickx@gmail.com>; Smith, Catriona V. <CVSmith@trcsolutions.com>; Kaitlin Rainsberger <kaitlin.e.fishburn@gmail.com>; Daniel Beveridge <azc cougar@gmail.com>; Shelley Bayard de Volo <sbayard@larimer.org>; Katrina Winborn Miller <katalice@gmail.com>; Shelby Sommer <shelbyasommer@gmail.com>; Lehman, David W <DAVID.LEHMAN@cuanschut.z.edu>; Christopher Wood <chrisrwood@gmail.com>; Rodger Ames <rodger.b.ames@gmail.com>; John Kefalas <kefalajm@co.larimer.co.us>; Lea Schneider <schneils@co.larimer.co.us>; Cassie Archuleta <carchuleta@fcgov.com>
Subject: [EXTERNAL] Air Quality Monitoring Objectives

Hi all,

attached is the memo on air quality monitoring options that Rodger coordinated on, along with Drs Fischer and Collett from CSU.

See the memo for more info and for recommended scheduling for the January meeting.

Shelley

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Shelley Bayard de Volo
 Environmental Coordination Specialist
 Environmental and Science Advisory Board Liaison

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Options to expand air quality monitoring in Larimer County

This memo outlines two cost-effective options for Larimer County to expand its near-source and ozone precursor air quality monitoring capabilities.

Background

Residents of Larimer County living near oil and gas operations may be at risk of exposure to air toxics. Currently, the County relies on the Colorado Department of Health and Environment (CDPHE) to respond to reported exposure incidents. However, new state and local oil and gas regulations expand local jurisdictions' authority to regulate oil and gas operations. In light of the new regulations, along with heightened public concern about toxics exposure, the County may want to consider expanding its near-source air quality monitoring capabilities. Figure 1 shows the locations of oil and gas wells in Northern Colorado (Larimer County is in the upper left corner of Figure 1).

High ground-level ozone concentrations are also a concern in Larimer County. The Denver Metro/North Front Range (DMNFR) is classified as a nonattainment area (NAA) for the 2008 and 2015 Ozone National Ambient Air Quality Standards (NAAQS). The southern portion of Larimer County is included in the NAA because ozone design values (i.e., the 3-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration) at the Fort Collins West (FTCW) monitor routinely exceed the 70 ppb threshold of the 2015 Ozone NAAQS. Figure 2 shows wind directions associated with high ozone levels at FTCW.

Near-source monitoring

Objective: Near-source oil and gas monitoring addresses air toxics exposure: primarily benzene.

Approach: Ideally, one wants flexible siting that doesn't require much infrastructure and can be relocated to different operations. It is critical to have 24/7 monitoring with good spatial coverage (at least two monitors, ideally more) to capture the intermittent emissions associated with acute exposure episodes. Low cost photionization detector (PID) systems that continuously monitor a suite of volatile organic compounds (VOCs) equipped with event-triggered canisters to provide high quality speciated air toxics concentration data from detected plumes have proven a good, reasonable-cost solution (e.g., Ajax-CSU systems deployed in Broomfield and Erie) to document these exposure episodes. Time-integrated (e.g., weekly) canisters can document longer-term VOC concentration increases near oil and gas activities.

Ozone precursor monitoring

Objective: Understanding the chemistry and source types (e.g., vehicle, oil and gas, wildfires, regional background, etc.) that contribute to high ozone in Larimer County will help inform emissions control strategies within the NAA.

Approach: A complete air quality monitoring system like Boulder AIR runs at Boulder Reservoir, and other Front Range locations, is nice. However, these systems are expensive and measure a limited number (approximately 20) VOCs. An automated canister collection system triggered by ozone levels would be more cost-effective and provide more comprehensive VOC speciation during peak ozone periods. Collocating this system with the violating ozone monitor at FTCW, and adding continuous NO_x/NO_y monitoring, would provide valuable information about the chemistry and sources that contribute to peak ozone in Larimer County. Ideally, precursor

monitoring would run for a least 3 to 5 years to align with the time required to establish an ozone design value.

