

LARIMER COUNTY ENVIRONMENTAL AND SCIENCE ADVISORY BOARD

2015 Annual Report





ENVIRONMENTAL AND SCIENCE
ADVISORY BOARD

Post Office Box 1190
Fort Collins, Colorado 80522-1190

January 2016

Board of County Commissioners:

This annual report outlines the Environmental and Science Advisory Board's activities in 2015 and sets out our general goals and direction for 2016.

Several issues were referred to the Advisory Board from the Commissioners' office in 2015. We provided written comments on the proposed revisions to the County's floodplain regulations and on the Supplemental Draft Environmental Impact Statement for the NISP Water Project.

Additional information about the Advisory Board, including minutes for the meetings, is available on the County's website at www.larimer.org/boards/.

We would like to acknowledge County staff for their continued help and commitment to sound environmental management. In 2015 representatives from the Departments of Natural Resources, Engineering, Solid Waste, and Health & Environment attended ESAB meetings to assist and inform members of the Advisory Board.

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

A handwritten signature in black ink that reads "Michael Jones". The signature is written in a cursive style.

Michael Jones, Chair

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2015 ANNUAL REPORT OF THE LARIMER COUNTY ENVIRONMENTAL AND SCIENCE ADVISORY BOARD

January 2016

I. INTRODUCTION

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

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

The Advisory Board meets regularly 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 citizen's comments about environmental issues. The list of speakers and guests that attended the ESAB meetings is presented in Section V of this report.

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

The Advisory Board utilizes an issue index to keep track of the various issues that the board addresses. The index is updated on a monthly basis.

Lew Gaiter III was the County Commissioner liaison to the Environmental and Science Advisory Board in 2015. Doug Ryan, from the Department of Health and Environment, served as staff facilitator.

II. IMPORTANT DISCUSSION TOPICS IN 2015

MONTH	TOPICS
February	Member update on the Energy By Design planning process
March	<p>Follow-up discussion on the Energy By Design planning process</p> <p>Update on the Our Lands, Our Future open space planning process</p> <p>Update on the bison reintroduction project at Soapstone and Red Mountain Open Space</p> <p>Background on the County's floodplain regulations</p>
April	Review and comment on draft floodplain regulation revisions
May	Tour of the Rawhide Energy Station
June	Initial review of the Supplemental Draft Environmental Impact Statement for the NISP water project
July	Continued review of the Supplemental Draft Environmental Impact Statement for the NISP water project
August	Final review meeting for the Supplemental Draft Environmental Impact Statement for the NISP water project
October	<p>Recommendations to the County Commissioners on the 2015 Environmental Stewardship Award nominations.</p> <p>Consideration of ozone air quality for the 2015 summer season and background on the EPA's new more stringent ozone standard.</p>
November	<p>Update from the Solid Waste Department on solid waste and recycling activities.</p> <p>Update from the Department of Health and Environment on the year's activity regarding zoonotic diseases.</p>
December	<p>ESAB issue index review</p> <p>Consideration of ESAB workplan elements for 2016</p> <p>Election of Officers for 2016</p>

III. STATUS OF ESAB RECOMMENDATIONS IN 2015

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 in the Appendix.

Issue	Principal ESAB Actions and Recommendations	Status
Larimer County Floodplain Regulations	The Advisory Board considered the draft regulation revisions, and recommended that the Commissioners defer adoption of a provision to allow substantially damaged structures in the floodway that are impacted by an event other than a flood to be rebuilt subject to certain standards. Delaying adoption would allow completion of a planned pilot study for a High Hazard Overlay Zone intended to facilitate making risk-based decisions on rebuilding structures in the floodway.	The Planning Commission and County Commissioners held public hearings on the regulation revisions. The Commissioners voted to adopt the regulation revision, and indicated that they will consider the implications of the High Hazard Overlay Zone after the pilot study has been completed.
NISP Water Project EIS Review	The Advisory Board prepared formal review comments on the Supplemental Draft Environmental Impact Statement for the NISP Water Project. The ESAB comments were presented to the County Commissioners at a scheduled Administrative Matters meeting.	The Commissioners elected to forward the Advisory Board's written comments directly to the Army Corps of Engineers as part of the official public comments from Larimer County. The Commissioners added a cover letter to those comments to outline their general support for the project and their interest in ensuring that the technical comments from the ESAB were considered.

