Environmental Assessment

for

Colorado State University Foothills Campus
Chiropteran Resource Facility

Prepared for:
National Institutes of Health

Office of Research Facilities Development and Operations

Prepared by:
Terracon Consultants, Inc.

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1.0 INTRODUCTION

1.1 Background

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 et seq.), as implemented by the regulations promulgated by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] §1500-1508). The principal objectives of NEPA are to ensure the careful consideration of environmental aspects of proposed actions in federal decision-making processes and to make environmental information available to decision-makers and the public before decisions are made and actions are taken. The intent of NEPA is to protect, restore, or enhance the environment through a well-informed decision-making process. The CEQ was established under NEPA to implement and oversee federal policy in this process. To this end, the CEQ issued the Regulations for Implementing the Procedural Provisions of NEPA. The CEQ regulations declare that an EA serves to accomplish the following objectives:

- Briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI);
- Aid in an agency's compliance with NEPA when an EIS is not necessary; and
- Facilitate preparation of an EIS when necessary.

The National Institutes of Health (NIH) accomplishes adherence to NEPA through following the Department of Health and Human Services (HHS) General Administration Manual (GAM) Part 30, Environmental Protection. These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. This EA has been prepared in accordance with the regulations and guidance documents.

The primary purpose of this EA is to document and evaluate the potential effects to human health and the environment associated with the implementation of the Proposed Action and Preferred Alternative as well as the ability of the alternatives to meet the purpose and need for the Proposed Action.

1.2 Department of Health and Human Services

The HHS is a cabinet level department that provides services to protect the health of all Americans, provide essential human services to those residing with the United States (U.S.), and promote research in social services, medicine, and public health. There are 11 agencies within the HHS and include the Centers for Disease Control and Prevention, Food and Drug Administration, and the NIH. The department was founded in 1953 as the Department of Health, Education, and Welfare and then reorganized in 1980 when the Department of Education was formed and became the Department of Health and Human Services. In Fiscal Year (FY) 2022, the HHS administered $784 billion for 147,771 grants and in 2023, the number decreased to $778

billion with 144,635 grants while Colorado received 2,709 grants for a total of $10.7 billion in 2022 and 2,634 grants for $11.2 billion in 2023 (TAGGS 2023).

1.3 National Institutes of Health

The NIH is composed of 21 institutes and 6 centers, each with a specific research agenda, often focusing on particular diseases or body systems. Some of the institutes include the National Cancer Institute, National Human Genome Research Institute, National Institute on Deafness and Other Communication Disorders, and the National Institute of Allergy and Infectious Diseases.

The goals of the agency are to:

- Foster fundamental creative discoveries, innovative research strategies, and their applications as a basis for ultimately protecting and improving health;
- Develop, maintain, and renew scientific human and physical resources that will ensure the Nation's capability to prevent disease;
- Expand the knowledge base in medical and associated sciences in order to enhance the Nation's economic well-being and ensure a continued high return on the public investment in research; and
- Exemplify and promote the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science.

In FY 2023, of the appropriated funds, approximately 83 percent of the agency's funding was awarded for research through almost 50,000 competitive grants to more than 300,000 researchers at more than 2,500 universities, medical schools, and other research institutions in every state. Approximately $35.6 billion was awarded (TAGGS 2023).

1.4 Location and Description of Project Area

Colorado State University (CSU)

CSU was founded in 1870 as the Colorado Agricultural College, a land-grant institution in accordance with the Morrill Act of 1862. The institution was renamed Colorado State University in 1957. CSU's main campus is 391-acres and is bound by W Laurel Street to the north, S Shields Street to the west, West Lake Street and Prospect Road to the south. To the south of Main Campus is the Horticulture Center and further beyond is the Natural Resources Research Center and the College of Veterinary Medicine buildings. These areas to the south of main campus are 101-acres. Two off campus areas are also part of the CSU system, Pingree Park and Foothills Campus. Pingree Park is the location of the CSU Mountain Campus which serves as a location for K-12 educational opportunities, conferences, and academic field studies (CSU 2023a).

CSU is a Carnegie Research University with eight colleges comprising of 33,455 students in 2022. Colleges at CSU include Agricultural Sciences, Business, Engineering, Health and Human Sciences, Liberal Arts, Natural Sciences, Veterinary Medicine and Biomedical Sciences, and Natural Resources.

Foothills Campus

The campus is located approximately four miles west of the Main Campus. The campus is bordered by Reservoir Ridge Natural Area to the north, South Overland Trail to the east, South County Road 23 to the west, and the Ponds at Overland residential subdivision to the south. The campus is divided by Rampart Road, see Figures 1 and 2. The campus includes the Cooperative Institute for Research in the Atmosphere, Engineering Research Center, Temple Grandin Equine Center, Animal Reproduction and Biotechnology Laboratory, Colorado State Forest Service, Center for Vector-Borne Infectious Diseases, and Infectious Disease Research Center. Federal labs and partners are currently housed on the campus. The campus also houses federal laboratories including the U.S. Department of Agriculture National Wildlife Research Center, and the Center for Disease Control and Prevention (CDC) Division of Vector-Borne Disease, the second-largest CDC lab outside of Atlanta, which targets public health and emerging infectious diseases. The campus includes clustered development areas approved within the 2014 Master Plan. The creation of the campus was initiated in 1915 and construction of facilities within southern portion of the campus began between 1956 and 1969 (Netronline 2023).

Within the Foothills Campus, resides the Judson M. Harper Research Complex. The complex is located within the southwest corner of the campus and is approximately 17.8 acres. The Complex includes the Research Innovation Center, a 17,000 square foot (sq ft) facility that was constructed in 2010 and houses office space and laboratory with the purpose to foster the development of vaccines and therapeutics. The facility includes biosafety facilities, wet laboratories, conference rooms, and a vivarium. Other facilities within the complex include the Regional Biocontainment Lab, Infectious Disease Research Center, Bioenvironmental Research Building, Center for Vector-Borne Infectious Disease, and Infectious Disease Annex.

1.5 Purpose and Need

CSU's mission is"…setting the standard for public research universities in teaching, research, service and extension for the benefit of the citizens of Colorado, the United States and the world." As part of that mission, the Center for Vector-borne Infectious Diseases has detailed its own, which is to better understand how agents and diseases affect humans and animals, this includes researching pathogens and transmission of those pathogens. Activities associated with the mission include testing potential vaccines and curatives while developing new detection technologies. With the changing environment, interaction between humans and animals are increasing and in unfamiliar settings, increasing the potential for transmission of pathogens between species. Bats are known to be hosts to particular pathogens that are detrimental in humans and to study that relationship and interaction between species, bats must be colonized in a controlled environment.

Figure 1 – Northern Foothills Campus

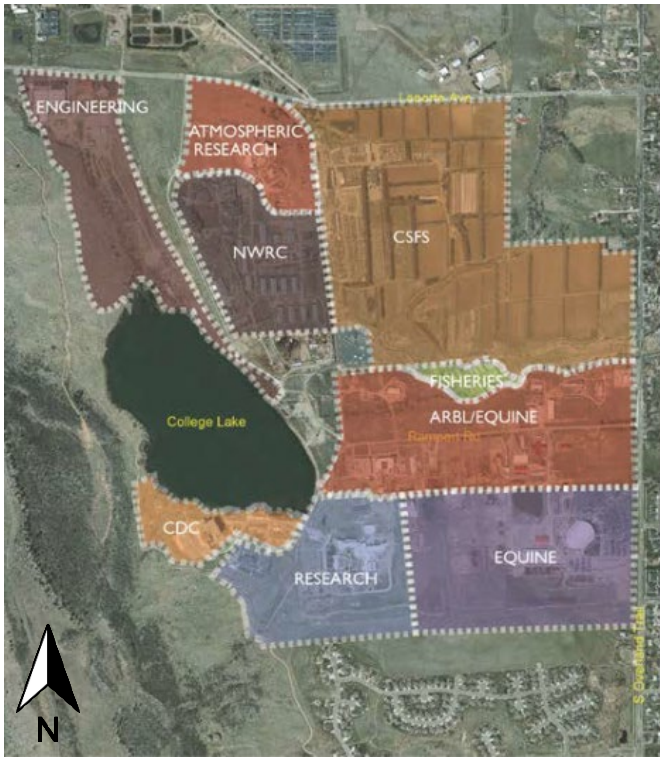


Figure 2 – Southern Foothills Campus

CSU has researched bats and infectious diseases on its Foothills Campus for more than 15 years. A colony of Jamaican fruit bats was established at CSU in 2015, with an initial breeding colony of 39 bats. In 2019, CSU received an additional 400 Jamaican fruit bats which are housed within the Research Innovation Center, at the Infectious Disease Research Center (located within the Foothills Campus). Bats are generally not born naturally infected with viruses or diseases – they must be exposed to a virus, bacteria or other pathogen to carry that disease. Before CSU begins a research project on bats, the bats are tested to confirm they have not been naturally infected with and do not carry viruses. Methods of testing include polymerase chain reaction (PCR), antibody testing and deep sequencing, which looks for the Deoxyribonucleic acid (DNA) or Ribonucleic acid (RNA) of a virus hundreds of times. The bats are still housed at the center; however, the need for additional bats for study has exceeded the current capacity of the existing CSU facilities and alternate location to house the bats is required.

The purpose of the Proposed Action is to provide additional physical resources to establish more colonies of different bat species that will serve as a resource (animals, tissues, and cells) for researchers around the world. In addition, they will be used in the study of the transmission of pathogens (including means and methods) and to provide knowledge which would be used to protect public health within the U.S. and beyond in hopes of reducing the response time if an outbreak occurs.

1.6 Public Engagement

Regulations from the Council on Environmental Quality (40 CFR part 1506.6[a]) state that agencies shall make diligent efforts to involve the public in preparing and implementing their NEPA procedures.

Beginning in October 2021, CSU commenced with notifying university faculty, staff, employees, and approximately 3,000 community members and news media outlets concerning the proposed project. The information provided described the award of the NIH grant and the purpose of the new building to be constructed. Following the initial publication, additional public engagement was conducted. The activities included the following:

- October 7, 2021 – CSU news story published online and sent to subscribers and news media announcing grant and intent to build the facility. Story also emailed to all CSU students, faculty, staff, public subscribers and news media. Available for viewing at: https://source.colostate.edu/csu-awarded-6-7-million-nih-award-for-research-facility-focused-on-bat-health-disease-transmission.
- October 12, 2021 – Social media post linking to above story, via Twitter, from CSU's account. Approximately 70,000 accounts follow CSU concerning the construction and operation of the facility.
- November 21, 2022 – Homeowners in surrounding neighborhoods notified of a hearing through email and postcards provided/mailed by the Larimer County Planning Commission. Hearing was conducted in December 2022. The public and CSU provided comments.

- January 25, 2023 – The Coloradoan publishes an article noting the proposed project and the purpose of the project – Available at: https://www.coloradoan.com/story/news/local/2023/01/25/bats-disease-colorado-research-facility-csu-university/69832905007/.
- February 20, 2023 – The Rocky Mountain Collegian publishes an article noting the grant, proposed project including the purpose, and opposition to the project – Available at: https://collegian.com/articles/news/2023/02/category-news-the-national-institutes-of-health-awards-csu-6-7-million-for-new-chirpoteran-research-facility/.
- April 2023 – CSU launched the website https://batresearch.colostate.edu/ to educate interested parties. Website includes frequently asked questions, links to CSU's biosafety website, links to news stories concerning bat / infectious disease research and provided an email address for the public to use when providing comments. Frequently asked questions are provided in Appendix B.
- June 3, 2023 – Conversation between a City Council member and CSU staff. Council member had specific questions concerning the facility which were answered.
- July 16, 2023 – Denver Post publishes article concerning proposed project and activities to be conducted within the facility - Available at: https://www.denverpost.com/2023/07/16/csu-bat-research-facility-covid-misinformation/.
- July 17, 2023 – Local CBS affiliate publishes news article and show on proposed project and associated operation.
- July and August 2023 – Local elected officials, City and County managers received emails from CSU which included a fact sheet, link to website, and email address where comments could be sent.
- August 18, 2023 – CSU mailed postcards to surrounding landowners that informed recipients about the project and provided a website for additional information. Approximately 460 postcards were mailed (see Figure 3).
- October 24, 2023 – Article published in CSU news site providing information text concerning the benefits of bats as well as overall information on the mammal.

Concurrently during public engagement, university leadership (including communication directors for all colleges and divisions) received fact sheets. The Larimer County Planning Commission hearing included an opportunity for public comment; the CSU Biosafety Director attended and provided answers to questions posed. After the hearing, CSU provided a listing of frequently asked questions to those who requested it. A local meeting, held by concerned citizens was conducted on September 7, 2023, CSU provided informational flyers to a community member to provide to attendees during that meeting.

Copies of information are provided in Appendix B.

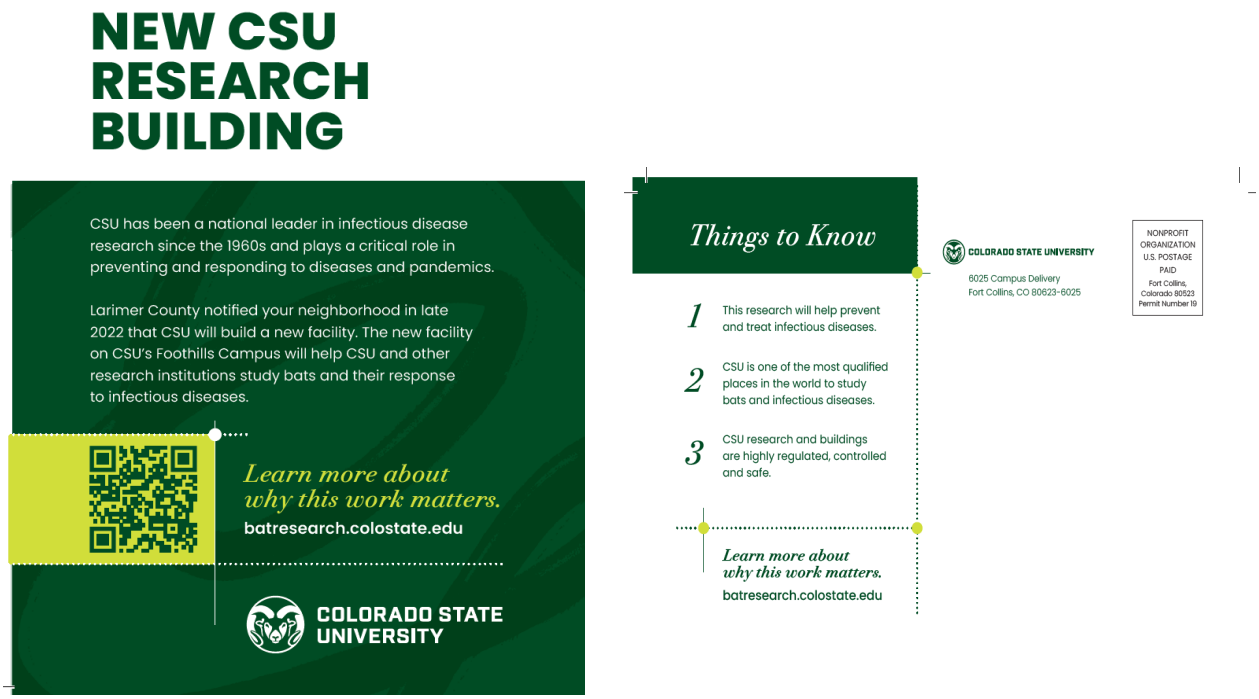


Figure 3 – Post Card Mailed to Surrounding Landowners

Public engagement is on-going. CSU continues to inform the public and request comments or concerns from the public on this action. Future activities, include:

- Creating and publishing a podcast style audio recording discussing the intent of the proposed action. Podcast will be published to the https://batresearch.colostate.edu/ website winter of 2023/2024.
- Creation and installation of a small sign by the construction entrance with a QR code for website informing construction employees as to the proposed project and the operation of the facility.
- Graphic explaining oversight from multiple university and federal agencies to show how research is required to be safe and responsible.
- Provide fact sheets to construction employees.

The draft EA was made available for public review on-line and at the Old Town Library, to ensure accessibility to students and residents of Fort Collins, on December 18, 2023. The on-line address for the document was https://nems.nih.gov/NEPA/Pages/default.aspx. A link to the electronic version of the draft EA was also published on the CSU Bat Research website (https://batresearch.colostate.edu)/ The notice of availability was published within the "Public Notices" section of the Coloradoan on December 18, 20, and 22 2023. At the end of the 30-day public comment period, no comments were received by either NIH or CSU. The notices and screen shots of the information provided on-line is available in Appendix B.

1.7 Federal Decision to be Made

The NIH is the federal decision-maker concerning this Proposed Action as some of the funds for the action will be provided by the agency. The purpose of this EA is to inform decision-makers of the potential environmental effects of the Proposed Action and alternatives prior to making a federal decision to move forward with any action. In this manner, federal decision-makers can make a fully informed decision, aware of the potential environmental effects of their Proposed Action. Overall, the purpose of this EA is to:

- Document the NEPA process;
- Inform decision-makers of the possible environmental effects of the Proposed Action and its considered alternatives, as well as methods to reduce these effects;
- Allow for public, regulatory agency and tribal input into the decision-making process; and
- Allow for informed decision-making by the federal government.

This decision-making process includes identifying the actions that the federal government will commit to undertake to minimize human health and environmental effects, as required under NEPA and associated CEQ regulations.

The decision to be made is whether, having taken potential physical, environmental, cultural, and socioeconomic effects into account, NIH should implement the Proposed Action and, as appropriate, carry out mitigation measures to reduce effects on resources. Based upon the analysis, no potentially significant adverse impacts have been identified.

The NIH, as the federal proponent of the Proposed Action, will either document the decision in a Finding of No Significant Impact (FONSI) or indicate whether an Environmental Impact Statement is required. The NIH will carefully consider comments received from the public and regulatory agencies in this decision-making process.

2.0 ALTERNATIVES TO THE PROPOSED ACTION

This section of the EA provides a brief history of the formulation of alternatives, identification of alternatives eliminated from further consideration, a description of the Proposed Action, and a description of the No Action Alternative. The screening criteria and process developed and applied by NIH to hone the number of reasonable alternatives for the Proposed Action are described, providing the reader with an understanding of NIH's rationale in ultimately analyzing one Action Alternative, the Proposed Action.

2.1 Development of Alternatives

The implementing procedures for NEPA establish a number of policies for federal agencies to follow in order to avoid or minimize the adverse effects of their actions. Among these policies is the use of the NEPA process to identify and assess reasonable alternatives to the proposed project that would avoid or minimize adverse impacts (40 CFR 1500.2(e)). The alternatives must be explored rigorously and evaluated objectively. Alternatives that are eliminated from detailed analysis must be identified, along with a brief discussion of the reasons for eliminating them.

2.2 Alternatives Evaluated and Not Carried Forward

Beyond the no-action alternative, additional alternatives to the proposed project were reviewed against the need of the project and parameters. No other action beyond an alternative location could be considered. For an alternative location to be evaluated it must be within close proximity to existing animal and infectious disease research infrastructure including the Center for Vector-Borne Infectious Diseases lab and the regional biocontainment laboratory. The proximity requirement is intended to control the potential interaction between human and bat populations, and exposure to harmful environmental conditions. Additionally, the location needed to be undeveloped to allow the facility to be constructed in accordance with NIH standards. Based upon these requirements, no additional locations were available.

2.3 Alternatives Retained for Detailed Analysis

2.3.1 Proposed Action

Under the Proposed Action, the NIH would fund a portion of the construction of a Chiropteran Resource Facility (CRF). The NIH funds would be utilized for construction of the structure only. Ground disturbing activities and operation and maintenance of the facility would be reliant upon CSU funds. The CRF would be located in the Judson M. Harper Research Complex, within the Foothills Campus in Fort Collins, Colorado, see Figure 4. The Proposed Action would also include installation of required utility services to the facility.

Figure 4 – Proposed Action Location

Facility Site and Construction

The CRF would be located to the east of the perimeter road that encompasses the Judson M. Harper Research Complex, approximately 130 feet east of the Center for Vector-Borne Infectious Disease. The facility would include a 11,000-sq ft footprint and include a stand-alone bat vivarium. No additional parking would be constructed for the facility. Electrical utilities would be connected to the Foothills Southeast feeder which has a capacity of 9,145 kilowatts (kW) and the proposed facility would have a peak load of 2,880 kW so no additional electrical utilities beyond the connection to the feeder from the building would be required. Steam fired water heaters will be utilized to generate hot water, and the steam released at the site. Water and wastewater will also be connected to the existing system within the Foothills Campus, no additional infrastructure beyond piping will be installed. A stormwater detention pond will be constructed adjacent to the facility, in response to the additional impervious cover. The structure of the building will include a concrete foundation and structural steel frame. The vapor barrier, between the frame, will be a sprayed and the exterior metal panel veneer will covered with a masonry wainscot. The roof will be steel as well with steel joints, overlaid with a corrugated roof deck, insulation, protection board and a fully adhered ethylene propylene diene terpolymer roofying system. Upon completion, the existing security fence will be modified to surround the CRF.