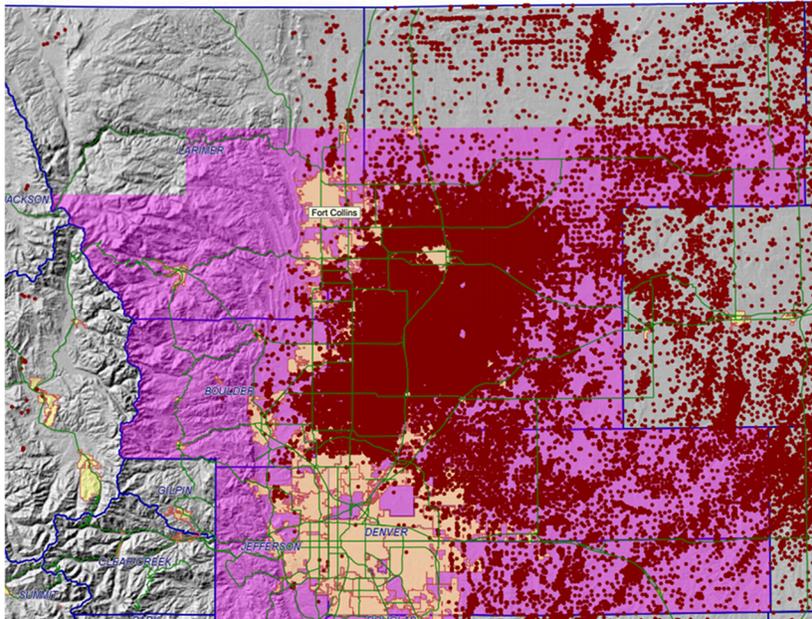


Figure 1. Active oils and gas wells in northern Colorado. The DMNFR NAA is shaded in purple. The EPA recently proposed extending the NAA to include the northern portion of Weld County, From COGCC. https://cogccmap.state.co.us/cogcc_gis_online/

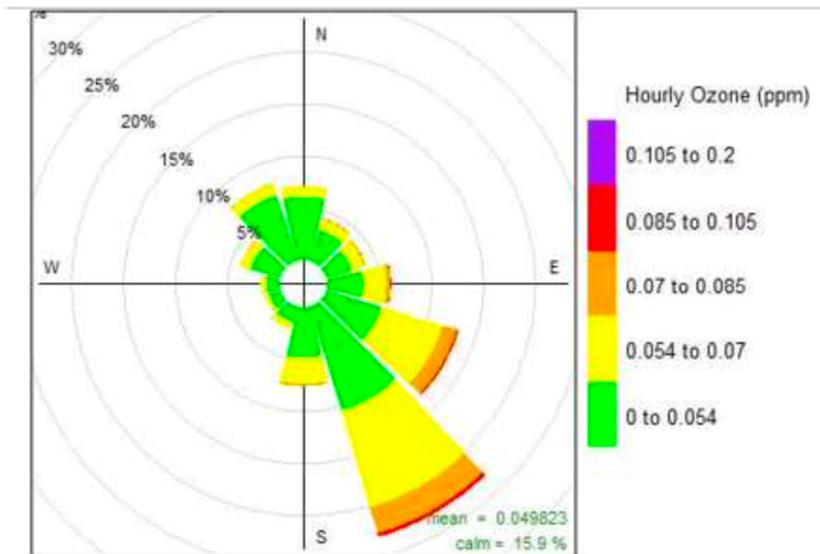


Figure 2. Hourly ozone pollution rose at FTCW during daylight hours (7:00 am to 9:00 pm MST) during the ozone season (May – September), 2013 through 2016. From EPA, May 2021. https://www.epa.gov/sites/default/files/2021-05/documents/final_clean_co_tsd_-_weld_county_remand.pdf

APPENDIX B

January 11th, 2022

Response to request to designate ESAB member for
Air Quality Monitoring Grant application

INSERT



co.larimer.co.us Mail
- Request for ESAB p.



Shelley Bayard de Volo <bayardsh@co.larimer.co.us>

Request for ESAB participation

Shelley Bayard de Volo <sbayard@larimer.org>

Wed, Jan 12, 2022 at 8:27 AM

To: Lea Schneider <schneils@co.larimer.co.us>

Cc: Jim Gerek <jmgerek@frontiernet.net>, Kirk Longstein <klongstein@gmail.com>, Rodger Ames <rodger.b.ames@gmail.com>

Hi Lea,

I have included the ESAB leadership and Rodger, on this response and acknowledgement of your request. I know they appreciate the opportunity to assist and look forward to working with you and your team.

Shelley

On Tue, Jan 11, 2022 at 8:54 PM Lea Schneider <schneils@co.larimer.co.us> wrote:

Hello Shelley,

The Health Dept would like to request ESAB participation in air quality monitoring discussions as the County explores options. More immediately, we are exploring objectives for an EPA grant opportunity in partnership with Fort Collins, CSU, and possibly Weld County, and would appreciate ESAB's involvement.

Our first grant objective discussion is this Thursday at 1pm. I will include Rodger Ames as discussed during teh ESAB meeting.