IV. ENVIRONMENTAL STEWARDSHIP AWARDS

Each fall, the Larimer County Environmental & Science Advisory Board and the Larimer County Commissioners recognize environmental efforts of county residents, businesses, organizations and/or agencies by awarding the Environmental Stewardship Awards. 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 completed one-time efforts or ongoing activities. Both types will be judged on their degree of difficulty and the results they achieve. The Environmental and Science Advisory Board solicits nominations in the summer, reviews them and makes recommendations for awards to the Larimer County Commissioners.

No award was issued for 2015. The ESAB asked staff to consider if potential changes to the way the nomination process is advertised and promoted might increase the pool of nominations.

V. GUESTS AND INVITED SPEAKERS

MONTH	PERSON	SPEAKER'S TOPIC
March	Meegan Flenniken, Natural Resources Lew Gaiter, County Commissioner	Energy By Design, Our Lands Our Future, Bison Reintroduction
April	Eric Tracy, Engineering Department Sarah Bliss, Spirit Mtn. Outreach Team	Floodplain regulations
May	Doug Adair, PRPA Mike O'Brien, PRPA Paul Schulz, PRPA Deborah Shaneman, PRPA Chris Wood, PRPA Lew Gaiter, County Commissioner	Platte River Power Authority Rawhide Energy Station tour & discussion
June	Jim Gerek Lew Gaiter, County Commissioner	
July	Nick Schipanski	
August	Lew Gaiter, County Commissioner	
October	David Lehman Steve Williams	
November	Stephen Gillette, Solid Waste Steve Harem, Solid Waste Edward Enriquez, Solid Waste Matt Kapp, Solid Waste Jessica Royer, Health and Environment Rachel Sharn Nizle Framsted Faith Crider	Solid & hazardous waste management Zoonosis

VI. ENVIRONMENTAL AND SCIENCE ADVISORY BOARD MEMBERS

Jane Abels	Appointed July 2015
Richard Alper	
Cassie Archuleta	Retired July 2015
Jeremy Deuto	
Chase Eckerdt	Retired June 2015
Derek Esposito	Retired June 2015
Jim Gerek	Appointed July 2015
Michael Lee Jones	
Kimberly Karish	
Evelyn King	
Ryan McShane	
Joseph Wilson	

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

VII. YEAR 2016 WORKPLAN

This section provides information about the general direction the Environmental and Science Advisory Board contemplates taking in 2016. Because conditions or priorities in the County can change, a considerable degree of flexibility needs to be maintained.

Overall: The ESAB strives to inform county governmental policies, decisions and actions that have environmental implications. To that end the ESAB will:

1. Serve as an informational resource that provides science-based recommendations to the County Commissioners and departments, points out areas of uncertainty and suggests appropriate ways to address them;
2. Identify environmental and science-based issues and opportunities for the consideration of the County Commissioners so that the BCC can be proactive in their responsibilities towards the environment. 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 BCC;
3. Develop and maintain an attitude of trust and respect among the ESAB, the Commissioners, County departments and other boards and commissions.

Response to Referrals or Requests:

1. Respond in a timely manner to issues raised by the Board of County Commissioners, the County departments and ESAB members:
2. Facilitate the response to citizen comments received by the Advisory Board with the Board of County Commissioners 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, and the potential impacts of hydraulic fracturing.
2. Monitor important water issues including watershed planning and proposed water projects. The Halligan and Seaman reservoir expansion projects are examples of current issues.
3. Monitor solid waste management issues such as landfill operations, recycling and hazardous waste disposal. As the County landfill approaches its capacity, Larimer County is evaluating the future for solid waste management together with regional their partners. This is an important project due in part to the lead time necessary for implementing changes to the solid waste management system.

4. Monitor the status of both conventional and alternative energy development, and be available to consult with staff and the County Commissioners regarding potential environmental implications. Wind energy, solar energy, and oil and gas development are current topics of interest.
5. Consider important natural or ecological impacts associated with large-scale events such as wildfire, floods, droughts, and climate change. Examples of items on the Advisory Board's issue index include the High Park Fire mitigation and response, forest management, watershed topics, zoonosis, and ozone air quality.