The build-out would be designed in accordance with the most recent International Building Code, the NIH Standards for both animal and holding spaces as well as biosafety, and the CSU Standards for Design and Construction.

Facility Description and Operations

The CRF would include a bat vivarium (enclosure) to house breeding colonies, holding rooms, procedure room with isolation room, medical treatment room, maternity areas, food storage, office areas and kitchens, see Figure 5. The bats would be bred for use within the Research Innovation Center or relocated to research facilities within the U.S. The quantity of bats bred would be limited by the size of the holding rooms. The sizes of the rooms will be based on the *Standardized Guidelines for Fruit and Nectar Bat Care*, prepared by the Association of Zoos and Aquariums, October 2004.

Table 1 Space Requirements for Bats

Species	Weight	Wingspan	Enclosure (at least 6 ft high)	Maximum Capacity Per Room	Number of Rooms
Indian flying fox	1.6 kilograms (kg)	4-5 ft	15 ft x 30 ft*	171	3
Jamaican fruit bats	40-60 kg	4-6 in	4 ft x 7.5 ft **	20	3
Horseshoe bats	30-40 kg	3-5 in	4 ft x 7.5 ft **	212	1

Source: Association of Zoos and Aquariums, 2004

* up to 6 bats, add 15% for each additional bat

** up to 10 bats / 30 sq ft for bats weighing up to 80 grams

If bats are requested to be transported to other locations, including research facilities outside of CSU's campus, smaller bats (Jamaican fruit bats and Horseshoe bats) will be transported utilizing rodent transfer crates like those that are used to shift / move mice. The crates will be metal and have a mesh screen with a locking mechanism for the opening. The opening will also include a duplicative method for keeping the door closed. These methods for keeping the door closed could include cable ties, duct tape, or bungee cords. Larger bats, such as the Indian flying fox, will be transported in plastic dog crates, with steel grates and a locking door. The doors will also receive a duplicative method for locking. Once in the crates, the bats will be transported to the building either on foot or by van. The method of transportation is dependent upon location of the receiving facility and number of crates.

The vivarium would include six temperature-, photoperiod-, and humidity-controlled bat holding rooms to house bats including but not limited to Indian flying foxes (*Pteropus medius*), Jamaican fruit bats (*Artibeus jamaicensis*), horseshoe bats (*Rhinolophus affinis*), and either big brown bats (*Eptesicus fuscus*) or Seba's short-tailed bats (*Carollia perspicillata*). Rooms will be of varying sizes depending upon their use. Bat holding areas will include items that will promote typical

species behavior (tree branches, black cloth with folds, rope), roosting boxes, and feeding stations. All items within the areas can either be cleaned or disposed of and replaced as needed.

A variable volume air distribution system will be installed, used, and maintained to proper pressurization to provide required airflow to maintain proper pressurization. The anterooms will be used as an airlock between corridors to contain unwanted airborne contaminants from entering a room. The procedure rooms and isolation rooms will have negative air pressure relative to their adjacent rooms. The bat holding rooms will be negative to the anterooms, containing potential airborne contaminants to the holding rooms.

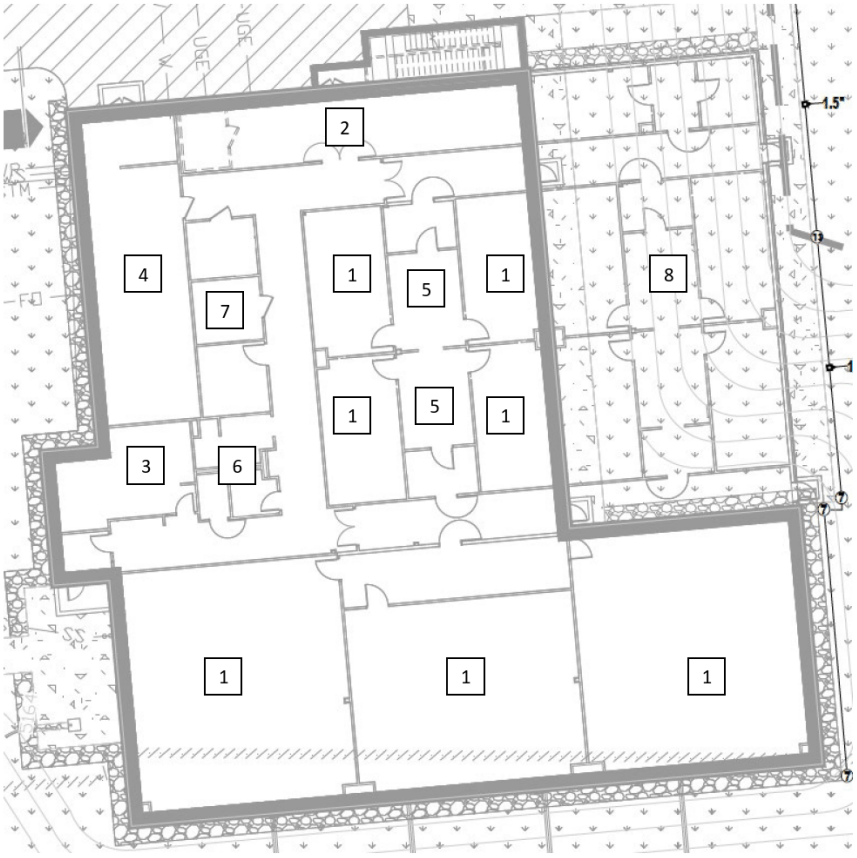
The vivarium, including procedure and isolation rooms, would be constructed and operated under biosafety level (BSL) 2 and animal biosafety level (ABSL) 2. Biosafety levels are used to identify the protective measures needed in biomedical or clinical laboratory setting to protect workers, the environment, and the public. The levels are defined by the CDC and NIH in Biosafety in Microbiology and Biomedical Laboratories (BMBL) 6th Edition. Each level designates the best practices and safety measures. To determine the level, risk assessments are conducted to take into account the risks of the agent (infectious dose, transmission, etc.), how it is being used, any modifications to the agents and other factors. Then the information is reviewed by CSU's Institutional Biosafety Committee (IBC) to determine the appropriate BSL to mitigate the risks. It is the responsibility of the IBC to ensure that biomedical research efforts are appropriate for the containment level. There are four BSLs and range from 1 to 4, with a BSL-4 as the highest level of contaminant and four ABSLs ranging from 1-4.

BSL-2 and ABSL-2 laboratories are used for biomedical research that involves agents associated with human disease and pose moderate hazards to personnel and the environment, (such agents are the infectious organisms that may make people sick but are easily treated). Examples of BSL-2/ABSL-2 agents include *Streptococcus pyogenes*, which causes strep throat, *Listeria monocytogenes* and *Salmonella cholerasesuis*, which can be causes of foodborne illness, and some seasonal influenza viruses. BSL-2 and ABSL-2 labs are common at research universities, hospitals, private companies, and government agencies, and have safety requirements in place. Design requirements include controlling access to the building or internal spaces, hand washing sinks, eye washing stations, inward airflow, and self-closing doors with access control, easily cleanable finishes, and proper illumination. Additional systems that are in place include using biological safety cabinets for research and decontaminating all spaces as well as research tools, equipment and waste using heat or chemicals.

These labs must also have access to equipment that can decontaminate laboratory waste, such as an incinerator, an autoclave, and/or another method, depending on the biological risk assessment (HHS 2023). Decontamination of biological wastes in the CRF will be performed chemically and if needed through autoclaving.

Once constructed, the facility would be utilized for the continuation of the captive breeding program of bats for study for infectious diseases as well as limited biomedical research. The limited investigation could include viruses that are level BSL-2 compliant such as Cedar virus and H18N11 influenza A virus. BSL-2 containment areas are used to work with infectious organisms

that may make people sick but are easily treated. Examples of these organisms include *Streptococcus pyogenes* which causes strep throat; and *Listeria monocytogenes* and *Salmonella cholerasesuis*, both of which can be causes of foodborne illness. Organisms that require the least containment requirements (BSL-1 viruses) may also be evaluated. Two examples of a BSL-1 organisms that may be investigated includes *E. coli* and *Bacillus subtilis*, both of which can cause foodborne illnesses. Viruses that require BSL-3 or BSL-4 containment, such as SARS-CoV-2, Ebola virus, Marburg virus, or Nipah virus, will not be present, evaluated, or stored within the CRF. Prior to interaction with the bats, personnel will be trained in the proper procedures developed by CSU's IBC to ensure protection of both the bats and the employees. Also, personnel who interact with the bats will be required to wear personal protective equipment (PPE), which will include dedicated scrubs or lab coats, disposable gloves, eye protection and potentially respiratory equipment, depending on the species and the work being protection. Respiratory protection is activity dependent and not required for every interaction. Operational procedures are required within the BSL-2/ABSL-2 to maintain safety and will be done in accordance with CDC *Biosafety in Microbiological and Biomedical Laboratories* and the CSU Biosafety Manual. The respiratory protection is also to protect bats from human diseases that are circulating in the community. Additionally, to protect the bats, the building will not be open to the public, the building will be monitored 24/7 and access will be controled to limit accessibility. Current safety measures to protect employees and the public along with measures associated with the Proposed Action are discussed within Section 3.5.



1- Bat holding and breeding
2- Kitchen
3- Office
4- Mechanical space
5- Procedure space
6- Locker rooms
7- Storage
8- Future space

Figure 5 – CRF Layout

2.3.2 No Action Alternative

Under the No Action Alternative, the NIH would not fund the construction of the facility and the CRF would not be constructed at the Foothills Campus, Judson M. Harper Research Complex in Fort Collins, Colorado. If the CRF is not constructed, the number of bats and the required species may not be available for biomedical research, which may limit our understanding of diseases that are spread between people and bats. Under the No Action Alternative, CSU's and the Center for Vector-borne Infectious Diseases' missions would not be visualized.

The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA and provides a baseline for measuring the environmental consequences of the Proposed Action alternative.

3.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION/MANAGEMENT MEASURES

This chapter describes the current conditions of the environmental resources, either manmade or natural, that would be affected by implementation of the Proposed Action or alternatives. This chapter also describes the potential environmental impacts that are likely to occur as a result of implementation of the Proposed Action. The No Action Alternative provides a baseline against which the impacts of the Proposed Action can be compared.

3.1 Criteria of Analysis of Impacts

After each description of the relevant baseline conditions of each considered Technical Resource Area, the potential direct and indirect effects of the Preferred Action and No Action Alternative are analyzed. The significance of an action is also measured in terms of its context and intensity. For the purposes of this analysis, the potential environmental impacts are described in terms of duration, whether they are direct or indirect, the magnitude of the impact, and whether they are adverse or beneficial, as summarized in the following paragraphs:

Short-term or long-term. In general, short-term impacts are those that would occur only with respect to a particular time-lined activity, for a finite period, or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.

Direct or indirect. A direct impact is caused by an action and occurs around the same time at or near the location of the action. An indirect impact is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.

Adverse or beneficial. An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment.

3.2 Significance Criteria

Significance is based on the twin criteria of context and intensity (40 CFR 1508.27). Context means the affected environment in which a proposed action would occur; it can be local, regional, national, or all three, depending upon the circumstances. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human/national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity of impact, ranging from negligible, minor, moderate or significant.

Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. Significant impacts are those that, in their context and due to their magnitude (severity), have the

potential to meet the thresholds for significance set forth in the CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the policies set forth in NEPA. Significance criteria by resource area are presented below.

Coastal Resources. The potential to convert/construct within designated coastal areas and/or not be consistent with state prepared coastal management plans.

Land Use. The potential for conversion of current land use of property that would impact use and viability of adjacent properties by current and future landowners.

Water Resources. The potential to result in major disturbances in the natural flow, discharge, and recharge of water resources within the project or adjacent areas. This includes the potential for a substantial loss, degradation, or fragmentation of wetland habitat.

Floodplains. Construction within a 100- or 500-year floodplain that modifies the floodplain impacting downstream receivers by reducing flow or increasing quantity above the capacity of the floodplain.

Threatened and Endangered Species. The U.S. Fish and Wildlife Service (USFWS) determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat.

Air Quality. The potential for emissions to result in a considerable net increase of any criteria pollutant within the Denver Metro/North Front Range Non-Attainment Area or are in exceedance of the Air Quality Control Commission regulations which would not be incompliance with the State Implementation Plan.

Cultural Resources. The potential to result in ground disturbing activities that may adversely affect known or unidentified cultural resources within the project area.

Socio-Economic. Disproportionate impacts to either low-income, minority, or individuals with limited English proficiency including limited access to social services, community resources, transportation, and economic advancement as wells impacts directly or indirectly to their health.

Transportation. Modification or increase of traffic that would cause a substantial decrease in mobility, increase commuting time, or decrease safety.

Human Health: The potential to expose workers and the surrounding public to hazardous materials including toxic chemicals, infectious and radioactive materials beyond what is regulated.

Aesthetics: Substantially alter a scenic vista or resource, substantially degrade the visual character of the site and its surroundings; or create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Waste Management and Pollution Prevention. The potential to increase the amount of solid waste generated, and the potential to violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management.

Noise. The potential to result in noise levels in exceedance of 80 decibels (dB) for a prolonged duration of time during the hours of 7:00 am to 7:00 pm or 75 dB from 7:00 pm to 7:00 am in accordance with Larimer County Noise Ordinance 97-03, impacting the quality of life of those within residential areas.

Environmental Justice. The potential to lead to a disproportionately high and adverse impact to an environmental justice population (low-income or minority population).

Climate Change. The potential for emissions to result in a considerable net increase of greenhouse gases in such a quantity that the purpose and need of a project or other resources (e.g., threatened and endangered species, water resources, etc.) will be impacted.

3.3 Environmental Resources Not Carried Forward for Detailed Analysis

The determination of environmental resources to be analyzed versus those not carried forward for detailed analysis is part of the EA scoping process. CEQ and regulations (40 CFR §1501.7[a][3]) encourage project proponents to identify and eliminate from detailed study the resource areas that are not important or have no potential to be impacted through implementation of their respective proposed actions. Some resource areas or some aspects of resource areas would not be affected by the proposed or alternative actions. Resource areas that have been eliminated from further study in this document and the rationale for eliminating them are presented below:

Coastal Resources: The project area is not located within a state identified in the Coastal Zone Management Act of 1972 or Coastal Barriers Resources Act; therefore, there are no impacts to coastal resources. No further analysis is required.

Land Use: The site, including the entire Foothills Campus, is owned and operated by CSU and is designated for use as an educational facility. The campus is outside the City of Fort Collins Urban Growth Management Area (UGMA). The UGMA is the area designated by the City of Fort Collins to control the rate, amount, location, timing, and type of development; its purpose is to control the bounds of urbanization within the city. As the campus is located within Larimer County, County Land Use Codes apply. County planners consider these research buildings through the context of conformance with the CSU Master Plan as well as the Larimer County Comprehensive Plan. CSU has received approval from Larimer County planners for construction of research buildings in the Judson Harper Research Complex as part of a general Location and Extent approval process. Additionally, the site is not within or adjacent to Formally Classified Lands (FCLs) which are properties administered either by federal, state, or local agencies, or properties that have been given special protection through formal legislative designation (USGS 2023). The nearest FCL, approximately 1,480 feet to the west, is Maxwell Natural Area, which is owned and maintained by the City of Fort Colins.

Water Resources: According to the Federal Register, (33CFR §328.3(a)) (with Amendments to the “Revised Definition of ‘Waters of the United States’” to address the Sackett decision), Waters of the U.S. (WOTUS) may include intrastate rivers and streams, including impoundments and other waters that are relatively permanent, standing or continuously flowing bodies of water (i.e. streams with perennial or intermittent flow regimes), and wetlands directly abutting such

tributaries. The *U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual* defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area either lacks vegetation or the vegetation is dominated by hydrophytes. There are no water features on the site; therefore an evaluation for jurisdictional status by the USACE or the State of Colorado is not required. Additionally as there are no surface water features on the site, no impact to water resources is anticipated.

Floodplain: Executive Order (E.O.) 11988, "Floodplain Management", requires Federal agencies to avoid actions, to the extent practicable that will result in the location of facilities in floodplains and/or affect floodplain values. Facilities located in a floodplain may be damaged or destroyed by a flood or may change the flood handle capability of the floodplain, or the pattern, or magnitude of the flood flow. The project area is located within an area designated outside of a 100-or 500-year floodplain, per a Flood Insurance Rate Map, Panel 08069C0960F, effective December 19, 2006. The Proposed Action will increase the amount of impervious cover by the square footage of the building; however the additional runoff-will be captured by the existing stormwater system and discharged into a stormwater detention pond which will be constructed adjacent to the facility. Since the Proposed Action is not located within a floodplain and additional runoff will be discharged within an existing system that has capacity, no impact to the immediate area as well as the stormwater system and watershed is anticipated.

Threatened and Endangered Species: The United States Fish and Wildlife (USFWS) Information for Planning and Consultation system documents that ten threatened, endangered, or candidate species have the potential to be present on-site. The species that are listed include: gray wolf (*Canis lupus*), tricolored bat (*Perimyotis subflavus*), eastern black rail (*Laterallus jamaicensis ssp. Jamaicensis*), piping plover (*Charadrius melodus*), whooping crane (*Grus americana*), greenback cutthroat trout (*Oncorhynchus clarkii stomias*), pallid sturgeon (*Scaphirhynchus albus*), monarch butterfly (*Danaus plexippus*), Ute ladies'-tresses (*Spiranthes diluvialis*), and western prairie fringed orchid (*Platanthera praeclara)* (USFWS 2023). The project area is previously disturbed and is composed of native shortgrasses with no water and is devoid of trees or roosting areas, or open prairie. Due to the current condition of the site, and lack of habitat, it is anticipated that none of the listed species reside in or utilize the project area.

Cultural Resources: The State Historic Preservation Officer (SHPO) was consulted regarding historic resources. The SHPO was requested for consultation under Section 106 of the National Historic Preservation Act on January 19, 2023. They stated that the proposed project would result in no historic properties affected. It was requested that if unidentified archaeological resources are discovered, work cease until the resources have been evaluated in terms of the National Register eligibility criteria (36 CFR §60.4) in consultation with their office pursuant to 36 CFR

§800.13. The CSU Native American Advisory Council is aware of this project through the information that has been provided to the university leadership.

Socioeconomics: The Proposed Action is anticipated to have a minor, short-term, temporary positive impact on the local economy as a result of construction activities within the area. The temporary positive impact should be caused by incidental spending by construction workers and the purchase of construction materials. Individuals who would staff and operate the facility are currently employed by CSU, and if additional employees are needed, the number is anticipated to be negligible. No adverse impacts to socioeconomic resources would be expected.

Transportation: The Proposed Action is anticipated to generate a minor, short-term impact on the existing traffic patterns on the southern portion of the Foothills Campus. An increase in construction related traffic is anticipated during the ground clearing and construction activities only. Construction traffic will enter into the Foothills Campus via Rampart Road and travel along Rampart until the service road, where it will be used to reach the project site. As there is no gate to enter into the Foothills Campus, additional vehicles utilized for construction will not require access, allowing for the continued flow of traffic. Construction will not occur within areas that are designated as parking; therefore there will be no impact to parking. Additionally, no additional staff are anticipated to operate the facility; therefore no additional traffic to / from the Foothills Campus is anticipated upon construction of the CRF. Upon completion of construction, the baseline conditions related to transportation will resume. No adverse impact to transportation would be expected.

3.4 Air Quality

3.4.1 Affected Environment

The United States Environmental Protection Agency (USEPA) established primary and secondary National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA), 42 United States Code § 7401 et seq. The CAA also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emission standards for hazardous air pollutants.

The CAA specifies two sets of standards – primary and secondary – for each regulated air pollutant. Primary standards define levels of air quality necessary to protect public health, including the health of sensitive populations such as people with asthma, children, and the elderly. Secondary standards define levels of air quality necessary to protect against decreased visibility and damage to animals, crops, vegetation, and buildings. Federal air quality standards are currently established for six pollutants (known as criteria pollutants), including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur oxides (SO_x), commonly measured as sulfur dioxide [SO_2]), lead, particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Although O_3 is considered a criteria pollutant and is measurable in the atmosphere, it is often not considered as a pollutant when reporting emissions from specific sources, because O_3 is not typically emitted directly from most emissions sources. Ozone is formed in the atmosphere from its precursors – nitrogen oxides (NO_x) and volatile organic

compounds (VOCs) – that are directly emitted from various sources. Thus, emissions of NO_x and VOCs are commonly reported instead of O_3. The NAAQS for the six criteria pollutants are shown in Table 2.