Thank you!
Lea



Lea Schneider
Environmental Health Planner

Health and Environment
1525 Blue Spruce Drive, Fort Collins, 80524 | 2nd Floor
Work: (970) 498-6777 | Main: (970) 498-6776
lschneider@larimer.org | www.larimer.org/health



Shelley Bayard de Volo
Environmental Coordination Specialist
Environmental and Science Advisory Board Liaison

Engineering Department
200 W Oak St, Fort Collins, 80521 | 3rd Floor
W: (970) 498-5738 | M: (970) 481-5941
sbayard@larimer.org | www.larimer.org/engineering

In response to COVID-19 Safer at Home Orders, I am teleworking from home most days. If you need to call me please try my mobile number at 970.481.5941

APPENDIX C

August 26th, 2022

Response to request to designate a ESAB member(s) to serve on the
Climate Smart and Future Ready Phase 3 workgroup, as assigned

INSERT



Climate Smart Work
Group Designees and



Shelley Bayard de Volo <bayardsh@co.larimer.co.us>

Climate Smart Work Group Designees

4 messages

Jim Gerek <jmgerek@frontiernet.net>

Sun, Sep 18, 2022 at 2:11 PM

Reply-To: Jim Gerek <jmgerek@frontiernet.net>

To: John Kefalas <jkefalas@larimer.org>, Jody Shadduck-McNally <jshadduckmcnally@larimer.org>, Kristen Stephens <kstephens@larimer.org>

Cc: Shelley Bayard de Volo <sbayard@larimer.org>, Heidi Pruess <pruesshb@co.larimer.co.us>, Tasha Carr <tkotliar@msn.com>, Ted Hendrickx <ted.hendrickx@gmail.com>

Commissioners:

Thank you for your memo of August 29 offering the Environmental and Science Advisory Board (ESAB) the opportunity to designate representatives to the new Climate Smart Public Outreach, Education, & Coordination Work Group. As you know, the ESAB has been a strong supporter of this project since even before its public inception.

At its regular monthly meeting on September 13 the ESAB officially designated Natasha (Tasha) Carr as our designee to the work group, and Ted Hendrickx as our alternate member/representative. They are copied on this note and can be contacted at those e-mail addresses for administrative and planning purposes. Both Tasha and Ted are relatively new to the ESAB but are experienced in environmental policy development, project management, and public communication.

The ESAB looks forward to the success of the Climate Smart implementation over the next few years. Informed of the project details by Tasha and/or Ted, the ESAB stands ready to provide any additional guidance and/or resources necessary.

Jim Gerek
Chair - Larimer County ESAB

Kristin Stephens <stephekm@co.larimer.co.us>

Mon, Sep 19, 2022 at 8:51 AM

To: Jim Gerek <jmgerek@frontiernet.net>

Cc: John Kefalas <jkefalas@larimer.org>, Jody Shadduck-McNally <jshadduckmcnally@larimer.org>, Kristen Stephens <kstephens@larimer.org>, Shelley Bayard de Volo <sbayard@larimer.org>, Heidi Pruess <pruesshb@co.larimer.co.us>, Tasha Carr <tkotliar@msn.com>, Ted Hendrickx <ted.hendrickx@gmail.com>

Thank you, Jim. Welcome Tasha and Ted! Thank you for your willingness to serve.

Best wishes,

Kristin



Kristin Stephens
County Commissioner, District 2

Commissioners' Office
200 W Oak St, Fort Collins, 80521 | 1st Floor
W: (970) 498-7002 | Cell: (970) 443-9577
kstephens@larimer.org | www.larimer.org

On Sun, Sep 18, 2022 at 2:11 PM Jim Gerek <jmgerek@frontiernet.net> wrote:

Commissioners:

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Jim Gerek
Chair - Larimer County ESAB

John Kefalas <kefalajm@co.larimer.co.us>

Mon, Sep 19, 2022 at 9:11 AM

To: Kristin Stephens <stephekm@co.larimer.co.us>

Cc: Jim Gerek <jmgerek@frontiernet.net>, John Kefalas <jkefalas@larimer.org>, Jody Shadduck-McNally <jshadduckmcnally@larimer.org>, Kristen Stephens <kstephens@larimer.org>, Shelley Bayard de Volo <sbayard@larimer.org>, Heidi Pruess <pruesshb@co.larimer.co.us>, Tasha Carr <tkotliar@msn.com>, Ted Hendrickx <ted.hendrickx@gmail.com>

Yes, thank you Jim - for your leadership as ESAB Chair, I am privileged to serve as the commissioner liaison to the Environmental & Science Advisory Board composed of many dedicated and smart members with different and relevant areas of expertise. Thanks for stepping up Tasha and Ted.



John Kefalas
County Commissioner, District 1

Commissioners' Office
200 W Oak St | 2nd Floor
PO Box 1190, Fort Collins, CO 80522-1190
W: (970) 498-7001
Cell: (720) 254-7598
jkefalas@larimer.org | www.larimer.org

On Mon, Sep 19, 2022 at 8:51 AM Kristin Stephens <stephekm@co.larimer.co.us> wrote:

Thank you, Jim. Welcome Tasha and Ted! Thank you for your willingness to serve.