Stewardship Awards:

1. Coordinate the annual Environmental Stewardship Awards in partnership with the County Commissioners.

Communications and Process:

1. Maintain open communications with the County Commissioner liaison assigned to the Environmental and Science Advisory Board in order to facilitate communication about environmental concerns or issues seen by either the Commissioners or the Advisory Board.
2. Promote implementation of the County's Environmental Responsibility Policy.
3. Utilize the Commissioners' Administrative Matters meetings for communicating on important environmental issues as they arise.
4. Continue the practice of assigning interested ESAB members to monitor select environmental activities and provide updates to the full Advisory Board.

APPENDIX: WRITTEN CORRESPONDENCE

These documents were prepared by the Environmental and Science Advisory Board as part of their activities in 2015.

- April 21, 2015 memo to the County Commissioners regarding proposed amendments to the County's floodplain regulation.
- May 13, 2015 letter to the Platte River Power Authority expressing appreciation for the ESAB member tour of the Rawhide Energy Station.
- August 18, 2015 memo to the County Commissioners regarding the Advisory Board's review and recommendations concerning the Supplemental Draft Environmental Impact Statement for the Northern Integrated Supply Project.



ENVIRONMENTAL AND SCIENCE ADVISORY
BOARD

Post Office Box 1190
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To: Larimer County Board of Commissioners
From: Michael Lee Jones, Chair 
Date: April 21, 2015
Subject: Proposed Floodplain Regulation Revisions

The Environmental and Science Advisory Board reviewed the draft revisions to the Floodplain Overlay Zone regulations in Section 4.2.2 of the County's Land Use Code. The review was conducted as part of our regular meeting on April 14. Eric Tracy presented the proposal, and was very helpful in discussing the technical details of floodplain dynamics. In preparation for our review, representatives from the Advisory Board attended the joint BCC/Planning Commission work session in March, as well as one of the community informational meetings hosted by the County. The conclusions in this memo represent a consensus of the five members of the Advisory Board that were present for the review on April 14th.

The proposed revisions would allow substantially damaged structures in the floodway that are impacted by a destructive event other than a flood to rebuild subject to certain standards. As part of our review, the Advisory Board also considered the upcoming pilot study for a High Hazard Overlay Zone. We view the proposed study as an extremely important effort to employ risk-based criteria, such as water depth and velocity data and erosion buffer zones, as determinants in the creation of an additional land use overlay to protect both property and public safety. The Advisory Board did not consider topics, albeit important, that are beyond our assigned role, such as economic and property rights issues.

It is our recommendation that the pilot study for the High Hazard Overlay Zone be completed prior to considering revisions to the regulations. The primary purpose of floodplain regulations is to protect property and public safety. The information obtained from the pilot study will be crucial for making sound science-based decisions for these purposes. Moving forward with the proposed revisions to allow rebuilding in the floodway without knowledge of important technical data from the study – which information can and will be known within a reasonable timeframe - might well prove contrary to the purpose of protecting property and public safety, as well as environmental quality.

We believe that this recommendation is supported by the impacts observed following the September 2013 flood. In that case, erosional forces and shifting of the river channel caused much of the damage. As outlined in the *River Corridor Protection and Management* fact sheet published by the Colorado Water Conservation Board in 2014, protection zones based on inundation alone do not fully recognize risk and fail to offer the protections necessary to accomplish the recognized purpose of floodplain regulation . The Conservation Board notes that the most effective method of long-term flood hazard reduction may be the establishment of a Fluvial Erosion Hazard Area Zone or Overlay District. This concept incorporates the function of both water and sediment transport along a stream channel during high-flow events. In the opinion of the Advisory Board it would be premature to modify the current floodplain regulations absent this important information; information demonstrated by recent events to be particularly relevant in Larimer County.

The Advisory Board understands that the floodplain regulations have economic and property rights impacts. Even though these issues are beyond the purview of our Advisory Board, we suggest that the County consider modifications to the variance procedure that would make it more responsive to the circumstances of individual properties in a fair and timely manner.

The ESAB appreciates the opportunity to advise the Commissioners on the technical and scientific aspects of this important issue. Please contact me or Doug Ryan if you would like to discuss any of these comments in greater detail.

Cc: Eric Tracy, Floodplain Administrator



ENVIRONMENTAL ADVISORY BOARD

Post Office Box 1190
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May 13, 2015

Christopher R. Wood
Environmental Services Manager
Platte River Power Authority
2000 East Horsetooth Road
Fort Collins CO 80525

Dear Chris,

I am writing to thank you for hosting the Larimer County Environmental and Science Advisory Board on May 12. The presentation by your staff, the discussion that followed, and the tour of the Rawhide Energy Station were extremely valuable for our members.