Table 2 National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide	Primary	8-Hour	9 ppm	Not to exceed more than once per year
		1-Hour	35 ppm	
Lead	Primary	Rolling 3-month average	0.15 µg/m^3 (1)	Not to be exceeded
	Secondary			
Nitrogen Dioxide	Primary	1 Hour	100 ppb	98th percentile of 1-hr daily maximum concentrations, averaged over 3 years
	Primary and Secondary	1 Year	53 ppb (2)	Annual Mean
Sulfur Dioxide	Primary	1 Hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3 Hours	0.5 ppm	Not to be exceeded more than once per year
Particle Pollution ($PM_{2.5}$)	Primary	1 Year	12.0 µg/m^3	Annual mean, averaged over 3 years
	Secondary	1 Year	15.0 µg/m^3	Annual mean, averaged over 3 years
	Primary and Secondary	24 Hours	35 µg/m^3	98th percentile, averaged over 3 years
Particle Pollution (PM_{10})	Primary and Secondary	24 Hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Ozone	Primary and Secondary	8 Hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

USEPA 2023a.

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards would be addressed in the implementation rule for the current standards.

(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) would additionally remain in effect in certain areas: (1) areas for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) areas for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

The USEPA classifies the air quality within an Air Quality Control Region (AQCR) according to whether the region meets federal primary and secondary air quality standards. An AQCR or portion of an AQCR may be classified as attainment, non-attainment, or unclassified with regard to the air quality standards for each of the criteria pollutants. "Attainment" describes a condition in which standards for one or more of the six pollutants are met in an area. The area is considered an attainment area for only those criteria pollutants for which the NAAQS are met. "Nonattainment" describes a condition in which standards for one or more of the six pollutants are not met in an area. "Unclassified" indicates that air quality in the area cannot be classified and the area is treated as attainment. An area may have all three classifications for different criteria pollutants.

The CAA requires federal actions to conform to any applicable state implementation plan (SIP). USEPA has promulgated regulations implementing this requirement under 40 CFR Part 93. A SIP must be developed to achieve the NAAQS in non-attainment areas (i.e., areas not currently attaining the NAAQS for any pollutant) or to maintain attainment of the NAAQS in maintenance areas (i.e., areas that were non-attainment areas but are currently attaining that NAAQS). General conformity refers to federal actions other than those conducted according to specified transportation plans (which are subject to the Transportation Conformity Rule). Therefore, the General Conformity rule applies to non-transportation actions in non-attainment or maintenance areas. Such actions must perform a determination of conformity with the SIP if the emissions resulting from the action exceed applicability thresholds specified for each pollutant and

classification of nonattainment. Both direct emissions from the action itself and indirect emissions that may occur at a different time or place but are an anticipated consequence of the action must be considered.

The Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division, is the primary authority for protecting air quality in Colorado under the Colorado Air Pollution Prevention and Control Act. Larimer County is currently designated as a severe non-attainment area for 8-hour ozone (2008), and a moderate non-attainment area for 8-Hour Ozone (2015). Larimer County is also listed as a maintenance area for carbon monoxide (USEPA 2023b).

As such, the NIH must demonstrate that a proposed action would not cause or contribute to any new violations of the NAAQS, would not interfere with provisions in the SIP, would not increase the frequency or severity of existing violations, or would not delay timely attainment of any standard. The federal agency must provide documentation that the total of direct and indirect emissions from such future actions would be below the conformity determination emission rates that are established in 40 CFR 93.153.

The Foothills Campus is considered a major source generator of air emissions due to the aggregate quantity of emissions that could potentially be emitted from stationary sources; however some of these sources are exempt from Air Pollutant Emission Notices (APEN). The following permits with APENs have been obtained for the Foothills Campus:

Table 3 Current Foothills Campus Air Emissions Permits

Source Type / Location	AIRS ID	Permit Number
Backup Generator at Research Innovation Center	069/0507/003	12LR2722
Incinerator at Animal Disease Lab	069/0507/002	93LR1279I
Backup Generator at Regional Biocontainment Laboratory	069/0507/004	09LR0911
Boilers (Heating/Cooling) at Regional Biocontainment Laboratory	069/0507/007	09LR0082
Backup Generator at Bio-Hazards Research Building	06/0507/005	09LR1063
Composting Facility	069/0507/008	23LR0399

Source: CAPCD 2023

3.4.2 Environmental Consequences

Preferred Alternative

Under the Proposed Action, construction activities would generate minor amounts of fugitive dust (PM_{10}) and gaseous emissions of CO, VOC, NO_x, SO_2, and $PM_{2.5}$ from the combustion of fuel by construction equipment and vehicles. These quantities would be below the Applicability for Conformity as noted in Table 4.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land worked on and the level of construction activity. The USEPA estimates that uncontrolled fugitive dust emissions from ground-disturbing activities is emitted at a rate of 80 pounds (lbs) of total suspended particulate (TSP) per acre day of disturbance. In a USEPA study of air sampling data at a distance of 164 feet downwind from construction activities, PM10 emissions from various open dust sources were determined based on the ratio of PM10 to TSP sampling data. The average PM10 to TSP ratios for topsoil removal, aggregate hauling, and cut and fill operation are reported as 0.27, 0.23, and 0.22, respectively. Using 0.24 as the average ratio for purposes of this analysis, the emission factor for PM10 dust emissions becomes 19.2 lb per acre per day of disturbance. During construction, the fugitive dust emissions would increase due to the nature of ground disturbance; however, the impact is short-term in duration. The closest receptors are residing within the residential area located 500 feet to the southeast of proposed project area. Additionally, the USEPA estimates that the effects of fugitive dust from construction activities are reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day reduces TSP emissions as much as 50 percent (USEPA 2009). The effects from fugitive dust last only as long as the duration of construction activity, fall off rapidly with distance from the construction site, and do not result in long-term impacts.

Combustive emissions, which include CO, VOCs, NO_x and SO2, from construction equipment were estimated using the USEPA Motor Vehicle Emissions Simulator, MOVES3. Utilizing the NONROAD module, the emission estimate for the duration of construction is shown in Table 2. As with fugitive dust emissions, construction equipment would produce slightly elevated air pollutant concentrations during the period of construction. However, the estimated emissions would not exceed the applicable conformity level. Air emission calculations are provided in Appendix A.

Table 4 Build Alternative Estimated Construction Emissions - Annually

	CO	VOC	NO_x	SO_x	PM_{10}
Proposed Action (tpy)	21.92	1.86	7.81	0.011	0.66
Applicability for Conformity (tpy)	100	100	100	100	100

Notes:
CO = carbon monoxide
NO_x = nitrogen oxides
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
SO_x = sulfur oxides
tpy = tons per year
VOC = volatile organic compound

There would be a short-term, adverse, direct, and minor impact in air quality due to the increase emissions from heavy equipment used during the construction of CRF. No heavy equipment operation will be required during the operation of the facility.

To operate the facility, a major point source will not be required nor installed. However, a backup generator will be installed and maintained through weekly startups. The generator is not considered a major point generator; however, NOx will be emitted during use. Based upon operational standards, the generator is projected to emit less than 0.25 tons per year while in operation (both during power loss and weekly maintenance) and it is anticipated that the generator will be exempt from reporting annual air emissions under Air Quality Control Commission Regulation 3, Part A, II.D.1.c.(iii) as the anticipated operating hours for the generator will be less than 250 hours annually. The heat for the facility will be supplied by the existing boilers located at the Regional Biocontainment Laboratory, which are located approximately 450 feet to the northwest. The permit number for the boilers is 09LR0082 (see Table 3). To generate additional heat for use within the CRF, additional natural gas would be utilized to generate the additional steam, resulting an increase in combustion related air emissions. The emissions would increase; however, the emissions would be within permissible limits and not exceed the limits set forth within the existing permit. Additionally, the staff who are anticipated to operate the facility currently work on the Foothills Campus, therefore, no additional traffic / vehicle emissions are anticipated. This operation would be a long-term, adverse, direct, and minor impact on air quality.

In addition, since the Proposed Action, does not disturb 25 or more acres of contiguous land, an Air Pollutant Emission Notice for Land Development to the CDPHE, Air Pollution Control Division is not required.

Based upon the estimated construction emissions and the assumed level of emissions associated with operating the generator and the Regional Biocontainment Laboratory boilers, the Proposed Action would not have adverse significant long-term operational impacts on local air quality; therefore, no mitigative actions would be required. However, to mitigate short-term impacts, best management practices (BMPs) should be implemented to reduce emissions during the construction. These BMPs could include:

- The construction contractor will implement air quality Best Management Practices (BMPs), to reduce the combustion/engine emissions (CO, VOC, NO_x, SO_2) and PM10 emissions during construction.
- Use appropriate dust suppression methods during on-site construction activities. Available methods include application of water, dust palliative, or soil stabilizers; use of enclosures, covers, silt fences, or wheel washers; and suspension of earth-moving activities during high wind conditions.
- Define and post appropriate speed limits to minimize dust generated by vehicles and equipment on unpaved surfaces.
- Shut off equipment when it is not in use.
- Visually monitor all construction activities regularly and particularly during extended periods of dry weather and implement dust control measures in addition to scheduled period when needed.

No Action Alternative

Under the no action alternative, existing conditions would be maintained; therefore no additional emissions associated with the construction or use of a generator, or increased use of the Regional Biocontainment Laboratory boilers is anticipated. No impact anticipated.

3.4.3 Mitigation / Management Measures

To mitigate short-term impacts, BMPs should be implemented to reduce emissions during the construction (CO, VOC, NO_x, SO_2). These BMPs could include:

- Use appropriate dust suppression methods during on-site construction activities. Available methods include application of water, dust palliative, or soil stabilizers; use of enclosures, covers, silt fences, or wheel washers; and suspension of earth-moving activities during high wind conditions.
- Shut off equipment when it is not in use.
- Visually monitor all construction activities regularly and particularly during extended periods of dry weather and implement dust control measures in additional to scheduled period when needed.

Prior to operation, the generator will submit and receive an air permit under the Foothills Campus major source designation. The operation of the generator will be conducted in accordance with the permit and inspections conducted to ensure efficient functionality.

3.5 Bio-Safety and Biosecurity

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. The elements of an accident-prone environment include the presence of a biological hazard and an exposed population at risk of encountering the hazard. Numerous approaches are available to manage the operational environment to improve

safety, including reducing the magnitude of the hazard or reducing the probability of encountering the hazard.

3.5.1 Affected Environment

Bats

Bats have been successfully and safely housed at CSU for several years and are frequently imported and held safely at zoos. The most obvious of these is animal escape. Escape of any animal from a closed facility is extremely rare and highly unlikely. Bats at CSU will be held within environmental free flight rooms behind at least three independent doors, including one set of doors that is interlocked, meaning that only one of them can be open at a time. Accidental escape is thus nearly impossible and has never occurred at CSU in over 10 years, during which CSU has reared over 1,000 individual bats. A second risk involving escape is due to an 'insider threat,' or malicious release of animals into the environment. At CSU, all personnel who are allowed access to these types of facilities are highly trained and. undergo employment background checks. Finally, an outsider threat could be considered a risk of intentional release. The overall security of these building is such that outsiders are unable to gain entry to bat housing areas due to our extensive use of security. Thus, several steps have been taken in order to minimize the possibility that CSU bats are released into the environment either accidentally or by insider or outsider threats.

A second general risk posed by importing and housing bats is that they may be infected with a virus, known or unknown to science. This also seems unlikely for several reasons. First, bats are held in quarantine for at least six weeks in their country of origin until determined to be free from known classes of infecting agents by several complementary methods that detect current and past exposure to them. Quarantine of animals occurs before they are shipped to the U.S., and they are only shipped when they have been determined to be free of known pathogens of concern, as mandated by the CDC and USFWS permits that are required for importation. In addition, tests to determine whether bats in quarantine are infected with, for example, known coronaviruses (e.g., SARS-related viruses), paramyxoviruses (e.g., Nipah virus), lyssaviruses (e.g., rabies virus) and filoviruses (e.g., Ebola virus), are designed to detect not only known pathogenic organisms, but their close relatives. Therefore, although it is impossible to test for all known possibly pathogenic agents, CSU takes extremely thorough approaches to ensure that we import only healthy, uninfected bats to our colonies. Moreover, bats have immune systems and if they are infected with a virus, it is likely that they will clear the infection during the six-week quarantine period. Taking these steps is very much in the best interest of CSU's program as infected bats are detrimental to research at CSU and beyond.

Worker Safety

Factors involving primary occupational safety and health issues are addressed in the Occupational Safety and Health Act and through the CSU Occupational Health and Safety Program. Day-to-day operations and maintenance activities on the Foothills Campus are

performed by trained, qualified personnel in accordance with applicable equipment technical directives, approved occupational safety and health standards, and sound maintenance practices. The handling, processing, and storage of hazardous byproducts resulting from operations, and maintenance are accomplished in accordance with the federal and state requirements applicable to each substance. Within the Foothills Campus, the Judson M. Harper Research Complex, BSL-3, -2, and -1 facilities are present and in operation in accordance with the required guidelines.

3.5.2 Environmental Consequences

Preferred Alternative

Under the Proposed Action, there would be short-and long term, adverse, direct, and minor impact risk to human health due construction and workplace hazards. Human health effects during the construction of the CRF are anticipated to be the same as any commercial construction project on CSU or Foothills Campus. The impacts would be localized and affect only site workers or visitors to the site. Prior to construction, CSU will prepare and install a small sign by the construction entrance with a QR code for a website informing the construction employees as to the proposed project and the use of facility. Additionally, the construction contractor will be required to prepare and enact a site-specific health and safety plan covering all construction related activities.

Under the Proposed Action, a BSL-2/ABSL-2 laboratory would be constructed within the CRF. This level of containment exceeds the required level of containment for these animals and meets the required containment for organisms studied. BSL-2 laboratories are required to include elements within the design and operation of the facility to ensure safety to the employees, surrounding communities, and the bats themselves. These elements are constructed and operated in accordance with NIH requirements (*Design Requirements Manual*, Updated March 2020) and those presented in the CSU Biosafety Manual, 2019. In 2020, the CDC *Biosafety in Microbiological and Biomedical Laboratories,* the document that the Biosafety Manual utilizes as guidance, was updated. The CSU Biosafety Manual has been updated to reflect the changes and is anticipated to be approved December 2023. The Proposed Action and the required construction and operation elements of the action are also in accordance with the updated manual.

The laboratory facilities requirements include:

- Self-closing laboratory doors with locks in accordance with the institutional policies.
- Laboratories must have a sink for hand washing. The sink may be manually, hands-free, or automatically operated. It should be located near the exit door.
- Biological safety cabinets (BSC) must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs should be located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.

- Vacuum lines should be protected with High Efficiency Particulate Air (HEPA) filters, or their equivalent. Filters must be replaced as needed and liquid disinfectant traps are required. There are no specific requirements for ventilation systems.
- Eyewash stations must be readily available.
- BSCs will be tested and certified annually, or after relocation and/ or repair, and operated according to manufacturer's recommendations.

Upon construction of the CRF, operational procedures are required within the BSL-2 to maintain safety. The vast majority of animals will be uninfected with any pathogenic agent for the time that they are resident in the CRF, and those that are experimentally infected will be euthanized at the conclusion of the experiment. CSU will continue to implement institute strict controls on who gains access to these animals and put in place the appropriate engineering controls so that they cannot escape. No viruses or other pathogenic agents that require containment higher than BSL-2 will be used within the CRF per applicable laws and regulations. These procedures include:

- All persons entering the laboratory must be advised of the potential hazards and meet specific entry/exit requirements.
- Laboratory personnel are offered appropriate immunizations for agents handled or potentially present in the laboratory.
- CSU and lab specific biosafety manual must be available and accessible.
- The laboratory supervisor must ensure that laboratory personnel demonstrate proficiency in standard and special microbiological practices before working with organisms in a BSL-2 laboratory.
- Potentially infectious materials must be placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility.
- Laboratory equipment must be routinely decontaminated, as well as after spills, splashes, or other potential contamination.
- Spills involving infectious materials must be contained, decontaminated, and cleaned up by staff properly trained and equipped to work with infectious material.
- Properly maintained BSCs (preferably Class II), other appropriate personal protective equipment, or other physical containment devices must be used whenever:
    - Procedures with a potential for creating infectious aerosols or splashes are conducted. These may include, but are not limited to, pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.
    - High concentrations or large volumes (greater than 10 liter as per NIH Guidelines) of infectious agents are used.

  - Such materials may be centrifuged in the open laboratory using sealed rotor heads or centrifuge safety cups.

- Protective laboratory coats, gowns, smocks, or uniforms designated for laboratory use must be worn while working with hazardous materials.
- Remove protective clothing before leaving for non-laboratory areas (e.g., cafeteria, library, administrative offices). Dispose of protective clothing appropriately. Laboratory clothing will not be taken home unless it has been decontaminated.
- Eye and face protection (goggles, mask, face shield or other splatter guard) is used for splashes or sprays of infectious or other hazardous materials when microorganisms are handled outside the BSC or containment device. Protective eyewear should be worn when conducting procedures that have the potential to create splashes of microorganisms or other hazardous materials. Persons who wear contact lenses in laboratories should also wear eye protection.
- Eye and face protection must be disposed of with other contaminated laboratory waste or decontaminated before reuse.
- Gloves must be worn to protect hands from exposure to hazardous materials.
- Method for decontaminating all laboratory wastes should be available and records maintained in the facility.
- Equipment must be decontaminated before repair, maintenance, or removal from the laboratory.
- Incidents that may result in exposure to infectious materials must be immediately evaluated and treated according to procedures described in the laboratory biosafety manual. All such incidents must be reported to the laboratory Principal Investigator (PI)/ supervisor and biosafety officer. Animals and plants not associated with the work being performed are not permitted in the laboratory.

CSU Environmental Health Services along with the Bio Safety Office has developed multiple programs to provide guidance to CSU employees to effectively establish and maintain a safe and healthful work environment and to ensure compliance with applicable regulations. The safety and health program policies and procedures that would protect workers and the public including Emergency Responders on call 24/7, who are partnered with fire, police, and medical emergency responders.

Beyond activities within the areas in which bats are present, security measures will be in place to protect the bats, employees, and community. These measures include independent doors, training and employment background checks, and entry and egress monitoring.

No Action Alternative

Under the no action alternative, existing conditions would be maintained, and a facility would not be constructed therefore no worker, public, or bat safety would be required beyond the remaining security fence. No impact anticipated.

3.5.3 Mitigation / Management Measures

As there is no significant impact, mitigation measures will not be required. The CRF will be constructed to the requirements set forth by the NIH and CSU Biosafety Manual. Once construction is complete, activities within BSL-2 areas will be conducted in accordance with the NIH and CSU Biosafety Manual and audits performed on a regular basis. With the implementation of safety protocols either currently in place or required, no significant impact to human health is anticipated.

3.5.4 Potential Biosafety Risks and Remedies to the Bat Facility in Construction

Contrary to some misunderstanding (see Appendix C), abundant scientific proofs suggest that a Chiropteran facility is as safe as facilities housing other small animal species that are widely used in many research institutions. From a scientific perspective, the proposed CSU CRF justifies a BSL-2 biocontainment for the research to be conducted within the facility. The facility is not and will not be used for research on more dangerous viruses such as Ebola, Nipah, or Marburg viruses that require the highest (BSL-4) level of laboratory containment.

Bats are generally born free of viruses and diseases, unless exposed. Multiple levels of screening are conducted to ensure that the bats housed at CSU are free of viruses, either known or unknown to science. First, bats that will be imported to CSU are kept in isolation for six weeks, long enough for a viral infection, if any, to be cleared by natural immunity. Thus, these bats are certified free of known pathogens of concern as mandated by guidelines for importation put forth by the national public health agency of the United States, CDC, and USFWS. Secondly, CSU conducts several internal tests to rule out infections from viruses that belong to different levels of containment for biosafety, including BSL-1 to BSL-4, as defined by CDC and NIH based on the risks associated with the agents themselves, their modification, usage, and other factors.