Best wishes,

Kristin



Kristin Stephens
County Commissioner, District 2

Commissioners' Office
200 W Oak St, Fort Collins, 80521 | 1st Floor
W: (970) 498-7002 | Cell: (970) 443-9577
kstephens@larimer.org | www.larimer.org

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Jim Gerek

| | Chair - Larimer County ESAB

Jody Shadduck-McNally <shaddujl@co.larimer.co.us>

Mon, Sep 19, 2022 at 4:05 PM

To: Jim Gerek <jmgerek@frontiernet.net>

Cc: Shelley Bayard de Volo <sbayard@larimer.org>, Heidi Pruess <pruesshb@co.larimer.co.us>, Tasha Carr <tkotliar@msn.com>, Ted Hendrickx <ted.hendrickx@gmail.com>

Thank you for your service and time in this matter.

Respectfully,

Commissioner Jody Shadduck-McNally



Jody Shadduck-McNally
Larimer County Commissioner, District 3

Commissioner's Office
200 W Oak St, Fort Collins, 80521 | 2nd Floor
W: (970) 498-7003 | M: (970) 939-0558
jshadduckmcnally@larimer.org | www.larimer.org

On Sun, Sep 18, 2022 at 2:11 PM Jim Gerek <jmgerek@frontiernet.net> wrote:

Commissioners:

Thank you for your memo of August 29 offering the Environmental and Science Advisory Board (ESAB) the opportunity to designate representatives to the new Climate Smart Public Outreach, Education, & Coordination Work Group. As you know, the ESAB has been a strong supporter of this project since even before its public inception.

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The ESAB looks forward to the success of the Climate Smart implementation over the next few years. Informed of the project details by Tasha and/or Ted, the ESAB stands ready to provide any additional guidance and/or resources necessary.

Jim Gerek

Chair - Larimer County ESAB

LARIMER COUNTY | BOARD OF COUNTY COMMISSIONERS

P.O. Box 1190, Fort Collins, Colorado 80522-1190, 970.498.7010, Larimer.org

August 29, 2022

Larimer County is excited to seek your partnership and participation on a work group for the Climate Smart and Future Ready: Strategies for a Sustainable Larimer County initiative. The goal of this initiative is to lessen impacts on our residents from a changing climate and establish sustainable mitigation and adaptation efforts. We have completed Phase 1 and Phase 2, resulting in a [Recommendations Report](#) that will assist us as we begin our discussions. Your participation will result in development of an implementation plan with consensus driven community goals, strategies for action and measurable outcomes. Decision by consensus means without formal voting and moving forward when mutually acceptable and without objection by the members.

What would your role be? We'd like for you or a member of your advisory body to participate in monthly meetings over the next 18-months (individual work groups may determine less frequent meetings are sufficient but please plan for monthly meetings at the on-set of this process). This is not a voting body, but a consensus driven working group to develop a measurable action plan that is adoptable by our suite of community partners, ensuring that every step of the project fits within the context of the community. We ask you to be leaders of and active participants throughout the project; weigh in on decisions; collaborate with other groups; assist with adoption of actionable programs and projects; and secure engagement by your respective organization.

The Larimer County Climate and Sustainability [website](#) includes additional information for workgroups as they embark on developing goals, strategies, and measures for this implementation plan that we hope you find useful. Please contact Heidi Pruess, Climate and Sustainability Program Manager, at pruesshb@co.larimer.co.us or 970-498-7138 if you have any questions.

Please respond no later than September 23, 2022 if you accept and with your selected designee and alternate member as applicable to your advisory body. We look forward to working with your organization as these workgroups bring their efforts to the Climate Smart and Future Ready Executive Team and thank you for your time and effort.

Sincerely,

THE BOARD OF COUNTY COMMISSIONERS



John Kefalas
District I



Kristin Stephens
District II



Jody Shadduck-McNally
District III



APPENDIX D

September 14th, 2022

Recommended edits to draft resolution recognizing the importance of protecting
and supporting pollinators in Larimer County

INSERT



suggested edits to
Pollinator Resolution



Shelley Bayard de Volo <bayardsh@co.larimer.co.us>

suggested edits to Pollinator Resolution

John Kefalas <kefalajm@co.larimer.co.us>

Wed, Sep 14, 2022 at 11:01 AM

To: Tasha Carr <tkotliar@msn.com>

Cc: "Jkefalas@larimer.org" <Jkefalas@larimer.org>, Shelley Bayard de Volo <sbayard@larimer.org>, "jmgerek@frontiernet.net" <jmgerek@frontiernet.net>

Thank you Tasha, and I will share your proposed changes with the AAB.