It is clear that the demands of providing reliable energy, meeting environmental standards and controlling costs are complex matters that require a dedicated team of professionals to be successful. The Advisory Board members were impressed with the knowledge of your staff and their openness to discuss both the current successes and the challenges ahead.

We also enjoyed PRPA's generosity in providing lunches.

Please offer our appreciation to Paul Schultz, Mike O'Brien, Doug Adair and Deborah Shaneman for sharing their time and expertise with our group, and to Adrien Kogut for helping with arranging the tour.

Sincerely,

A handwritten signature in black ink that reads "Michael Lee Jones". The signature is written in a cursive style with a large, stylized "J" at the end.

Michael Lee Jones, Chair
Environmental and Science Advisory Board



ENVIRONMENTAL AND SCIENCE
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Post Office Box 1190
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To: Larimer County Board of Commissioners

From: Michael Lee Jones, Chair 

Date: August 18, 2015

Subject: NISP SDEIS Review

The Environmental and Science Advisory Board has reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the Northern Integrated Supply Project (NISP) and offers the following comments.

General Observations:

The environmental analysis for the SDEIS has significantly advanced from the Draft Environmental Impact Statement (DEIS). Notable examples include the updated hydrologic modeling using a Common Technical Platform (CTP) for NISP and the Halligan/Seaman projects, and the hydraulic modeling of sediment transport and aquatic habitat at the six Poudre River study sites.

The SDEIS updates the Participants' current water conservation measures. It is important to acknowledge that conservation measures have resulted in decreases in per capita water use. While conservation measures have helped to manage existing developed water supplies, the Participants have demonstrated that they have a need for additional water in the future.

Even with the advances noted above, gaps remain in the information necessary to make the final selection of the least damaging practical alternative and appropriate mitigation measures. Examples of information not available for public review at this SDEIS stage include preparation of the Supplemental Biological Assessment, completion of the Phase II water quality and stream temperature modeling, and completion of the mitigation plan.

We appreciate the Army Corps of Engineers (Corps) taking another look at hazardous materials contamination at the Atlas Missile Site. We believe that the impact assessment is sound and the proposed project changes are appropriate to address potential impacts.

The No Action alternative developed for the SDEIS does not accurately describe the current trajectory of events because it requires development of a new water project (Cactus Hill Reservoir) that would require a separate permitting process similar to NISP.

Based on the limited available data, the Preferred Alternative (Alternative 2) has an important advantage over Alternatives 3 and 4 in that it requires the smallest total withdrawal of water. However, a number of specific issues discussed below prevent an effective assessment of the impacts from any of the alternatives compared to current or future conditions.

Serious Concerns:

Impacts on Surface Water

As was criticized in the DEIS, *monthly* flow data are not applicable for evaluating environmental impacts of the alternatives on streamflow and create a false impression that environmental impacts have been properly characterized. Instead, *minimum* and *maximum daily* flow data provide the most appropriate information to assess environmental effects. However, daily flow data presented in the SDEIS are mostly *median* flows, which are also uninformative of environmental effects. New figures need to be created illustrating the *minimum* and *maximum* daily flows of each of the alternatives.

Figures of the more useful daily flow data are poorly presented in the SDEIS and technical reports such that it is difficult to adequately assess environmental impacts. For example, figures of the time series of the maximum, mean, median, and minimum daily flows (e.g., Water Resources Technical Report Figure 6.15) do not graph the y-axis on a logarithmic scale. Another example is the figures of daily flow duration curves (e.g., SDEIS Figure 4-30) that do not graph the y-axis on a logarithmic scale. Distinguishing the effects of the alternatives on daily flow durations at high and low exceedance probabilities is problematic because of this incorrect scaling. Additionally, figures such as SDEIS Figure 4-2 need to compare the minimum and maximum, not the median, daily flows. Full interpretation of environmental impacts would be facilitated if these figures displayed the effects of the alternatives as a percentage change from the current or future conditions hydrology.

No standard scientific performance metrics are given in the SDEIS or technical reports as evidence of how well the CTP hydrology model performed. Confidence in any of the flow-related resource effects analyses is limited because it is unknown how well the CTP simulated the observed streamflow.