The two potential risks associated with housing bats at a CRF include the escape of animal(s) from the facility and potential infection with a virus. Researchers at CSU have more than 10 years of experience in research involving bats and infectious diseases. CSU has taken robust measures to prohibit animals from escaping the CRF, both accidentally and maliciously, and causing a biosafety risk to animals and humans. At CSU's CFR, bats will be housed within environmental free flight rooms with at least three levels of independent doors to ensure that only one door can be open at a time. Additionally, access to the facility will be recorded and monitored to control entry and exit. As a result of this rigorous security system, no incidence of accidental animal escape from the CSU facility has occurred in over 10 years. To secure the CRF from malicious activity, access to the facility will be restricted to only highly trained personnel possessing clear employment background checks. Researchers are trained to report all potential risks to both their supervisors and the CSU Biosafety Officer or CSU Occupational Health program. These steps

have been taken to minimize the possibility that CSU bats are released into the environment, either accidentally or purposefully, by inside or outside threats. CSU will continue its protocol of requiring adequate training and inspection of the new CRF facility and its staff.

A second general risk posed by importing and housing bats is the potential for virus infection, either known or unknown to science. Animals are quarantined before they are shipped to the U.S., and they are only shipped once they have been deemed free of known pathogens of concern. Moreover, bats have immune systems that will likely clear any infection during the six-week quarantine period if they are initially infected with a virus. Furthermore, routine tests will be conducted to determine whether bats in quarantine are infected with known viruses, such as coronaviruses and others. BSL-2 laboratories are used for biomedical research with infectious organisms that may make people sick but are easily treated, including Streptococcus pyogenes that causes strep throat, seasonal influenza viruses, etc. Design requirements for BSL-2 laboratories, which are common at research universities, hospitals, and government agencies, include controlled access to the building or internal spaces, sinks for washing hands, eye-wash stations, inward flow of air, biological safety cabinets for research, and decontamination of all spaces as well as research tools, equipment, and waste using heat or chemicals. The CRF at CSU is a scientifically justified BSL-2 facility. CSU has demonstrated strict adherence to all the BSL-2 requirements for the security of humans, animals, and the facility. Additionally, CSU has successfully restricted viruses and other pathogenic agents of this containment level for housing and research activities, thus providing adequate levels of containment for the bats at its CRF.

3.6 Aesthetics

3.6.1 Affected Environment

Formally Classified Lands were not identified in the vicinity or adjacent to the site. The Foothills Campus can be seen from Maxwell Natural Area, approximately 1,480 feet to the west as well as Horsetooth Reservoir. The reservoir is utilized for fishing, boating, camping, picnicking, swimming, scuba diving, rock climbing, and water skiing. Beyond the reservoir to the west are the Rocky Mountains. In between the campus and the reservoir is S Country Road 23 and a ridge that is approximately 5,400 to 5,500 feet above sea level, approximately 260 feet above the elevation at the campus (USGS 2022). The reservoir is at an elevation of approximately 5,420 feet (Larimer County 2023). Due to the changes in elevation, the campus is not visible from the reservoir.

To the south and east of the campus are residential areas, single family homes to the south, and multi-family properties to the east. The topography of the residential areas and the Foothills Campus is relatively consistent, and the Foothills Campus is visible from these areas. The residential area to the south was constructed after the construction of the Foothills Campus. The residential subdivision was initially established in 1998 / 1999 at the southernmost limits of the subdivision and additional homes were built northward. Construction of the subdivision completed by 2015. The multi-family homes to the east of the Campus were constructed between 1999 and 2002. Prior to the 19990s, the area to the southeast was utilized for agriculture / crop production. The Foothills Campus was established in 1915 and construction of facilities within southern portion of the campus began between 1956 and 1969, this includes the Animal Disease Lab. The

Judson M. Harper Research Complex was initiated with the construction of the Regional Biocontainment Laboratory in 2007, and since then additional buildouts have occurred over the last ten years. The build out was conducted to the south and east of the initial complex (Netronline 2023).

Based upon a review of the National Park Service National Register of Historic Places, there are no registered sites or districts within or adjacent to the Foothills Campus. The nearest site is approximately 1.01 miles to the southeast of the center of the Campus (Rampart Road) (NPS 2023).

3.6.2 Environmental Consequences

Preferred Alternative

Under the Proposed Action, there would be a short-term, adverse, direct, and minor impact to the visual resources. A visually sensitive area, the Ponds at Overland, is present to the south of the Proposed Action. The visually sensitive area is located 500 feet to the southeast of the Judson M. Harper Research Complex and due to the distance and lack of other buildings or obstructions between the homes and the proposed CRF, the CRF would be visible from the backyards of the homes. A multi-family housing complex, a visually sensitive area, is located 2,481 feet to the east, from the project area and large animal paddocks are present between project area and the multi-family housing complex. Due to the distance and structures in place between the proposed CRF and multi-family housing complex, the visibility of the CRF would be limited and potentially only visible through windows on upper floors.

During the construction of the Proposed Action, large equipment and construction related materials have the potential to be observed from the yard spaces (back, front, and sides) of the homes within Ponds at Overland, especially those located along W Elizabeth Street, Pratolina Court, Foire Court, and Coneflower. Homes further south and not immediately adjacent to the Foothills Campus should have their view obstructed by the potentially impacted single-family homes within the subdivision. To reduce the visual impact associated with construction, activities will only occur during daylight hours, 7 am to 7 pm in the summer months and 8 am to 6 pm during winter months and overhead lighting will not be used. This impact is considered short-term, adverse, and minor.

The Proposed Action is consistent with the intended use of the Foothills Campus property and the building façade will be constructed to match the exterior of the existing buildings in the Judson M. Harper Research Complex. As Larimer County does not have requirements associated with aesthetics beyond landscaping, the exterior of the building is not required to meet or exceed any county requirements. CSU has aesthetics guidelines for Foothills, South and Main Campuses (CSU 2006). Within the Foothills Campus, the guidelines do not prescribe a singular style for buildings; however, it notes that the style should be similar to the existing neighboring structures, convey a human scale and reinforce the mini campus or building cluster. Stone shall be incorporated in the entrance façade/public entrance lobby of all new building projects.

Additionally, the lighting on the exterior of the building would be designed and constructed to focus lighting down and towards the building, ensuring that light pollution is not emitted from the exterior security lights. The view from the visually sensitive area, is anticipated to remain consistent as the Foothills Campus and the Judson M. Harper Research Complex pre-dates the construction of the homes immediately adjacent to the boundary of the Foothills Campus. The intended use of the property in which the CRF will be constructed is consistent with the land use designation and mission of CSU. Additionally, the Proposed Action has been designed and will be constructed in accordance with the guidelines set forth by CSU, ensuring consistency with the view from the northern most homes within the Ponds at Overlook. Over the long-term, no visual impacts are associated with the Proposed Action.

No Action Alternative

Under the no action alternative, the land would remain vacant; and the view from the visually sensitive areas would remain consistent. No impacts anticipated.

3.6.3 Mitigation / Management Measures

During construction, activities will only occur during daylight hours, 7 am to 7 pm in the summer months and 8 am to 6 pm during winter months and overhead lighting will not be used. The CRF would be designed in accordance with the CSU aesthetics guidelines and exterior lighting would be placed and installed to ensure that lighting does not leave the Foothills Campus.

3.7 Hazardous Materials, Waste Management and Pollution Prevention

3.7.1 Affected Environment

CSU has established procedures for compliance with applicable laws and regulations for collecting, storing, processing, and disposing of sanitary liquid wastes, solid wastes, and hazardous wastes. Researchers generating hazardous wastes are required to be trained in hazardous waste generation; CSU's Environmental Health Services department provides the training online and maintains records of trained individuals. All necessary permits are maintained by CSU and waste transport off site is overseen by CSU Environmental Health Services. Non-contaminated solid waste is disposed as municipal trash through the CSU Solid Waste management system. CSU has its own waste management system including waste disposal trucks that transport solid waste to the Larimer County Landfill, a permitted Municipal Solid Waste Landfill (MSWLF). Larimer County has approved and is currently in negotiations to open a new MSWLF. The landfill is anticipated to have a lifespan of 100 years and will be approximately 600 acres and open in 2024 (Coloradoan 2023).

CSU established a Hazardous Materials Management Policy, which was approved by the State Board of Agriculture, CSU's governing body, on June 15, 1993. CSU's Environmental Health Services Chemical Management Unit, Hazardous Waste Division is responsible for the proper management and disposal of all hazardous wastes generated by research, teaching and facilities operation within all portions of the campus, including Foothills. The division is also responsible for ensuring that CSU can and does meet its compliance obligations concerning federal, state, and

local regulations pertaining to the management of chemical hazardous waste. CSU has prepared and utilizes a Hazardous Chemical Waste System Manual (2019).

EPA NEPAssist was reviewed to determine if facilities with federal permits, releases, and/or remediation sites are present within 0.25 miles of the project area. Within 0.25 miles, onsite or adjoining USEPA or state Superfund sites, or any onsite corrective action or regulatory remedial action plan were documented (USEPA 2023c). The CDPHE Hazardous Materials and Waste Management Division records were also reviewed and none of the state recorded sites, including releases, were identified within 0.25 or 0.5 miles (CDPHE 2023). CSU owns a closed hazardous waste landfill approximately 2,000 feet west of the proposed action location. The landfill was closed (capped) in 1998, and CSU conducts groundwater monitoring once every two years. Within the radius, four National Pollutant Discharge Elimination System (NPDES) permits have been obtained and are associated with stormwater discharges related to construction.

Violations associated with the site were not identified and no aboveground or underground storage tanks were reported. According to CSU's Spill Prevention Control and Countermeasure (SPCC) Plan, the following oil storage tanks are associated with the Foothills Campus.

Table 5 Aboveground Storage Tanks

Tank ID	Location	Generator Type	Contents	Outer Tank Volume Gallons
F1056-1	Forestry	N/A	Diesel	500
F1056-2	Forestry	N/A	Diesel	500
F1056-3	Forestry	N/A	Gasoline	500
F1059-1	Fire Cache Building	N/A	Smoke Oil	55
F1060-1	Forestry Nursery	N/A	Lube Oil	55
F1063-1	Forestry Generator	Onan	Diesel	316
F1068-1	Forestry	N/A	Used Oil	469
F1102-1	Engineering Research Center	N/A	Used Oil	55
F1106-1	Engineering Research Center	N/A	Used Oil	55
F1113-1	Atmos. Chem West Generator	Cummins	Diesel	175
F1135-1	Engineering Research Center	N/A	Diesel	150
F1135-2	Engineering Research Center	N/A	Gasoline	140
F1301-1	Aggie Labs	Cummins	Diesel	2338
F1330-1	Equine Center Fire Pump	N/A	Diesel	360
F1353-1	Fisheries	Cummins	Diesel	600
F1379-1	Equine Reproduction Laboratory	Cummins	Diesel	
F1424-1	Bio Hazards Research Building	Cummins	Diesel	1571
F1426-1	Regional Biocontainment Laboratory generator	Cummins	Diesel	4000
F1428-1	Research Innovation Center generator	Cummins	Diesel	3000

Tank ID	Location	Generator Type	Contents	Outer Tank Volume Gallons
F1430-1	Arthropod-Borne and Infectious Diseases Laboratory Annex / Small Animal Research Annex	Cummins	Diesel	194
F1434-1	Center for Vector-Borne Infectious Diseases	Generac	Diesel	1001
F1450-1	Equine Center Foothills Campus	N/A	Diesel	500
F1450-2	Equine Center Foothills Campus	N/A	Diesel	500
F1450-3	Equine Center Foothills Campus	N/A	Gasoline	300
F1450-4	Equine Center Foothills Campus	N/A	Diesel	300
F1450-5	Equine Center Foothills Campus	N/A	Gasoline	300
F1450-6	Equine Center Foothills Campus	N/A	Diesel	300

Source: CSU 2023b

3.7.2 Environmental Consequences

Preferred Alternative

Under the Proposed Action, there would be a short- and long-term, adverse, direct, and minor impact as the construction and operation of the CRF would utilize landfill space. Solid waste will be generated during the construction of the CRF. The solid waste generated may include concrete, scrap wire, steel, sheet rock, and packing materials. Some construction activities have the potential to create hazardous wastes, and some construction materials (fuel, oil, lubricants, paints, etc.) may consist of hazardous substances. The construction contractor would be required to implement proper practices to minimize or prevent the release of hazardous substances into the environment during construction activities. Hazardous materials that may be encountered during construction would be managed and disposed of in compliance with federal, state, and local hazardous materials management guidelines. It is anticipated that all construction waste will be transported and disposed of at a construction and demolition landfill where items can be recycled, therefore no impact to the MSWLF is anticipated during construction activities.

Upon construction, it is assumed that the number of staff and students working / using the CRF are currently with CSU; therefore office related waste generated by the employees would remain consistent with the other facilities within the Judson M. Harper Research Complex. Waste associated with the care of the bats and research will be disposed of in accordance with the CSU Biosafety Manual and chemically decontaminated prior to removal from the facility for disposal. Those who interact with wastes generated within the research area are required to take training provided by the CSU Biosafety Office in accordance with the CSU Biosafety Manual. Decontaminated biological materials then enter the CSU Biological Waste Disposal Program. Materials that can be recycled or composted, such as paper, plastic bags, glass food jars, or food waste will be separated and transported to the appropriate location. Food waste will be transported to the on-site composing facility at the Foothills Campus and recyclables, off-site. Due to the limited quantities of waste generated that would require decontamination and the capacity

of the landfill which will be available during and after construction and operation of the CRF, no significant impact to waste management and pollution prevention is anticipated.

As there are no known recognized environmental conditions associated with releases, permitted facilities, or remediation sites, and no use or removal of known hazardous materials would occur prior to construction.

No Action Alternative

Under the no action alternative, no additional waste would be generated as a facility would not be constructed creating construction waste or waste generated by bats. No impact is anticipated.

3.7.3 Mitigation / Management Measures

No Mitigation or Management Measures are anticipated to be required to reduce impacts to less than significant levels. Implementing BMPs associated with recycling of construction and operational as well as composting food wastes will limit the impact to MSWLFs.

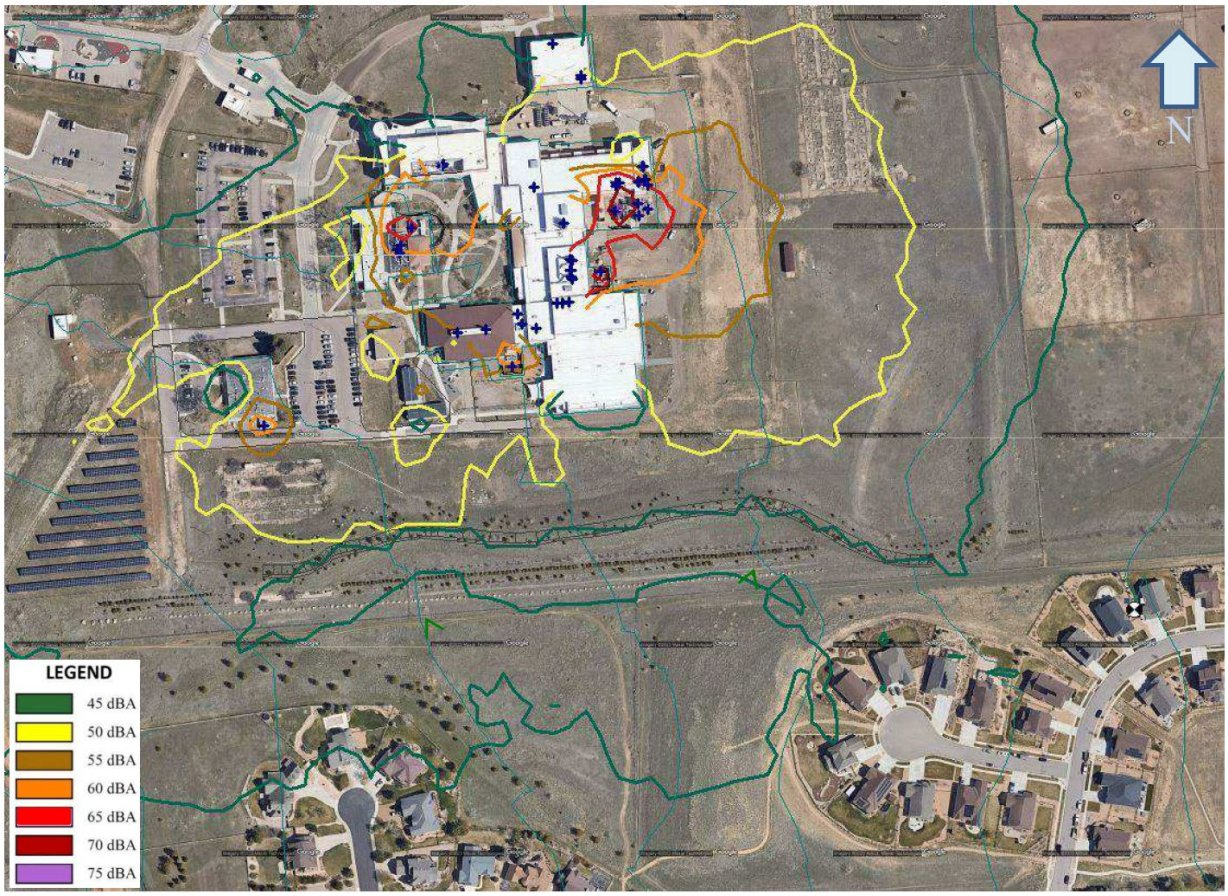
3.8 Noise

3.8.1 Affected Environment

The Noise Control Act of 1972 (Public Law 92-574) and Quiet Communities Act of 1978 directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. USEPA and the U.S. Department of Housing and Urban Development have identified noise levels to protect public health and welfare with an adequate margin of safety. These levels are considered acceptable guidelines for assessing noise conditions in an environmental setting. Noise levels below 65 decibels average (dBA) are considered to be acceptable in suitable living environments. Under the Larimer County Ordinance Concerning Noise Levels (Ordinance Number 97-03), between the hours of 7 am and 7 pm, the maximum dBA for a residential property is 55 dBA and 50 dBA during 7 pm and 7 am.

The existing noise environment at Foothills Campus is a campus park setting with no significant noise generation sources. Current noise generating activities at Foothills Campus includes traffic from staff and students and noise from animals associated with agricultural / equine studies that reside in outdoor stables/stalls. A noise study was conducted for the Infectious Disease Research Center complex (Wave 2023). The study included ambient sound level measurements, including long and short-term, as well as measurements of all significant noise producing equipment that was identified as a potential noise source. This information was used to create a baseline of the existing noise level. The study also included modeling to identify the noise sources most likely to affect sensitive noise receptors. Ambient sound monitors were placed in two locations along the southern property line. Sound levels are likely affected by wind noise when the wind speed is over 10 miles per hour even though the Larimer County ordinance states that measurements can be made when the wind is up 25 mph if a windscreen is used. Both meters had wind screens installed. The average 15-minute wind speed never exceeded 10 mph during the study measurements; however, gusts over 10 mph were recorded on two dates. The gusts are

anticipated to have had a minimal effect on the measurements. Additionally, during the seven-day monitoring period, the wind directions varied, and it was documented that higher levels of noise were observed when the winds were out of the north, northwest, and northeast. The sound levels recorded ranged from 32 dBA 54 dBA at one location, and 34 dBA to 57 dBA at the second. An elevated sound level was noted at 53 dBA and potentially is associated with the use of a generator. Additional elevated instances are attributed to aircraft, wind, and/or insects/birds near the monitor. Based upon modeling, acoustic cameras, and noise monitors, it was observed that the primary noise generating sources that could impact the properties to the south and east include cooling towers and chillers. See Figure 6 for modeled noise contours associated with exterior equipment. The sound levels at the southernmost boundary of the site are on average below the Larimer County Noise Level Policy Ordinance.



Source: Wave 2023.

Figure 6 – Noise Contour Associated with Equipment

Potential sensitive noise receptors include the residential subdivision located immediately adjacent south of Foothills Campus. The remaining adjoining properties are associated with the Foothills Campus. Beyond those areas include a natural area to the west and single and multi-family housing to the east.

3.8.2 Environmental Consequences

Preferred Alternative

Under the Proposed Action, there would be a short-term, adverse, direct, and minor impact. Noise associated with the operation of machinery on construction sites is typically short-term, intermittent, and highly localized. Noise associated with the operation of the construction equipment would be limited to the construction period, approximately 12 months. Based upon Table 3, the average noise level would be estimated at 90 dBA, with a baseline level at less than 65 dB. Based on the Inverse Square Law of Noise Propagation noise levels would be reduced by 6 dB as the source distance is doubled (e.g., at 50 feet -6 dB, 100 feet -12 dB, at 200 feet -18 dB, at 400 feet -24 dB, and at 800 feet -30 dB). The closest sensitive noise receptors are individual residences located approximately 500 feet to the southeast. Based upon Table 36, the exterior noise level would decrease to an approximate average of 67 dB at 400 feet which is considered to be acceptable for the closest residences based upon the Larimer County Noise Level Policy. The construction noise is anticipated to significantly impact the sensitive receptors within the area; however, mitigation measures can be implemented decreasing the impact further.