John Kefalas County Commissioner, District 1

Commissioners' Office
200 W Oak St | 2nd Floor
PO Box 1190, Fort Collins, CO 80522-1190
W: (970) 498-7001
Cell: (720) 254-7598
jkefalas@larimer.org | www.larimer.org

On Wed, Sep 14, 2022 at 9:34 AM Tasha Carr <tkotliar@msn.com> wrote:

Commissioner Kefalas:

Thank you for the opportunity to provide input on the draft pollinator resolution. Please find attached some suggested edits (highlighted in yellow) to consider. I tried to frame the language in a way that invites discussion and also to use language that is a bit more scientifically accurate than in the draft version.

I am very supportive of efforts to educate and collectively develop solutions with the community. There may be additional ideas to promote that can help decrease pesticide use, which many of us already employ, such as buying local organic fruits and veggies from CSAs and farmers markets, backyard organic gardens, and planting pollinator friendly native species.

Sincerely,

Tasha Carr

Resolution Recognizing the Importance of Protecting and Supporting Pollinators in Larimer County

Draft – August 23, 2022

WHEREAS, pollinators of all kinds are a critically important part of our natural ecosystems and agriculture and food systems; and

WHEREAS, the decline in the population of pollinators, including bird and invertebrate species, due to habitat loss and other negative environmental impacts is of serious concern; and

WHEREAS, many of the trees and plants that beautify our landscapes, form key elements of our ecosystems, and provide valuable functions for our agricultural systems that rely on pollinators for propagation.

NOW THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Larimer County that:

1. The County recognizes the importance of pollinators and will support and actively engage in efforts to educate the broader community about integrated pest management and the actions the County is taking to protect pollinators.
2. The County will adopt and encourage others to adopt best management practices that promote the protection of pollinator populations, such as techniques to minimize the use of pesticides when applicable.
3. County staff will engage the public to share information about the solutions implemented by the County to protect and conserve pollinators and invite input on those programs, such as identifying primary local risk factors and developing additional opportunities that would help protect pollinator populations.
4. The County will address pollinator habitat requirements in ongoing conservation and restoration activities throughout the County.
5. The Board of County Commissioners hereby declares September as Pollinator Appreciation Month in Larimer County, encouraging all residents to recognize and celebrate the important role pollinators play in our environment and actively work to support and protect pollinators of all kinds in the County.

Signed and effective this ___ day of _____, 2022.

BOARD OF COMMISSIONERS OF
LARIMER COUNTY, COLORADO

Chairperson

ATTEST:

County Clerk

APPENDIX E

INSERT

September 15th, 2022

Comments on the Draft 2023 Colorado Water Plan. Memo with selected recommendations and detailed suggestions



09.29.22.State Water
Plan BCC and ESAB F

Colorado Water Conservation Board
Submitted via Public Comment form

September 28, 2022

Re: Draft Colorado Water Plan 2023 Update – Larimer County Comments

Dear Colorado Water Conservation Board,

Thank you for the opportunity to comment on the Draft Colorado Water Plan 2023 Update. Larimer County strongly supports the need for and benefits of water planning and is committed to doing our own regional planning for water in keeping with the state Water Plan. We are pleased to send this letter providing our comments and attaching input from the Larimer County Environmental and Science Advisory Board (ESAB). We agree with and advance the comments attached from ESAB, after the board's thorough review and discussion of the recommendations. Also, the Board of County Commissioners offer several additional comments, as follows:

1. The Plan should include more information regarding tribal water rights, provide for tribal nations to maintain agricultural self-sufficiency, restoration, and stewardship of the land and support their communities. Tribal Nations face a unique set of challenges due to inadequate infrastructure that limits some from accessing their water and require us to specify how water shortages affect the tribal nations in the short and long term.
2. The Plan should include information on the Colorado River Basin compact and identify potential impacts from a compact call. We acknowledge, with deep respect, that the land we, as Larimer County, are the traditional and ancestral homelands of the Arapaho, Cheyenne, Ute Nations and people. We recognize the Indigenous peoples as original stewards of this land – as such, as noted above, the Plan should specify how water shortages affect the tribal nations in the short and long term.
3. The Plan should include the impact of wildfires on water quality. Wildfires can compromise water quality both during active burning and for years after the fire has been extinguished. Wildfire burned watersheds are prone to increased flooding and erosion, which can negatively affect water-supply reservoirs, water quality, water temperatures, wildlife habitat, and drinking-water treatment processes. In addition, according to Colin Barry a Geomorphologist, following wildfires, more water leaves the basin due to damaged soils thus creating a need for more storage.



Thank you for considering Larimer County's comments! We look forward to reviewing the final plan.

Sincerely,

A handwritten signature in black ink that reads "John Kefalas". The signature is fluid and cursive.

John Kefalas
Commissioner, District I

A handwritten signature in black ink that reads "Kristin Stephens". The signature is cursive and somewhat stylized.