Impacts to Fish Habitat

Habitat suitability curves were developed from data on habitat use by fish during low flows, but the depths and velocities measured during this time do not represent the depths and velocities available during high flows. The curves are scientifically and statistically unsound because they were projected from low flow data into times of high flows that are beyond the range of observed depths and velocities. Interpretations of habitat use during spring runoff are unfounded because the lack of observations results in predictions with extreme uncertainty. Moreover, the interpretation that habitat use by fish will increase during spring runoff because the alternatives will reduce high flows demonstrates a misunderstanding of fish ecology in rivers that are primarily influenced by snowmelt. High flows are important, not for habitat use by fish during spring runoff, but because they maintain the channel and resulting habitat that is available to fish during low flows throughout the remainder of the year. Predicting habitat use by fish in the main channel during spring runoff is not meaningful, except for adults of species that spawn during this time.

Physical habitat data presented in the SDEIS and technical reports provide flawed information for determining environmental impacts of the alternatives on fish (e.g., Figure 3-2, Aquatic Biological Resource Effects Technical Report). The data that are presented for weighted usable area (WUA) in median, 20th and 80th percentile *WUA years* are artificial and unrealistic representations of habitat availability in any given year. They are specific to each species and life stage of fish, meaning that they are not comparable to one another and are unacceptable for discriminating the different effects of the alternatives. Figures should present data for WUA in median, 20th and 80th percentile *streamflow years* because it allows the differentiation of the alternatives' effects on fish by showing how WUA will be affected in any given dry, average, or wet streamflow year.

Impacts to Water Quality

Water quality impacts to the Poudre River below the project diversion are a serious issue that has not been addressed in adequate detail in the analyses and proposed mitigation actions. The information in the SDEIS is insufficient to demonstrate that exceedances of water quality standards will not occur. We acknowledge that additional important Phase II water quality modeling is still ongoing and strongly urge the Corps to issue the completed modeling study as an addendum to the SDEIS so that it can be subject to public review prior to publication of the Final Environmental Impact Statement (FEIS).

Mitigation Measures:

The descriptions of mitigation actions are still not specific enough, despite numerous comments from stakeholders (e.g., EPA Region 8 and City of Fort Collins) that

reviewed the DEIS in 2008. Likewise, the mitigation activities generally do not explain how or why they will be effective at alleviating adverse environmental impacts.

Hydrology will be impacted by the project, creating a cascade of impacts that include changes in stream morphology and sediment transport, alteration of aquatic and riparian habitat, degradation of water quality, and increased risk of flooding in the lower reaches of the Poudre River. The mitigation measures under consideration are not sufficient to address these serious impacts. Acceptable mitigation actions also need to include the provision for episodic high spring flows in the Poudre River to promote natural geomorphic processes and rejuvenation of instream and floodplain habitat. Such a measure would ideally be provided in partnership with other projects (e.g., Halligan/Seaman) to increase its effectiveness.

A credible rationale should be provided regarding the effectiveness of two proposed actions in mitigating adverse environmental impacts of the Preferred Alternative: 1) the proposed low flow augmentation to maintain 10 cubic feet per second (cfs) in winter, and 2) the proposed channel and habitat improvements to rehabilitate two 1.2-mile river reaches. An explanation should be provided in the SDEIS or technical reports that clarifies why releasing this minimum flow or rehabilitating this distance of river at these two sites would be beneficial to aquatic or riparian biological resources. It is suggested that the low flow augmentation will increase habitat availability for fish, but this alone is not a well-reasoned argument for its effectiveness.

As shown in the SDEIS and technical reports (i.e., Stream Temperature and Dissolved Oxygen Analysis, Table 4), temperature excursions are already happening in March and July through September in Segment 10, and in July and August in Segment 11. These temperature excursions are likely to increase with the Preferred Alternative, particularly in July and August. The proposed low flow augmentation would not mitigate this impact because water releases would occur in September and in November through April, but not in July and August, when excursions will have the most significant environmental impact on fish. Furthermore, the proposed Glade Reservoir enlargement also would not mitigate temperature excursions in July and might exacerbate them. However, this proposed mitigation (i.e., enlargement) is illogical because it would attempt to mitigate the adverse impact of Glade Reservoir during summer low flows by intensifying its adverse impact on spring high flows.

Principal Recommendation:

We recommend that the additional technical information and mitigation measures planned for the FEIS be prepared and presented as part of an addendum to the SDEIS. The addendum will allow the public and the Corps access to adequately detailed information that is sufficient to select the least damaging practical alternative and evaluate necessary mitigation measures.