Table 6 Noise Levels Associated with Typical Construction Equipment

	Noise Level (dB)					
Equipment	***At Site***	***50 feet***	***100 feet***	***200 feet***	***400 feet***	***800 feet***
Average Construction Site	91	85	79	73	67	61
Auger Drill Rig	91	85	76	70	64	58
Backhoe	86	80	74	68	62	56
Chain Saw	91	85	79	73	67	61
Compressor (Air)	86	80	74	68	62	56
Crane	91	85	79	73	67	61
Dozer	91	85	79	73	67	61
Dump Truck	90	84	78	76	70	64
Grader	91	85	79	73	67	61
Rock Drill	91	85	79	73	67	61

Source: USDOT 2009

It is assumed that with the construction of the CRF, the facility would act as a noise barrier for the generator located at the Infectious Disease Research Center, reducing the noise associated along with additional noise sources located along the exterior of the Infectious Disease Research Center.

The Noise Study captured a sound level noise, that was associated with the weekly generator test at the Infectious Disease Research Center. The sound level associated with the generator was 53 dBA. The generator captured during the study was approximately 630 feet to the northwest of the monitoring station. The generator is anticipated to be located on the eastern side

of the CRF, approximately 570 feet from the nearest sensitive receptor. Based upon data collected during the Noise Study, during its use, the generator would exceed the 50 dBA. The Larimer County Ordinance states, under Section 5, that between 7:00 am and 7:00 p.m., the noise levels permitted within residential areas may be increased by 10 dBA for a period not to exceed 15 minutes in any one-hour period. Based upon the noise level of the existing generator, the testing of the generator at the CRF would not exceed 65 dBA. The duration of the weekly test is based upon whether the test is under load or no-load conditions and the manufacturer's recommendation. No additional noise source is anticipated as the bats will be housed within the facility and the number of staff and students working at the CRF are currently working within Foothills Campus.

To mitigate the short-term impact, site preparation and construction activities can be restricted to normal working hours of daytime hours (7 am to 7 pm in the summer months and 8 am to 6 pm during winter months). With the mitigation measures and the noise attention associated with the construction of the facilities (adjoining residences and businesses) and no-long term changes in operation causing additional noise sources, a significant impact associated with noise is not anticipated. To mitigate for the long-term, adverse, direct and minor impact associated with the generator, the weekly tests would be completed during the hours of 7 am and 7 pm and would be conducted within the shortest time possible. As the long-term impact will be short in duration and can be mitigated, no significant impact is anticipated.

No Action Alternative

Under the no action alternative, existing conditions would be maintained; therefore no additional noise generators would be constructed / utilized within the project area. No impact anticipated.

3.8.3 Mitigation / Management Measures

To minimize increases in noise levels during construction activities, all equipment would be fitted with noise reducing features (e.g., mufflers) and construction activities would be limited to daytime hours (7 am to 7 pm in the summer months and 8 am to 6 pm during winter months). No mitigation or management measures are anticipated beyond Occupational Safety and Health Administration mandated hearing protection for workers on site.

3.9 Environmental Justice

3.9.1 Affected Environment

According to CEQ environmental justice guidance (1997), low-income populations should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

The CEQ guidance identifies a minority as Individual(s) who are members of the following population groups: American Indian or Alaskan Natives; Asian or Pacific Islanders; Black, not of Hispanic origin; or Hispanic. Minority populations should be identified where either the minority population of the affected area exceeds 50 percent, or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (1997). In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

EO 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

On April 21, 2023, EO 14096, Revitalizing Our Nation's Commitment to Environmental Justice Overall, was signed, supplementing EO 12898. The EO establishes a more robust framework with milestones for implementing environmental justice across federal agencies. The EO expands the protected categories to include Indigenous populations and individuals with disability, and it includes affordable housing as an element of achieving environmental justice. Under this EO, environmental justice' is defined as "just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability so that people:

> (i) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and
>
> (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices."

The Foothills Campus does not include a residential community or local businesses and as such, reviewing the demographics of the campus would not accurately reflect those who could be impacted by a project or activities conducted on the campus. Block Group 080690023002, with a population of 2,120 was reviewed.

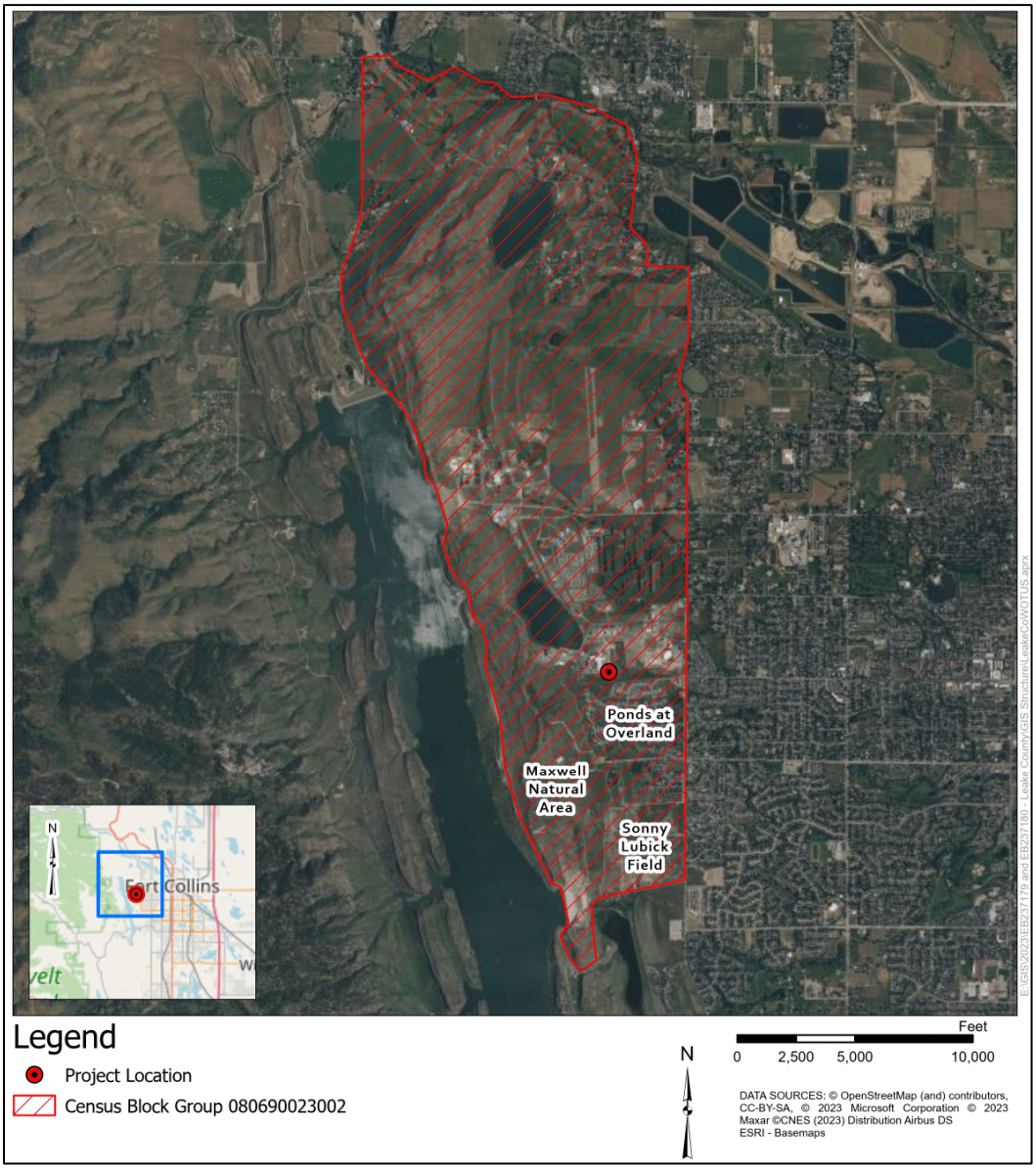


Figure 7 – Area Within Block Group

There are 2,120 individuals residing within the Block Group. Of the 2,120 approximately 14 percent identify themselves as a minority and 11 percent low-income. These percentages are lower than the state average of 32 percent and 25 percent respectively. There are no tribal communities or those that identify as American Indian. An environmental justice community is not present (USEPA 2023d). Beyond the socio-economic metrics, the population within the Block Group does not exceed the designated percentiles for energy, health, legacy pollution, transportation, utilities, and workforce development as identified by the Climate and Economic Justice Screening Tool developed by the CEQ. The population is at risk for population and building value loss resulting from natural hazards such as wildfires (CEQ 2023). The APCD has also

developed a Disadvantaged Community Index Mapper to assist with the identification of these communities. The mapper did not identify a community within the Block Group (APCD 2023).

EO 13166 requires agencies to examine the services they provide, identify need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. The proposed project area is located in an area in which approximately none of the residents speak English less than very well. The area in which the project resides is not considered a disadvantaged community.

3.9.2 Environmental Consequences

Preferred Alternative

EOs 12898 and 14096, requires Federal agencies to determine if an action would have the potential to lead to a disproportionately high and adverse impact to disadvantaged communities. Disadvantaged communities can include urban and rural areas and areas within the boundaries of Tribal Nations and United States Territories. Such communities are found in geographic locations that have a significant proportion of people who have low incomes or are otherwise adversely affected by persistent poverty or inequality.

The population that resides within the Census Block that would be impacted by the Proposed Action is not a disadvantaged community. The area is at risk for an increase in wildfires; however the Proposed Action does not generate burnable materials beyond what would be used to construct a building, does not utilize sources of fire, and does not remove fire breaks. All impacts, with the exception of visual, air, noise resources are bound to the property boundary. Additionally, all other resources have less than significant impacts. Since the impacts to the community would be less than significant and a disadvantaged community is not present, no impact is anticipated.

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented therefore, no construction-noise, additional air pollution or modification of aesthetics would be present. The Proposed Action is not located within an area where an environmental justice or disadvantaged population is present; therefore no impact is anticipated.

3.9.3 Mitigation / Management Measures

No Mitigation or Management Measures are anticipated to be required to reduce negative impacts to less than significant levels as no environmental justice communities are present within the Census Block.

3.10 Climate Change

3.10.1 Affected Environment

Climate change refers to any significant changes in average climatic conditions (such as mean temperature, precipitation, or wind) or variability (such as seasonality, storm frequency, etc.) lasting for an extended period (decades or longer). Reports by the U.S. Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change provide evidence that climate change is occurring and may accelerate in the coming decades (IPCC 2022). Strong evidence supports the idea that global climate change is driven by human activities worldwide, primarily the burning of fossil fuels and tropical deforestation. These activities release carbon dioxide and other heat-trapping gases, commonly called greenhouse gases (GHGs), into the atmosphere (IPCC 2022).

Two executive orders provide a regulatory framework for reviewing projects that have the potential to impact climate change and how to mitigate for those impacts. Under EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, major federal actions must be reviewed for their potential impact to substantially GHG emissions or the impact of climate change on the action. Additionally, under EO 14008, Tackling the Climate Crisis at Home and Abroad, the federal agencies are to incorporate / increase the resilience of their facilities and operations, programs, assets, and mission responsibilities operations against the impacts of climate change.

The NIH is working under the interim guidance provided by CEQ on January 2023 as to how to consider GHG emissions and climate change. The guidance states that agencies should quantify reasonably foreseeable direct and indirect gross and net GHG emissions increases or reductions, both for individual pollutants and aggregated in terms of carbon dioxide equivalence.

From 2000 to 2023, the Fort Collins average temperature ranges from 31.0 to 74.0 degrees Fahrenheit (F), with temperatures above 70 F in June, July, and August (NOAA 2023). Global average temperature has increased approximately 1.8 degrees F from 1901 to 2016, (USEPA 2023e). Colorado has statewide annual average temperature increase of 2.0 degrees F in the past 30 years and 2.5 degrees F in the past 50 years (Colorado Energy Office 2015). The EPA estimates that by 2030 the average annual temperature will increase by 2.1 to 3.0 degrees F by 2035 (EPA 2023f). In response to the increase in average temperature, Fort Collins drafted and enacted a Climate Action Plan to establish goals and actions to achieve reductions in community GHG emissions (Fort Collins 2015).

Over the past twenty years, warmer and drier conditions have contributed to the top 10 largest fires on record and to the largest bark beetle outbreaks (Colorado State Forest Service 2023). Larimer County along with the Colorado State Forest Service has identified wildlife hazard areas based upon vegetation and has developed strategies to prevent and combat wildfires. The Cameron Peak Fire, the largest fire in known Colorado history impacted Larimer County in 2020 (August to December) and impacted approximately 208,913 acres (Larimer County 2021).

3.10.2 Environmental Consequences

Preferred Alternative

Under the Proposed Action, there would be a short-term, adverse, direct, and minor impact. Activities associated with the construction of the CRF may cause a temporary increase in local GHG. Combustion emissions from construction equipment exhaust, including NO_x were estimated using the US EPA Motor Vehicle Emissions Simulator, MOVES3. Utilizing the NONROAD module, it was estimated that the Proposed Action would emit 7.81 tons of NO_x and 21.9 tons of CO_2 during the construction of the facility. This increase in GHG emissions is anticipated to be short-term and below quantities that would have an impact to climate change. With the use of the Regional Biocontainment Laboratory boilers and weekly maintenance of the standby generator, an increase in long-term emissions associated with NO_x and $CO_{2;}$ is anticipated; however, the emissions associated with the generator are anticipated to be less than 0.25 tons per year for NO_x and the emissions from the boilers will be within the permissible allowances under the existing permit. Based upon the quantities and limitations associated with the permit, no significant long-term impact is anticipated.

Upon completion of the Proposed Action, the CRF would utilize energy efficient heating and cooling systems along with LED lighting. Additionally, the facility would not be constructed near a forested area, or generate or use fire sources; limiting the potential for wildfires.

No Action Alternative

Under the no action alternative, no additional contributors to climate change and GHGs are anticipated because no activities would occur. No impact is anticipated.

3.10.3 Mitigation / Management Measures

No Mitigation or Management Measures are anticipated to be required to reduce impacts to less than significant levels. Implementing BMPs associated with reducing the emissions of vehicles and equipment during the construction phase of the proposed action such as properly maintaining engines and limiting idle time is recommended.

4.0 CUMULATIVE IMPACTS

Cumulative impacts are defined by the CEQ in 40 CFR 1508.1(g)(3) as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." Evaluations of cumulative impacts include consideration of the Proposed Action with past and present actions, as well as reasonably foreseeable future actions.

The intent of the cumulative-effects analysis is to determine the magnitude and significance of cumulative effects, both beneficial and adverse, and to determine the contribution of the proposed action to those aggregate effects.

Past Actions – actions that may contribute to cumulative impacts in one or more of the analyzed resource topic areas include: previous clearing of land for campus development, construction of roadways, construction of residential properties, utility lines, and other infrastructure.

Present Actions – actions that may contribute to cumulative impacts in one or more of the analyzed resource topic areas include: traffic on nearby roadways and any activities associated with adjacent public or private properties, population growth, and noise (see Appendix A).

Foreseeable – CSU and the City of Fort Collins anticipate designing and constructing a transit center, the Foothills Transit Center, at the intersection of Overland Trail and West Elizabeth Street in 2024 (Fort Collins 2023). The Transit Center will connect to the West Elizabeth Bus Rapid Transit Design Project, a three mile east / west corridor project that will connect CSU Main Campus and Foothills Campus with businesses and multifamily housing opportunities located between the two campuses. The transit center is anticipated to have long-term cumulative effect on traffic patterns and socioeconomics within the City of Fort Collins and CSU. The project is independent of the Proposed Action.

As the Foothills Transit Center has been awarded funds from the Federal Transit Authority, the action is subject to NEPA. This Proposed Action would not affect sensitive or critical resources, lead to a wide range of effects, induce population growth, lead to further development, or require expansion of infrastructure. The foreseeable project has the potential to reduce traffic patterns and increase the socioeconomic stability of the area between Foothills and Main Campus, a beneficial impact. Impacts from implementation of the Proposed Action is expected to be negligible on a cumulative basis, except for the minor localized effects on air quality and noise and aesthetics during construction.

5.0 LIST OF PREPARERS

Table 7 lists preparers of this environmental assessment.

Table 7 Preparers of the Environmental Assessment

Name	Agency/Organization	Resource Area
Mark Radtke	NIH	NEPA Coordinator
Jennifer Trombley Peters	Terracon	Project Manager and Resource Lead
Jeremy Hanzlik	Terracon	Approved Project Reviewer
Nicole Marshall	Terracon	GIS Support
Nicolle Martinez	Terracon	Administrate Assistant
Sarah Maloney	Colorado State University – Facilities Management	Project Manager
Susanne Cordery	Sandhill Consulting	Reviewer – Subject Matter Expert
Rebecca Moritz	Colorado State University - Biosafety	Reviewer – Subject Matter Expert
Lon Kendall	Colorado State University – Laboratory Animal Resources	Reviewer – Subject Matter Expert
Dell Rae Ciaravola	Colorado State University – Communications Manager	Reviewer – Subject Matter Expert

6.0 REFERENCES

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Appendix A Resource Documentation

Run	Header Item	Header Item Value
0	Report Description	Summary Report
0	Report Date/Time	2023-11-8 10:23:58
0	MOVES Output Database	CSU2
0	Emission Process	All
1	Run Date/Time	2023-11-08 10:11:01.0
1	Run Specification	C:\Users\jenni\Desktop\Construction of the CRF
1	Run Spec File Date/Time	2023-11-08 10:10:53.0
1	Run Spec Description	Construction of the CRF
1	Mass Units	ton
1	Energy Units	J
1	Distance Units	mi
1	Time Units	day

Year	Month	CO	CH4	NMHC	NMOG	NOx	Total_PM10	Total_PM25	SO2	TotalHC	TOG	VOC
2024	1	1	0	0	0	1	0	0	0	0	0	0
2024	2	2	0	0	0	1	0	0	0	0	0	0
2024	3	2	0	0	0	1	0	0	0	0	0	0
2024	4	2	0	0	0	1	0	0	0	0	0	0
2024	5	2	0	0	0	1	0	0	0	0	0	0
2024	6	2	0	0	0	1	0	0	0	0	0	0
2024	7	2	0	0	0	1	0	0	0	0	0	0
2024	8	2	0	0	0	1	0	0	0	0	0	0
2024	9	2	0	0	0	1	0	0	0	0	0	0
2024	10	2	0	0	0	1	0	0	0	0	0	0

2024	11	2	0	0	0	1	0	0	0	0	0	0
2024	12	1	0	0	0	1	0	0	0	0	0	0

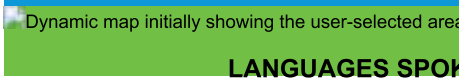
Category	Field	Value	Description

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Larimer County, CO

Blockgroup: 080690023002
Population: 2,120
Area in square miles: 7.37



LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	97%
Spanish	1%
Total Non-English	3%

COMMUNITY INFORMATION

Low income: 11 percent
People of color: 14 percent
Less than high school education: 2 percent
Limited English households: 0 percent
Unemployment: 3 percent
Persons with disabilities: 5 percent
Male: 49 percent
Female: 51 percent
84 years
Average life expectancy
$46,675
Per capita income
Number of households: 826
Owner occupied: 75 percent

BREAKDOWN BY RACE

White: 86%
Black: 0%
American Indian: 0%
Asian: 4%
Hawaiian/Pacific Islander: 0%
Other race: 0%
Two or more races: 6%
Hispanic: 4%

BREAKDOWN BY AGE

From Ages 1 to 4	7%
From Ages 1 to 18	27%
From Ages 18 and up	73%
From Ages 65 and up	10%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	0%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