Kristin Stephens
Commissioner, District II

A handwritten signature in black ink that reads "Jody Shadduck-McNally". The signature is cursive and includes a hyphenated last name.

Jody Shadduck-McNally
Commissioner, District III

MEMORANDUM

TO: Commissioner Kristin Stephens, BoCC Chair
Commissioner Jody Shadduck-McNally, Chair Pro Tem
Commissioner John Kefalas

FROM: Jim Gerek, ESAB Chair,
Shelley Bayard De Volo, Engineering and ESAB Staff Liaison

DATE: September 14, 2022

RE: Comments on the Public Review Draft Colorado Water Plan 2023, dated 2022.

A subcommittee of the Environmental and Science Advisory Board (ESAB) has reviewed relevant portions of the Public Review Draft of the Colorado Water Plan 2023 and has prepared a set of brief comments covering key issues. Please see attached. These were discussed at our September 13 ESAB meeting with several key County staff members in attendance.

Overall, the ESAB found the revised plan to have enhanced readability, and they appreciated the new basin-based approach and incorporation of climate change. However, we found in the draft several significant shortcomings and made a half-dozen recommendations for how to address them. In addition, several detailed suggestions are presented to address specific issues found on individual pages.

After discussion, the full ESAB voted to provide for your consideration our best professional thoughts on the Water Plan revisions, and to strongly encourage you to share them with the Colorado Water Conservation Board in a timely manner by September 30. Water resources are vital to the future of Larimer County and the County's thoughts on the draft Plan should be heard.

As always, we appreciate the opportunity to support the Board of County Commissioners. If additional assistance or information is needed, please feel free to reach out.

Enc.

CC: L. Ellis, Community Planning and Development
D. Figgs, Natural Resources
E. Tracy, Engineering



Colorado Water Plan 2023 Update

Review Comments from the Larimer County Environmental & Science Advisory Board (ESAB)

For review and discussion at September 13, 2022 ESAB Meeting

Introduction

A subcommittee of members from the Larimer County Environmental & Science Advisory Board reviewed the draft Colorado Water Plan 2023 Update and met to discuss our observations and recommendations based on our areas of professional expertise and perspectives as residents of Larimer County and the State of Colorado.

From our perspectives, the strengths of this plan include:

- Improved organization and readability from the last plan
- Wonderful educational tool and excellent graphics
- Basin-based approach is a leading way to drive collaboration and impact
- Clearly a collaborative, inter-disciplinary process (especially through basin-based approach)
- Thorough resource and helpful real-world examples of actions and successful approaches
- Useful in the way that it links to funding resources
- Climate change is an elevated and integrated concept throughout entire document

General Recommendations

We offer the following general recommendations of topics to explore and/or address in more detail throughout the plan:

- Refine the scenarios to include potential shifts in agricultural use
- Expand and encourage creative and cooperative interpretation of water law in order to use water more beneficially and efficiently (e.g., p. 3-33 highlights a few programs including Expansion of Voluntary Loans Process for Instream Flows HB 20-1157, but more focus on this)
- Provide a shorter, more digestible list of agency actions (“cheat sheet” for entities like Larimer County to quickly reference)
- Better cross referencing throughout the document would be useful, especially between challenges and solutions sections
- Provide more discussion and examples of the inherent equity, diversity, and inclusion challenges associated with a seniority-based system
- Buy-and-dry is a consequence of tension between value of water used for agriculture and value of water for other uses; there should be more focus on basin wide

prioritization of highly productive lands over marginally productive lands (p. 6-28 gives a good example of this in the Bessemer Farmland Conservation Project on a small scale)

Detailed Suggestions

The following notes and suggestions are more detailed in nature and refer to specific pages and/or sections of the draft plan. We offer them to help improve overall readability and comprehension, as well as future use of the plan by entities like Larimer County.

1. Overview

- p. 1-9: Vision for Vibrant Communities mentions One Water but this concept is not explained (One Water approaches are also noted on page 3-19 without explanation)

2. Scenarios

- p. 2-11: Is population forecasting considering future climate in-migration from other parts of the US (e.g., Arizona, Nevada, Texas) due to future water scarcity in those areas?
- p. 2-10:- In the simplified description of planning scenarios figure, why is agricultural need always assumed to be increasing? Consider a scenario with stable or decreased agricultural needs

3. State Context

- p. 3-17: Snow skiing (and water used for snowmaking) is notably missing from the list of water-based recreational activities
- p. 3-19: Bullet #2 (Conservation is important but complex). More explanation is needed about how agricultural water efficiency leads to better use of supplies and potentially more consumption.
- p.3-23: 3X callout box at bottom of page regarding buy-and-dry transfers. It would be helpful to see the actual numbers of buy-and-dry transfers since the 2015 Water Plan (if available) and also a timeline for the new estimate.