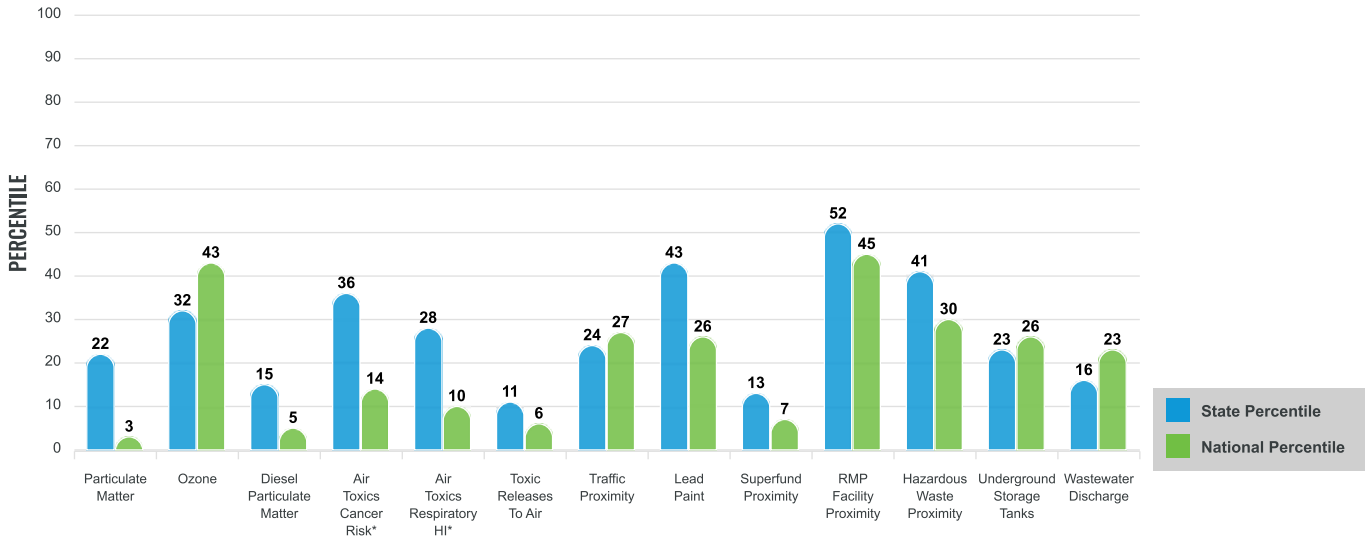
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

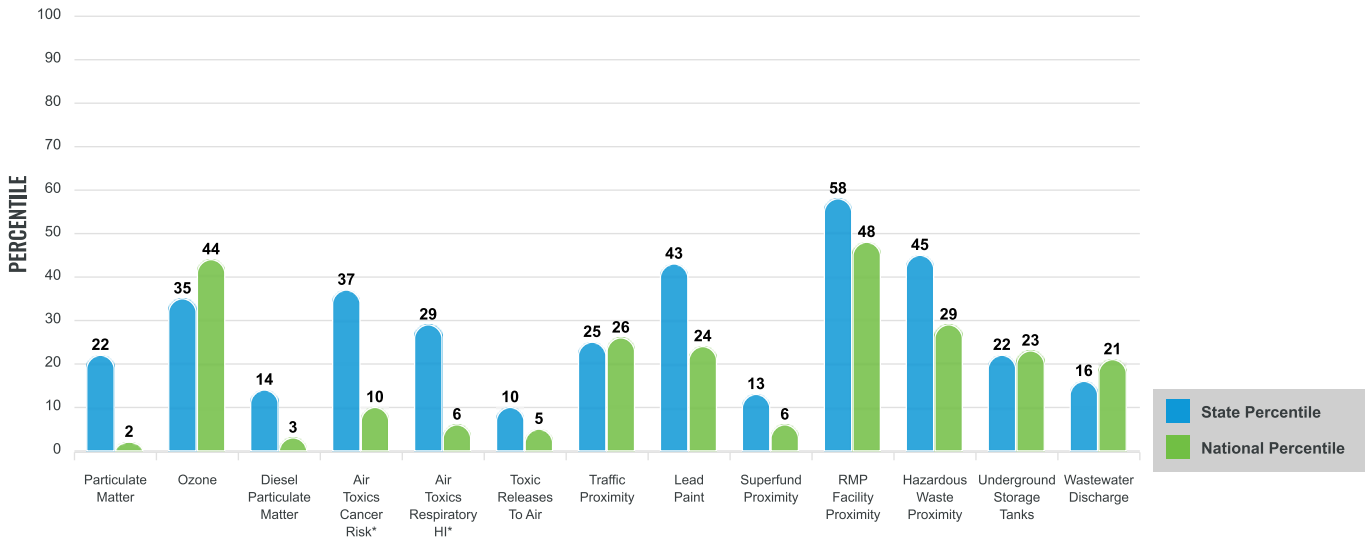
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for Blockgroup: 080690023002

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	5.12	6.45	30	8.08	3
Ozone (ppb)	65.2	64.9	48	61.6	76
Diesel Particulate Matter (µg/m^3)	0.0636	0.268	18	0.261	6
Air Toxics Cancer Risk* (lifetime risk per million)	20	21	28	25	5
Air Toxics Respiratory HI*	0.2	0.25	24	0.31	4
Toxic Releases to Air	7.4	3,400	13	4,600	8
Traffic Proximity (daily traffic count/distance to road)	51	180	31	210	40
Lead Paint (% Pre-1960 Housing)	0.12	0.2	59	0.3	38
Superfund Proximity (site count/km distance)	0.015	0.1	18	0.13	11
RMP Facility Proximity (facility count/km distance)	0.75	0.35	89	0.43	83
Hazardous Waste Proximity (facility count/km distance)	0.36	0.58	61	1.9	45
Underground Storage Tanks (count/km^2)	0.034	2.7	23	3.9	24
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.00021	710	21	22	36
SOCIOECONOMIC INDICATORS					
Demographic Index	12%	28%	18	35%	15
Supplemental Demographic Index	6%	11%	19	14%	11
People of Color	14%	32%	23	39%	29
Low Income	11%	25%	27	31%	19
Unemployment Rate	3%	5%	48	6%	44
Limited English Speaking Households	0%	2%	0	5%	0
Less Than High School Education	2%	8%	35	12%	20
Under Age 5	7%	5%	74	6%	72
Over Age 64	10%	16%	34	17%	27
Low Life Expectancy	14%	18%	8	20%	7

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	0
Water Dischargers	31
Air Pollution	4
Brownfields	0
Toxic Release Inventory	0

Other community features within defined area:

Schools	0
Hospitals	0
Places of Worship	0

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	No
Selected location contains an EPA IRA disadvantaged community	No

Report for Blockgroup: 080690023002

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	14%	18%	8	20%	7
Heart Disease	4.1	4.8	34	6.1	13
Asthma	9.3	9.9	22	10	33
Cancer	5.7	5.9	48	6.1	39
Persons with Disabilities	4.7%	11.4%	7	13.4%	4

CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	3%	5%	53	12%	29
Wildfire Risk	97%	33%	82	14%	93

CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	3%	10%	32	14%	21
Lack of Health Insurance	6%	8%	39	9%	41
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	No	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Footnotes

Report for Blockgroup: 080690023002

EPA Facilities

November 8, 2023

Water Dischargers (NPDES)

Water Dischargers (NPDES)

Air Pollution (ICIS-AIR)

Hazardous Waste (RCRAInfo)

Project 1

Search Result (point)

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

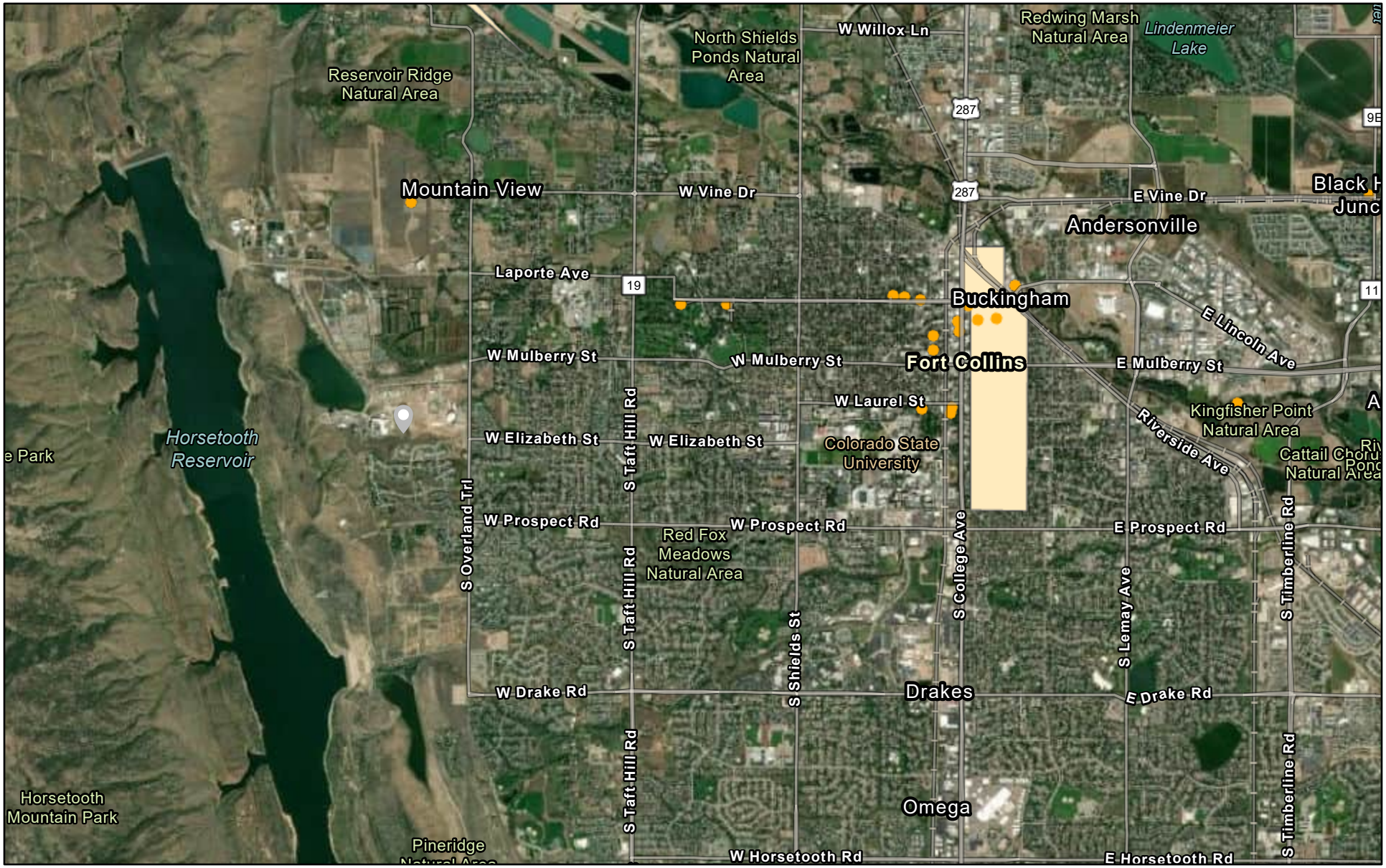
NEPAssist Report

CRF

Input Coordinates: 40.575640,-105.143064,40.575640,-105.142141,40.575080,-105.142141,40.575080,-105.143064,40.575640,-105.143064	
Project Area	0.00 sq mi
Within 0.25 miles of an Ozone 1-hr (1979 standard) Non-Attainment/Maintenance Area?	yes
Within 0.25 miles of an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within 0.25 miles of an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	yes
Within 0.25 miles of an Ozone 8-hr (2015 standard) Non-Attainment/Maintenance Area?	yes
Within 0.25 miles of a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a CO Annual (1971 standard) Non-Attainment/Maintenance Area?	yes
Within 0.25 miles of a NO2 Annual (2071 standard) Non-Attainment/Maintenance Area?	no
Within 0.25 miles of a Federal Land?	no
Within 0.25 miles of an impaired stream?	no
Within 0.25 miles of an impaired waterbody?	yes
Within 0.25 miles of a waterbody?	yes
Within 0.25 miles of a stream?	no
Within 0.25 miles of an NWI wetland?	Available Online
Within 0.25 miles of a Brownfields site?	no
Within 0.25 miles of a Superfund site?	no
Within 0.25 miles of a Toxic Release Inventory (TRI) site?	no
Within 0.25 miles of a water discharger (NPDES)?	yes
Within 0.25 miles of a hazardous waste (RCRA) facility?	no
Within 0.25 miles of an air emission facility?	yes
Within 0.25 miles of a school?	no
Within 0.25 miles of an airport?	no
Within 0.25 miles of a hospital?	no
Within 0.25 miles of a designated sole source aquifer?	no
Within 0.25 miles of a historic property on the National Register of Historic Places?	no
Within 0.25 miles of a Land Cession Boundary?	yes
Within 0.25 miles of a tribal area (lower 48 states)?	no
Within 0.25 miles of the service area of a mitigation or conservation bank?	yes
Within 0.25 miles of the service area of an In-Lieu-Fee Program?	no
Within 0.25 miles of a Public Property Boundary of the Formerly Used Defense Sites?	no
Within 0.25 miles of a Munitions Response Site?	no
Within 0.25 miles of an Essential Fish Habitat (EFH)?	no
Within 0.25 miles of a Habitat Area of Particular Concern (HAPC)?	no
Within 0.25 miles of an EFH Area Protected from Fishing (EFHA)?	no
Within 0.25 miles of a Bureau of Land Management Area of Critical Environmental Concern?	no
Within 0.25 miles of an ESA-designated Critical Habitat Area per U.S. Fish & Wildlife Service?	no
Within 0.25 miles of an ESA-designated Critical Habitat river, stream or water feature per U.S. Fish & Wildlife Service?	no

Created on: 11/8/2023 11:42:49 AM

National Register of Historic Places



11/10/2023

1:69,666

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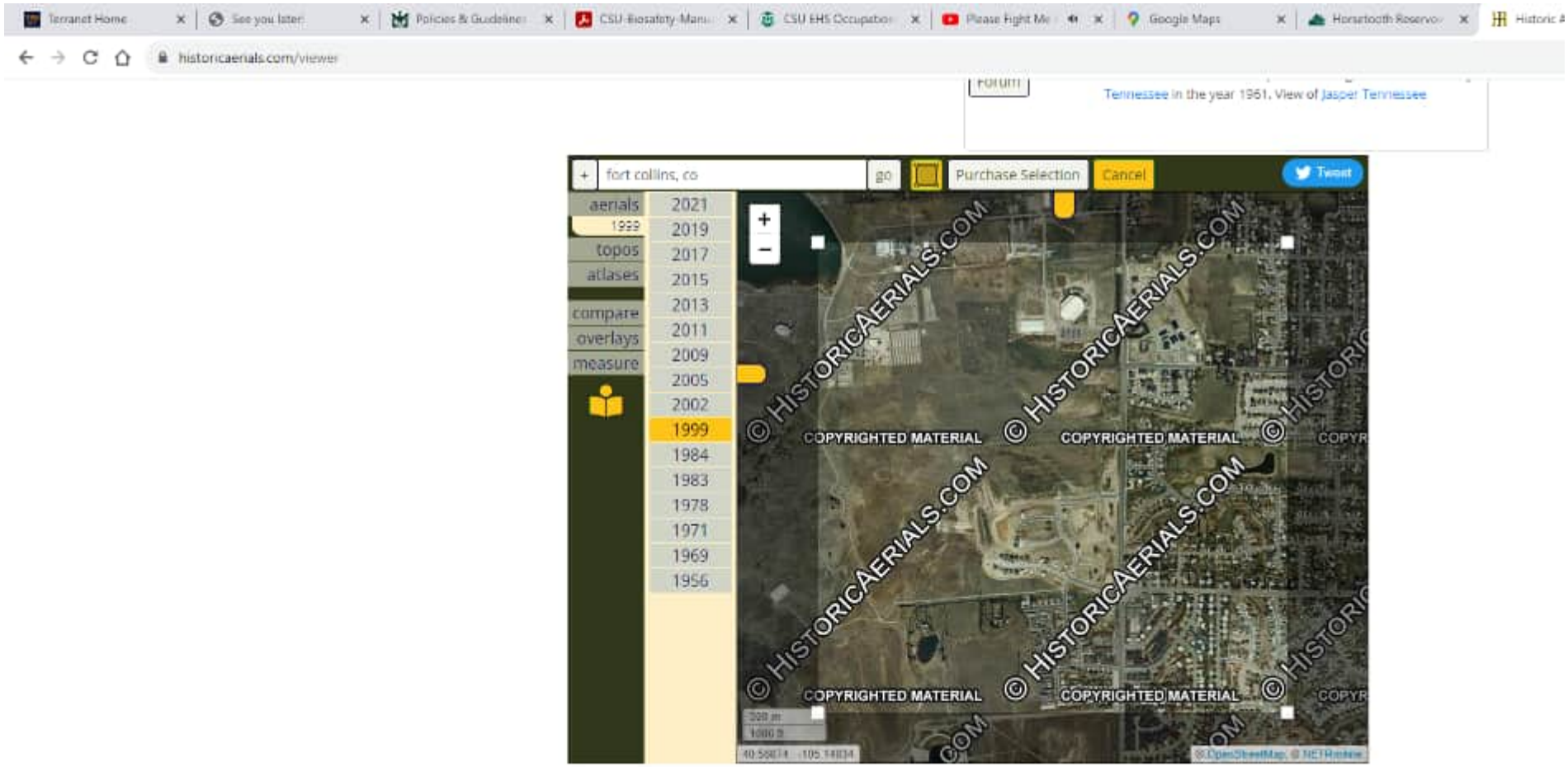
0 0.5 1 2 km

Matt Stutts, Cultural Resources GIS, National Park Service, Earthstar Geographics, City of Fort Collins, Esri, HERE, Garmin, SafeGraph,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Tennessee in the year 1961. View of Jasper Tennessee
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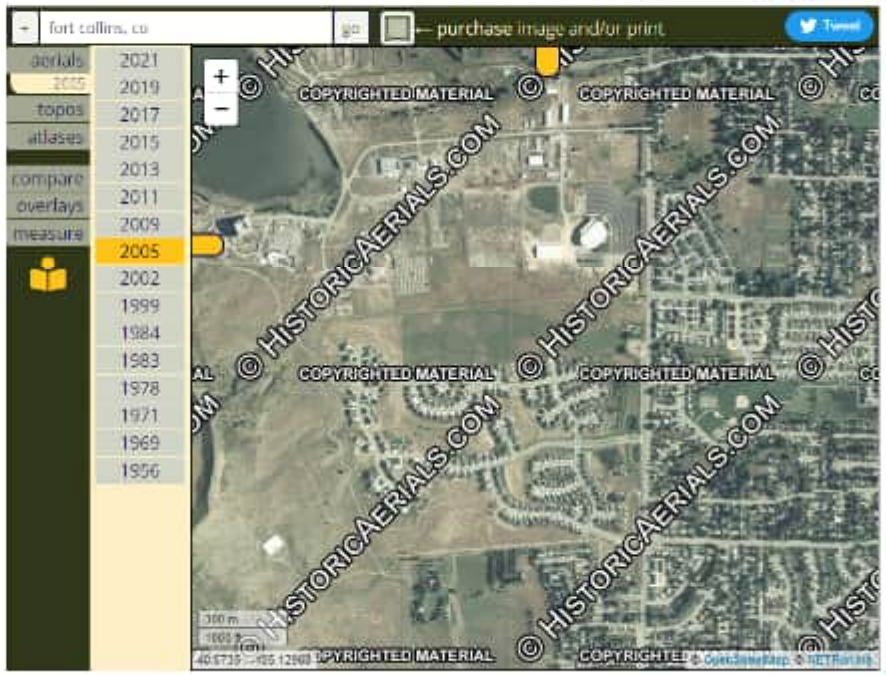
coverage for Marion County Tennessee in the year 1991. View of Jasper Tennessee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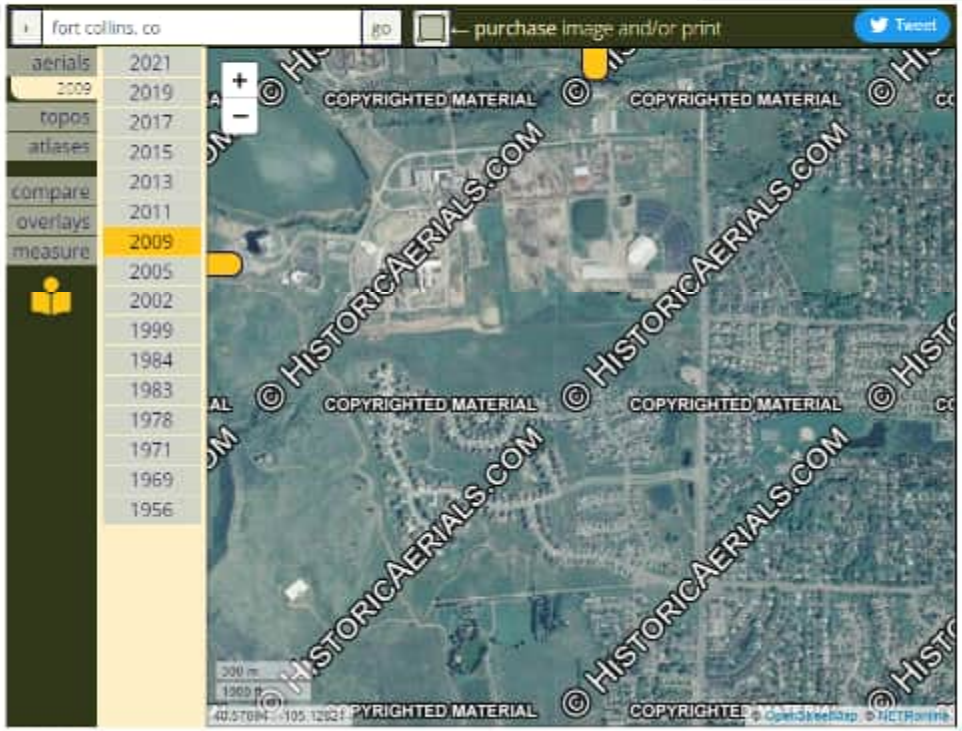
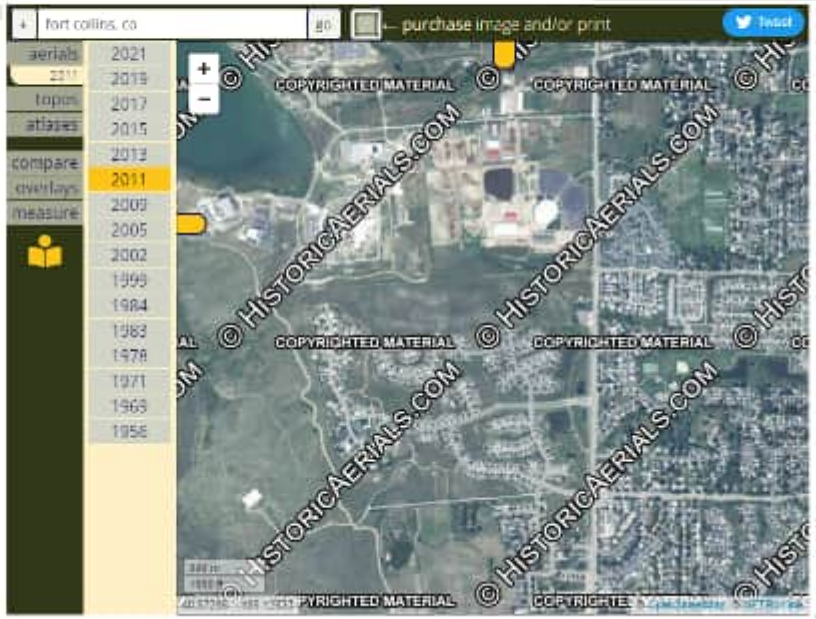
coverage for Marion County Tennessee in the year 1961. View of Jasper Tennessee