4. Basin Context (South Platte Basin)

- p. 4-50: Compacts, Administration, and Regulatory - There is no mention of the Colorado River Compact; a compact call could impact transmountain imports to the South Platte Basin

5. Challenges and Solutions

- p. 5-5: Water Quality - this section missing the threat of post-wildfire impacts to water quality in this section (one of the biggest challenges post-fire in Larimer County); it is addressed in other areas of the report, but should be referenced in this section as well
- p. 5-15: Climate Adaptation - this section would benefit from a few specific examples of climate adaptation techniques that may be suitable for Colorado and/or individual basins (e.g., adapting which crops are planted, regenerative agriculture techniques, possibly artificial snowmaking/snow storage at high elevations, water sharing agreements, etc.)
- p. 5-16: Equity - it would be helpful to include a few examples of the systemic issues that relate to water (e.g., water affordability, tribal sovereignty, urban/rural divide, water right seniority, etc.). Similarly, it would be helpful to identify some of the individuals/communities who have not traditionally been involved and/or are systemically excluded from water rights and planning. Much historic water planning has prioritized agriculture and equity issues are now emerging in urban areas. Equity principles on this page mention EDI - this acronym needs to be spelled out
- p. 5-19: Land & Water Use Planning Integration - the statement that land planners make decisions about future developments is largely incorrect. Land planners shape plans but ultimately Planning Commissions, City Councils, and County Commissioners are the decision-makers regarding development
- p. 5-20: Data Collection & Sharing: it would be ideal to have the GIS data used to make the basin maps in Section 4 maps (as well as the map products themselves) easily available for other water, land use, and agricultural planning efforts (e.g., comprehensive master plans, sustainability/climate action plans, etc.)

6. Vision and Actions

- p. 6-20: The vision for robust agriculture- with the loss of irrigated acreage being inevitable (400k-500k irrigated acre loss projected), there should be more focus on prioritization of highly productive lands over marginally productive lands. The Bessemer Farmland Conservation Project (p. 6-28) provides a small-scale example of this, but similar strategies should be implemented on a basin-wide scale
- p. 6-48 and 6-50: Agency Actions 4.1 & 4.3 - basic and technical water-related training and education for land use planners, sustainability professionals and volunteer boards and commissions members would be helpful actions for Larimer County

APPENDIX F

INSERT

November 16th, 2022

Resolution to recommend funding an additional
air quality monitoring project in 2023



ESAB Air Monitoring
Resolution and email



Shelley Bayard de Volo <bayardsh@co.larimer.co.us>

ESAB Air Monitoring Resolution

Jim Gerek <jmgerek@frontiernet.net>

Thu, Nov 17, 2022 at 2:24 PM

Reply-To: Jim Gerek <jmgerek@frontiernet.net>

To: Kristen Stephens <kstephens@larimer.org>, Jody Shaddock-McNally <jshaddockmcnally@larimer.org>, John Kefalas <jkefaldas@larimer.org>

Cc: Shelley Bayard de Volo <sbayard@larimer.org>, Rodger Ames <rodger.b.ames@gmail.com>, Jeff Collett Jr <jeffrey.collett@colostate.edu>, Emily Fischer <evf@rams.colostate.edu>, Lea Schneider <schneils@co.larimer.co.us>, Lorenda Volker <volkerl@co.larimer.co.us>

Commissioners:

Please find attached a resolution passed by the Environmental and Science Advisory Board (ESAB) this week recommending funding the associated air monitoring program in Larimer County, beginning in 2023.

Thank you in advance for your consideration.

Jim Gerek

Chair - Larimer County ESAB



2022-11-16_Memo_ESAB Air Monitoring Recc with enclosures.pdf

244K

MEMORANDUM

TO: Commissioner Kristin Stephens, BoCC Chair
Commissioner Jody Shaddock-McNally, Chair Pro Tem
Commissioner John Kefalas

FROM: Jim Gerek, ESAB Chair, and
Shelley Bayard De Volo, Engineering and ESAB Staff Liaison

DATE: November 16, 2022

RE: Recommendation for Additional Air Monitoring Program

Throughout 2022 the Environmental and Science Advisory Board (ESAB) has reviewed several potential air monitoring projects affecting Larimer County. We are pleased to see several of these projects funded and moving forward. However, our advisory board identified a key gap concerning understanding precursors for regional ozone formation.

After discussion at several recent public ESAB meetings, and in consultation with Colorado State University atmospheric scientists, the attached resolution was unanimously passed by our advisory board on November 15, 2022. It urges the beginning of a monitoring program that will fill important data gaps and put the County in a better place to respond to upcoming changes to the State Implementation Plan (SIP) under the Clean Air Act.

Please note that this recommendation is provided pursuant to my October 17 e-mail to you; the advisory board's 2022 Work Plan; and our overall charter to provide science-based guidance to the Board of County Commissioners.

As always, we appreciate the opportunity to support the BoCC. If additional assistance or information is needed, please feel free to reach out. Several additional e-mails and presentations have already been shared informally.

Enc.

CC:

R. Ames
J. Collett
E. Fischer
L. Schneider
L. Volker



ESAB Resolution
11/15/2022

A Proposed Air Quality Monitoring Strategy to Measure Ozone Precursors that Contribute to Ozone NAAQS Violations in Larimer County

The ESAB supports the County's proposed air quality actions for FY23. While the actions are welcome, the ESAB believes they do not address a critical need to characterize the sources of ozone precursor emissions that contribute to persistent violations of the ozone National Ambient Air Quality Standard (NAAQS) in Larimer County.

During the January, 2022 ESAB meeting, CSU Professor Dr. Emily Fischer presented an air quality monitoring strategy that could substantially enhance the County's regional and near-source air quality monitoring capabilities. The relatively low-cost system would allow the County to characterize emissions sources that contribute to ozone NAAQS violations, and it could be adapted to measure near-source impacts, such as human exposure to air toxics. With the recent award to the City of Fort Collins, Larimer County, and CSU under EPA's Community Air Quality Monitoring grant program, the County will be able to significantly improve its near-source monitoring capability. While the advent of HB 22-1244 further supports municipal air toxics monitoring objectives, there remains a significant gap in funding to address ozone non-attainment

Attached to this resolution is a proposal and budget prepared by Dr. Fischer and Dr. Jeff Collett for a regional air quality monitoring system to ascertain emissions sources that contribute to ozone NAAQS violations in the County. The proposed system would be co-located with a violating ozone monitor - likely Fort Collins West (FTCW) - and triggered to collect VOC canister samples during time periods of high ozone levels, or action alert days. The samples would be analyzed in a laboratory to measure VOC components indicative of emissions sources, such as oil and gas, transportation, biogenic (plant) emission, and wildfires. An advantage of the system is its ability to measure a large number of VOC compounds at a relatively low cost.

The ESAB strongly encourages the Board of County Commissioners to consider a 3-year program, which includes the initial 1-year pilot program in the attached proposal for air quality monitoring. Information from the system will be vital to inform emissions controls strategies during the current State Implementation Plan (SIP) process.

VOC monitoring in Larimer County

Jeff Collett and Emily Fischer

Atmospheric Science Department

Colorado State University

Budget: \$90,000

High ground-level ozone concentrations are a major concern in Larimer County. The Denver Metro/North Front Range is classified as a nonattainment area for both the 2008 and 2015 Ozone National Ambient Air Quality Standards (NAAQS) and the Fort Collins West (FTCW) ozone monitor records some of the highest ozone concentrations in the region. It has become clear during the current State Implementation Plan (SIP) process that substantial additional effort will be required to meet the tighter 70 ppb 2015 NAAQS in coming years. In order to design effective control strategies to achieve that goal, better information is required about concentrations of ozone precursors and their sources and how they vary across the non-attainment area.

Ozone on the Front Range reflects the sum of ozone transported from other regions plus that formed locally. Emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) react in the presence of sunlight to form ozone. The amount of ozone formed is sensitive to levels of both NO_x and VOCs and changes in NO_x to VOC ratios affect ozone production efficiency. Contributions to ozone formation also depend on the mix of atmospheric VOCs due to large differences in compound reactivity.

Plans are underway to add a regulatory NO_x monitor in Larimer County. Unfortunately, no information is currently available about VOC concentrations in the county. Here we propose addition of a VOC monitoring effort to determine the concentration and chemical composition of VOCs contributing to ozone formation in Larimer County. By measuring VOC composition, we can better characterize VOC contributions to ozone formation and determine the main sources of those VOCs (e.g., oil and gas vs. wildfires vs. traffic emissions).

VOC samples will be collected on each ozone alert day during the summer ozone season (32 to 73 action alert days have been forecast in recent years). An additional 20 weekday and 20 weekend samples will be collected on non-alert days. Mid-day samples will be automatically collected on target days using silonite-coated canisters. Collected canisters will be analyzed in the CSU Department of Atmospheric Science by gas chromatography for concentrations of methane and 50 VOCs. The VOC and NO_x monitoring should be co-located.

A canister-based sampling approach offers a cost-effective way to provide comprehensive VOC speciation during peak ozone periods. Co-locating this system with the violating ozone monitor and new NO_x monitor at FTCW will provide valuable information about the chemistry and sources that contribute to ozone in Larimer County and how they change during peak ozone days, during wildfire impact periods, and between weekdays and weekends.