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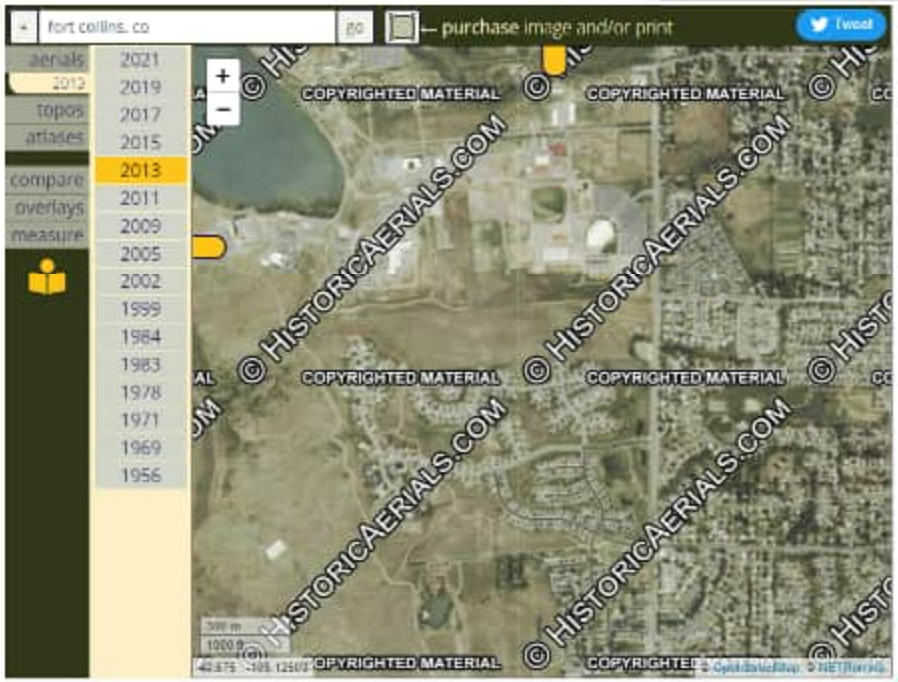
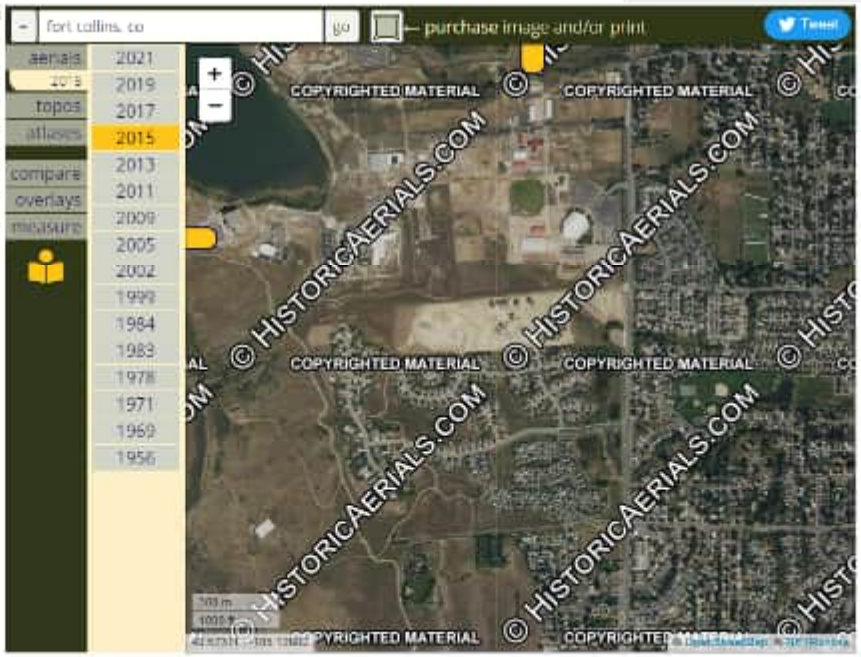
coverage for Marion County Tennessee in the year 1951. View of Jasper Tennessee

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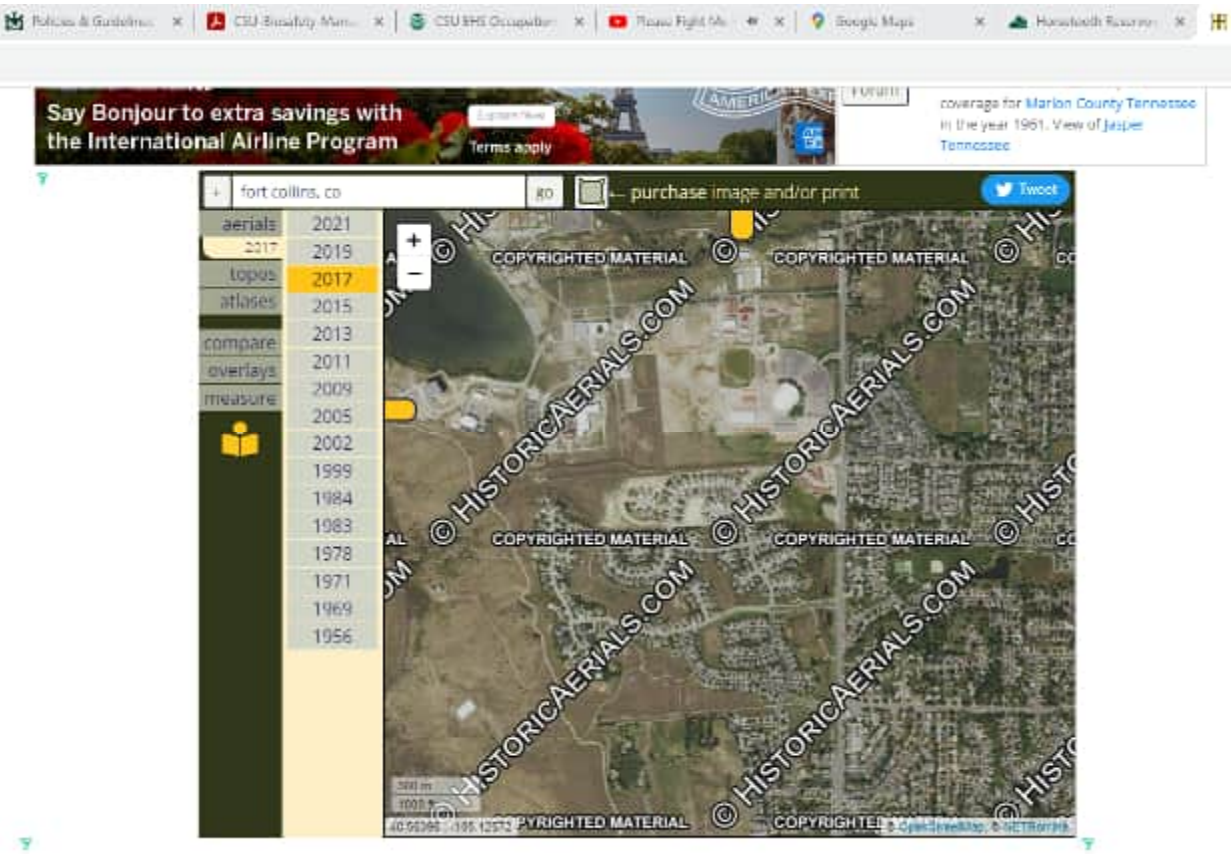
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Appendix B Public Involvement Documentation

A Q&A on why CSU labs are safe

11 **Jan, 2023**
By Gary Polakovic

Rebecca Moritz is CSU's biosafety director and director of the Office of Research Collaboration and Compliance. She is the president of the American Biological Safety Association International. She's responsible for lab safety at the university and leads the organization that sets professional standards for lab safety worldwide. She will work with scientists to ensure the safe operation of a proposed, new $10 million bat research facility at Foothills Campus.

Q: How does CSU help protect people from pandemics?

A: Part of CSU's research mission is to better understand how agents and diseases affect humans and animals. This includes investigating the various ways pathogens transmit between species. Other aspects of the research mission are to test potential vaccines and therapeutics for a variety of agents and diseases and develop new detection technologies. For example, CSU researchers helped in the COVID-19 response locally and at the state and national levels by creating new rapid tests, studying what species can be infected with SARS-COV-2, providing testing for students and a variety of groups in Larimer County and studying transmission parameters, among other areas.

Q: Why is animal research important? Why study animal viruses?

A: Many pathogens can infect both animals and humans. Understanding how this happens in nature is important for understanding disease transmission and evolution. Due to global warming and population growth, humans and animals are coming into contact more

frequently and in ways not previously seen. This could result in an increased number of outbreaks and possibly pandemics.

Q: Why study bats?

A: Different bat species are thought to carry a wide variety of different viruses such as SARS-CoV-2, MERS-CoV, rabies, Ebola virus, Nipah virus and Marburg virus, among other pathogens. These pathogens do not make bats sick, but they can transmit the viruses they carry to humans and other mammals. Understanding how this transmission occurs and how bats carry these viruses could provide critical information to better protect global public health and help the world better identify outbreaks and prepare for the next pandemic.

Q: What's the new bat facility for? What are the limitations of the facility?

A: The new bat facility is designed to primarily house breeding colonies. For safety and science integrity, it's better to have a self-contained population of bats. It will have some spaces that will be biosafety level 2 labs where experiments can be conducted. However, the types of agents that can be used at BSL-2 are limited to those determined to not be high risk to people and the environment.

Q: How do you ensure infectious bats don't come here or escape?

A: Bats must go through a quarantine period and testing process to ensure they do not carry any viruses or diseases before they can come to our facility. Once we establish a bat colony it becomes closed. The facility is designed to keep bats inside of their housing areas. In addition, animal care staff and researchers have processes in place to make sure bats stay in their housing areas and are handled appropriately.

Q: Does CSU do gain-of-function research?

A: Gain-of-function is when any organism gains a new ability or property. Some of these functions can be positive. For example, plants that are more drought tolerant or making mosquitos resistant to transmitting dengue fever. However, there is a subset of gain-of-function experiments that pose certain safety and security concerns. CSU has no plans to conduct gain-of-function research of concern.

Q: Is CSU engaged in bioweapons research?

A: No. In 1975, President Ford signed the International Bioweapons Convention, making it illegal to develop, produce, stockpile, acquire, or retain biological weapons.

Q: How do you ensure biological research at CSU is safe?

A: We do everything possible to decrease the risks of our research. Those risks are mitigated by the types of facilities, personal protective equipment, training, policies and procedures our researchers utilize. We acknowledge that there is no such thing as zero risk in research, and in doing so, we are especially careful in our preparation and procedures.

Q: How will CSU protect the community if a researcher is potentially exposed to a pathogen?

A: CSU works closely with local occupational medicine and infectious disease physicians and Larimer County Department of Public Health and Environment to develop plans and procedures to quarantine, test and potentially provide treatment to a researcher who would have a known potential exposure or develops symptoms of an agent they have been working with.

TAGS ASSIGNED TO THIS STORY

INFECTIOUS DISEASE RESEARCH CENTER INSTITUTIONAL BIOSAFETY COMMITTEE

OFFICE OF THE VICE PRESIDENT FOR RESEARCH OVPR

SHARE

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Gary Polakovic

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ALUMNI ATHLETICS COLLEGE OF AGRICULTURAL SCIENCES

COLLEGE OF BUSINESS COLLEGE OF HEALTH AND HUMAN SCIENCES

COLLEGE OF LIBERAL ARTS COLLEGE OF NATURAL SCIENCES

COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES COVID-19

CSU EXTENSION CSU ONLINE CSU SPUR CSU SYSTEM

DEPARTMENT OF ATMOSPHERIC SCIENCE DEPARTMENT OF BIOLOGY

DEPARTMENT OF DESIGN AND MERCHANDISING

DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

DEPARTMENT OF HEALTH AND EXERCISE SCIENCE

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

DIVISION OF STUDENT AFFAIRS FACILITIES MANAGEMENT GRADUATE SCHOOL

HIGH-IMPACT PRACTICES IN MEMORY INTERNATIONAL PROGRAMS

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OFFICE OF ENGAGEMENT AND EXTENSION OFFICE OF THE PRESIDENT

OFFICE OF THE VICE PRESIDENT FOR DIVERSITY

OFFICE OF THE VICE PRESIDENT FOR RESEARCH OUTREACH

PARKING AND TRANSPORTATION SERVICES RESEARCH

SCHOOL OF GLOBAL ENVIRONMENTAL SUSTAINABILITY STUDENT FEATURES

STUDENTS SUSTAINABILITY THE CONVERSATION TODOS SANTOS

UNIVERSITY CENTER FOR THE ARTS WALTER SCOTT JR COLLEGE OF ENGINEERING

WARNER COLLEGE OF NATURAL RESOURCES

NEW CSU RESEARCH BUILDING

CSU has been a national leader in infectious disease research since the 1960s and plays a critical role in preventing and responding to diseases and pandemics.

Larimer County notified your neighborhood in late 2022 that CSU will build a new facility. The new facility on CSU's Foothills Campus will help CSU and other research institutions study bats and their response to infectious diseases.

Learn more about why this work matters.

batresearch.colostate.edu

COLORADO STATE UNIVERSITY

Things to Know

1. This research will help prevent and treat infectious diseases.
2. CSU is one of the most qualified places in the world to study bats and infectious diseases.
3. CSU research and buildings are highly regulated, controlled and safe.

Learn more about why this work matters.

batresearch.colostate.edu

COLORADO STATE UNIVERSITY

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CSU'S NEW RESEARCH BUILDING

CSU has been a national leader in infectious disease research since the 1960s and plays a critical role in preventing and responding to diseases and pandemics.

The new facility on CSU's Foothills Campus will help CSU and other research institutions study bats and their response to infectious diseases.

Things to Know

1. This research is important. Bats hold unique, critically-important clues to understanding why and how people and animals get sick when exposed to pathogens.

2. CSU is the best place in the world to do this research. The university is one of few places already studying bats and infectious diseases, and has done these studies for 15 years. CSU is building this facility to help other scientists across the world study bats.

3. In the new building, researchers will work with mild infectious disease pathogens that can be easily treated. Pathogens that will be present in the building are low-risk and are comparable to organisms that cause food-borne illness or strep throat. CSU will not create a new pathogen.

4. This building and the research inside are safe. CSU has studied infectious diseases since the 1960s and has a long track-record of expertise, safety, and compliance. Ebola, Marburg or Nipah viruses will **not** be studied in the new building or at any CSU laboratory. CSU does not and cannot possess these viruses. Our facilities are not built to research these viruses.

5. Bats will be contained within the building at all times. The building will be highly secure and specially designed for housing bats and low-risk research. And, it will provide bats with big areas that mimic their natural habitat.

Learn more about why this work matters:
batresearch.colostate.edu

Frequently Asked Questions

WHY BAT RESEARCH IS IMPORTANT

— Researching bats is important because bats can teach us about viruses.

There is a lot to learn from bats – particularly because bats can carry viruses and not get sick themselves. This novel fact means that researchers can learn how to prevent the spread of viruses, understand what keeps bats healthy, and explore ways to keep humans and other animals safe from these very viruses. (See more about the remarkable clues bats hold.)

Scientists don't know what protects bats from getting sick; that's part of the question CSU's research is trying to answer.

+ Bats carry viruses but don't get sick from them. Why?

+ Understanding how viruses and bats interact will help people.

+ Bats are important to our environment and this research helps them, too.

+ Bats play an important role in disease transmission.

ABOUT THE CSU BAT RESEARCH FACILITY

+ The CSU bat research building will have multiple purposes.

+ The new facility will be built with multiple layers of biosafety protection.

+ The building will meet BSL-2 biosafety requirements.

— CSU is building a facility that will be a national resource for bat research.

While the new facility that will be built at CSU will house some biosafety level 2 research, its primary function will be to provide an ideal space to breed virus-free,

disease-free bats. These bats will be used at CSU for research and will be sent to other universities and government agencies for study.

At this time, there are very few scientists in the world studying bats and infectious diseases because there are extremely limited resources to obtain virus-free bats to use in studies. Generally, the only option is to capture them in the wild, which can disrupt their habitat and life cycles.

Resources are limited because bats require specialized spaces mimicking their natural habitat to breed, this includes places to roost as well as with enough room to allow for free flight. There are only a handful of laboratories in the world that research bats because they cannot provide bats with proper habitats. CSU's new building and veterinary expertise will fulfill this need and meets rigorous requirements for providing housing and habitat for bats.

+ Breeding a small number of bats is a better resource for most studies than capturing wild bats.

ABOUT CSU BAT-RELATED RESEARCH

+ CSU researchers have already learned important information about bats and viruses.

+ Current and future CSU research aims to help prevent the spread of viruses and other pathogens and to advance innovations to help people.

+ CSU will not conduct gain-of-function research on bats that could increase transmission of a virus to humans

+ CSU research will not create a new pathogen.

+ Bats are generally not born infected with diseases. Bats used in research are verified to be virus-free before research starts.

+ CSU infectious disease researchers have studied bats for many years.

— CSU is not conducting high-risk infectious disease research on bats.

Ebola, Marburg or Nipah viruses will **not** be studied in the new building or at any CSU laboratory. CSU does not and cannot possess these viruses. Our facilities are not built to research these viruses.

CSU may collaborate with researchers who study these viruses in laboratories located across the nation. This collaboration may include providing them with resources and expertise, but work with these viruses would not occur at CSU facilities.

BIOSAFETY AT CSU

— Biosafety is a nationally standardized, layered set of safeguards that protect researchers and the outslide world from pathogens.

Biosafety is the practice of developing precautions to lessen the risk of working with biological agents and animals exposed to infectious agents such as a virus.

Biosafety uses four principles to lessen risk.

1. Work practices
2. Personal protective equipment
3. Facility design
4. Administrative controls.

All of these work together in a layered fashion to protect researchers, their community, and the environment.

The CSU Biosafety Office identifies all risks for each experiment conducted at CSU. This office also determines the appropriate work practices, what personal protective equipment is required, the specific CSU facility where the work must be conducted based on layered biosafety within laboratories and buildings, and any additional practices or policies that are needed.

The personnel of this office have a combined 99 years of biosafety experience and have conducted research with biological agents themselves.

+ Biosafety compliance is overseen by multiple agencies and committees.

+ CSU research laboratories are specially designed to keep infectious pathogens inside the laboratory.

+ CSU researchers receive specialized training to work with viruses and bats.

+ The risk of a virus, bacteria or other infectious pathogens escaping from CSU facilities is extremely low.

+ Infectious pathogens are contained within a laboratory through redundant biosafety systems.

+ CSU takes specific steps if a researcher is accidentally, potentially exposed to a virus.

+ CSU's response to risk is constantly evolving to be state-of-the-art.

Colleges:

- Agricultural Sciences
- Business
- Walter Scott, Jr. College of Engineering
- Health and Human Sciences
- Liberal Arts
- Warner College of Natural Resources
- Natural Sciences
- Veterinary Medicine and Biomedical Sciences

Schools & Programs:

- Graduate School
- International Programs
- Online Degrees and Courses
- School of Advanced Materials Discovery
- School of Music, Theatre and Dance
- School of Biomedical Engineering
- School of Education
- School of Global Environmental Sustainability
- School of Social Work
- School of Public Health

SUPPORT
COLORADO STATE UNIVERSITY

Colorado State University

301-451-6467 (Office)

240-461-3817 (Cell)

From: Ted Doerr <tbach465@gmail.com>
Sent: Tuesday, September 12, 2023 1:29 PM
To: Radtke, Mark (NIH/OD/ORF) [E] <radtkem2@mail.nih.gov>
Subject: [EXTERNAL] Proposed Bat Research Facility at Colorado State University (CSU)

Mr Radtke

I request a copy of the National Environmental Policy Act (NEPA) impact assessment (e.g., Environmental Assessment) and decision document (FONSI) for the proposed construction and operation of the NIH-funded bat research facility at CSU.

Approximately three weeks ago, I received a postcard from CSU announcing construction of this infectious disease research facility. I live within sight of the general area of the proposed facility. CSU notified me the week of 4 September that I needed to directly contact NIH to receive copies of these public documents.

Regards - Ted Doerr

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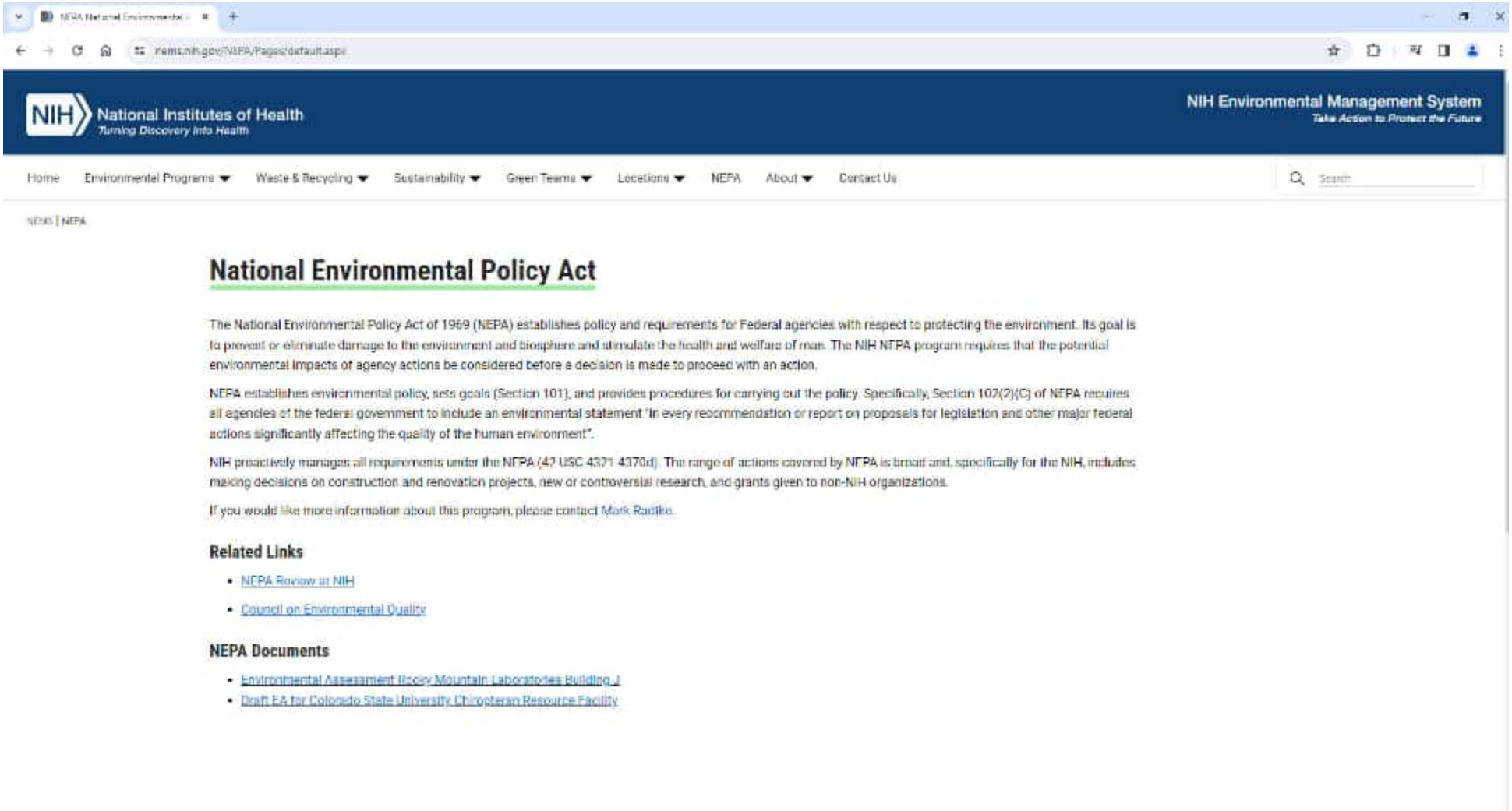
Coloradoan.

Public Notices

Originally published at coloradoan.com on 12/18/2023

NOTICE OF AVAILABILITY
NATIONAL INSTITUTES OF HEALTH ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED CHIROPTERAN RESOURCE FACILITY COLORADO STATE UNIVERSITY FOOTHILLS CAMPUS
The National Institutes of Health (NIH) is proposing to partially fund, through a C06 grant, the construction of a Chiropteran Resource Facility located at Colorado State University (CSU) Foothills Campus Fort Collins, Colorado. The notice of availability (NOA) for the environmental assessment (EA) began December 18, 2023. The purpose of NOA is to allow the public and state and federal agencies to review the Draft EA and provide NIH with any comments within the 30day comment period. The 30 day comment period will end on January 17, 2023. A copy can be found at the Old Town Library located at 201 Peterson St, Fort Collins, CO 80524 or online at https://nems.nih.gov/NEPA/Pages/default.aspx. Comments can be sent to Mark Radtke, Division of Environmental Protection, National Institutes of Health, Building 13, Room 2S11, 9000 Rockville Pike, Bethesda, MD 20892 or emailed to nihnepa@mail.nih.gov.

The Coloradoan
Dec 18-20, 2023


NIH National Institutes of Health
Turning Discovery Into Health
NIH Environmental Management System
Take Action to Protect the Future
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Environmental Programs
Waste & Recycling
Sustainability
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National Environmental Policy Act
The National Environmental Policy Act of 1969 (NEPA) establishes policy and requirements for Federal agencies with respect to protecting the environment. Its goal is to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man. The NIH NEPA program requires that the potential environmental impacts of agency actions be considered before a decision is made to proceed with an action.
NEPA establishes environmental policy, sets goals (Section 101), and provides procedures for carrying out the policy. Specifically, Section 102(2)(C) of NEPA requires all agencies of the federal government to include an environmental statement "in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment".
NIH proactively manages all requirements under the NEPA (42 USC 4321-4370d). The range of actions covered by NEPA is broad and, specifically for the NIH, includes making decisions on construction and renovation projects, new or controversial research, and grants given to non-NIH organizations.
If you would like more information about this program, please contact Mark Radike.
Related Links
NEPA Review at NIH
Council on Environmental Quality
NEPA Documents
Environmental Assessment Rocky Mountain Laboratories Building J
Draft EA for Colorado State University Chiropteran Resource Facility

CSU | BAT RESEARCH

Understanding how bats respond to viruses can open up new possibilities in helping find new ways to treat both humans and animals because bats have a remarkable ability to carry a virus and not get sick from it. This is why researchers want to study bats – understanding bat immune responses to a virus could unlock new medical treatments to help save the lives of humans and animals, including bats.

CSU is building a facility on its Foothills Campus devoted to helping CSU and other research universities and agencies study bats and their response to infectious diseases.

- FREQUENTLY ASKED QUESTIONS

RESEARCH

- Why bats hold remarkable clues
- Current and recent research

BIOSAFETY

- What is biosafety? See our FAQs
- Biosafety at CSU

Feedback

Draft NIH environmental assessment

5 things to know

1. **This research is important.** Bats hold unique, critically-important clues to understanding why and how people and animals get sick when exposed to disease-causing organisms known as pathogens.
2. **CSU is the best place in the world to do this research.** The university is one of few places already studying bats and infectious diseases, and has done these studies for 15 years. CSU is building this facility to help other scientists across the world study bats.
3. **In the new building, researchers will work with mild infectious disease pathogens that can be easily treated.** Pathogens that will be present in the building are low-risk and are comparable to organisms that cause food-borne illness or strep throat. CSU will not create a new pathogen.
4. **This building and the research inside are safe**. CSU has studied infectious diseases since the 1960s and has a long track-record of expertise, safety, and compliance. Ebola, Marburg or Nipah viruses will ***not*** be studied in the new building or in any CSU building. CSU does not and cannot possess these viruses. Our facilities are not built to research these viruses.
5. **Bats will be contained within the building at all times**. The building will be highly secure and specially designed for housing bats and low-risk research. And, it will provide bats with big areas that mimic their natural habitat.

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- Health and Human Sciences
- Liberal Arts
- Warner College of Natural Resources
- Natural Sciences
- Veterinary Medicine and Biomedical Sciences

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- Graduate School
- International Programs
- Online Degrees and Courses
- School of Advanced Materials Discovery
- School of Music, Theatre and Dance
- School of Biomedical Engineering
- School of Education
- School of Global Environmental Sustainability
- School of Social Work
- School of Public Health


Colorado State University

Appendix C CSU Responses to Public Concerns

CSU Responses to Public Concerns

While Colorado State University (CSU) has been transparent about the new facility in the Chiropteran Resource Center, CSU has become aware of concerns from some neighboring residents. Below are CSU's responses to some of the concerns raised by residents:

✓ **NO high-risk research will be conducted in CSU Fort Collins.**
No pathogens requiring high containment laboratories will be used in the new bat facility.

CSU ***does not*** conduct research on viruses that require the highest level of laboratory containment, such as Ebola, Marburg or Nipah viruses, that require the use of a BSL-4 laboratory. CSU does not have a BSL-4 lab; live Ebola, Marburg or Nipah viruses are not and will not be present for use in research in any CSU buildings. CSU plans to partner with researchers from across the nation, including scientists who work in high biocontainment laboratories in other states. This partnership is referenced in the grant, included in the summary which is published online at the National Institutes of Health website.

CSU has worked for many years with SARS-CoV-2, MERS-CoV and other pathogens in its existing BSL-3 laboratory. The new building will be a BSL-2.

✓ **The pathogens in the new building cause only mild infectious diseases that can be easily treated.**
Pathogens in the building, which will be a BSL-2, will be low-risk and are comparable to organisms that cause food-borne illness or strep throat. CSU will not create a new pathogen.

✓ **The risk of a pathogen or bat escaping from the building is very low.**
The university and its researchers are routinely entrusted with national and international funds and research projects — in no small part because of CSU's commitment to research safety. CSU requires rigorous and frequent accountability from its infectious disease researchers, as well as extensive training.

CSU researchers are required to receive comprehensive, specific training tailored to the viruses they research. All researchers who work with viruses must pass multiple biosafety and biosecurity training courses corresponding to the risk of the viruses they will work with and are required to wear protective gear. Researchers also receive training for specific procedures they will perform and require targeted training to properly respond to an exposure.

CSU has an extensive focus on promoting and enhancing a research culture that takes extra measures to encourage compliance, report concerns, and conduct training, so that there is not only an expectation that researchers follow the rules and respect protocols, but also a culture that encourages these practices:

- Researchers are trained to report all potential risks right away to both their supervisors and the CSU Biosafety Office or the CSU Occupational Health program. Research occurs within specially designed laboratories that are engineered specifically to contain pathogens.
- The building will be highly secure and specially designed to house bats in rooms protected by numerous chambers and doors as well as security systems.

✓ **Bats will be captured in the wild in Bangladesh and will be certified as disease-free before entering the facility at CSU.**

To ensure research is not compromised or confused by pre-existing diseases, bats brought to the facility must be disease-free. Captured bats will be quarantined for several weeks and extensively tested prior to introduction. Bats housed at the location will be routinely screened for illness before any research begins. Several species important for infectious disease studies will be captured to establish colonies in the facility. Bats will not be imported from China.

✓ This building and the research inside are safe.

CSU has studied infectious diseases since the 1960s and has a long track-record of expertise, safety, and compliance.

✓ CSU is the best place in the world to do this research.

The university is one of few places already studying bats and infectious diseases and has done these studies for 15 years. CSU is building this facility to continue its important work, and to help other scientists across the world study bats.

✓ This research is important, and scientists can learn new information from bats that is not available through other research options.

Bats hold unique, critically important clues to understanding why and how people and animals get sick when exposed to disease-causing organisms known as pathogens.

✓ For more information about the facility at CSU.

CSU has conducted multiple public outreach activities, from the time the grant was awarded in 2021, to notify the local community on its plan to build the facility and the activities that will be conducted within this facility. Some of the highlights of the outreach activities are presented here.

Colorado State University published an online story on Oct. 21, 2021, about plans to build the facility at this link - https://source.colostate.edu/csu-awarded-6-7-million-nih-award-for-research-facility-focused-on-bat-health-disease-transmission/. This story was sent to thousands of recipients including all CSU students, faculty, and staff as well as public subscribers and members of the news media.

The university tweeted a link to this story the following week via its main Twitter account, which has 70,000 followers.

Several news outlets have covered CSU's plans to construct the facility, including the Fort Collins Coloradoan, Denver CBS4 TV, and the Denver Post. The Denver Post's story primarily focused on addressing misinformation and can be found at https://www.denverpost.com/2023/07/16/csu-bat-research-facility-covid-misinformation/.

CSU launched a comprehensive website at batresearch.colostate.edu with FAQs at batresearch.colostate.edu/frequently-asked-questions/.

In the summer of 2022, University staff had conversations with city, county, state, and federal elected officials and provided them with information about the facility.

In December 2022, Larimer County sent postcards to 460 property owners near the university's Foothills Campus where the facility will be built. The university sent a postcard in Fall 2023 to the same addresses with a QR code to the website to connect residents with the latest FAQs and information about the project.

Appendix D Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Colorado Ecological Services Field Office
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486
Phone: (303) 236-4773 Fax: (303) 236-4005

In Reply Refer To:
Project Code: 2024-0010297
Project Name: Chiropteran Research Facility

October 29, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Colorado Ecological Services Field Office
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486
(303) 236-4773

PROJECT SUMMARY

Project Code: 2024-0010297
Project Name: Chiropteran Research Facility
Project Type: New Constr - Above Ground
Project Description: Construction and operation of a bat vivarium.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.575711,-105.14257648102256,14z

Counties: Larimer County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. Species profile: https://ecos.fws.gov/ecp/species/6039	
Whooping Crane *Grus americana*	Endangered
Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	

FISHES

NAME	STATUS
Greenback Cutthroat Trout *Oncorhynchus clarkii stomias*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2775	
Pallid Sturgeon *Scaphirhynchus albus*	Endangered
No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. Species profile: https://ecos.fws.gov/ecp/species/7162	

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	

FLOWERING PLANTS

NAME	STATUS
Ute Ladies'-tresses *Spiranthes diluvialis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2159	
Western Prairie Fringed Orchid *Platanthera praeclara*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1669	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Terracon
Name: Jennifer Peters
Address: 6911 Blanco Road
City: San Antonio
State: TX
Zip: 78216
Email jennifer.peters@terracon.com
Phone: 2109077648

STATE OF COLORADO

Bill Owens, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER

Bruce McCloskey, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192

For Wildlife-
For People

July 7, 2004

Mr. Robert Blinderman
Stewart Environmental Consultants, Inc.
3801 Automation Way, Suite 200
Fort Collins, CO 80252

Subject: Proposed CSU Regional Biocontainment Laboratory (RBL)
Job No.: 117-101

Dear Mr. Blinderman:

The following constitute the comments of the Colorado Division of Wildlife. Mike Sherman (Habitat Biologist) has reviewed the written material you sent him regarding the proposed laboratories facility and conducted a field visit to the site with you on June 29, 2004.

- The proposed project will have no negative impacts on wildlife or wildlife habitat.
- The proposed RBL does not appear to be located within or near a wetland, however, the U.S. Army Corps of Engineers should be consulted on this issue as they are the regulatory agency that has responsibility in identifying jurisdictional wetlands and mitigating potential impacts.

The site consists of an upland meadow habitat vegetated by grasses and includes a disturbed area containing invasive vegetative species. We concur with your conclusion that the proposed RBL will not negatively impact ecologically sensitive areas on or near the proposed site and there appear to be no endangered, threatened, or rare plant or animal species so designated by the U.S. Fish and Wildlife Service, or the State of Colorado occurring on or using the site.

The Colorado Division of Wildlife appreciates this opportunity to comment on this project proposal. If you have any question, please contact Mike Sherman at (970)416-3335. Thank you.

Scott Hoover, NE Regional Manager

Dave B. Clarkson for Scott Hoover

cc: Dave Clarkson, Area Wildlife Manager
Andre Duvall, District Wildlife Manager
Rick Moss, NE Senior Habitat Biologist
Mike Sherman, Area Habitat Biologist

STATE OF COLORADO

Bill Ritter, Jr., Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER

Thomas E. Remington, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192
wildlife.state.co.us

For Wildlife-
For People

June 15, 2010

Robert J. Blinderman
Senior Environmental Scientist
Stewart Environmental Consultants, LLC
3801 Automation Way, Suite 200
Fort Collins, Colorado 80525

Dear Mr. Blinderman,

Case #: 117.101(5)

I received and reviewed the proposal for the NEPA evaluation. In this letter you will find the Division of Wildlife comments concerning the proposal.

In the development proposal, it appears that no significant new land use practices are going to be done. Therefore, the Division of Wildlife has no comments or concerns for this proposal.

On behalf of the Division of Wildlife I would like to thank you for the opportunity to review and comment on this proposal. If you or the applicant have any questions, please feel free to call Chad Morgan at 970-692-1733.

Sincerely,

Mark Leslie

Mark Leslie
Area Wildlife Manager

Cc: S. Yamashita, K. Green, C. Morgan, S. Billings
file

History Colorado

Ms. Kristin Gensmer
Principal Investigator
Centennial Archaeology LLC
300 E. Boardwalk, 4-C
Fort Collins, Colorado 80525

RE: Proposed Chiropteran Research Facility Project
Colorado State University, Foothills Campus, Larimer County, Colorado
History Colorado No. 82529

Dear Gensmer:

Thank you for your correspondence dated January 19, 2023, which our office received on February 1, 2023, initiating consultation for the aforementioned project under Section 106 of the National Historic Preservation Act of 1966, as amended (54 USC § 306108), and its implementing regulations, 36 CFR Part 800

We have reviewed all documentation submitted for this project and agree the defined area of potential effect (APE) and survey methodology are appropriate for the undertaking. We concur 5LR.13680 is *not eligible* for inclusion in the National Register of Historic Places. Accordingly, the undertaking will result in *no historic properties affected*.

Should unidentified archaeological resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the National Register eligibility criteria (36 CFR §60.4) in consultation with our office pursuant to 36 CFR §800.13. Also, should the consulted-upon scope of the work change, please contact our office for continued consultation under Section 106 of the National Historic Preservation Act.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR §800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings. Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

Determinations of National Register eligibility subject to this letter were made in consultation pursuant to the implementing regulations of Section 106 of the National Historic Preservation Act, 36 CFR Part 800. Please note other Federal programs such as

History Colorado

the National Register of Historic Places and the Federal Investment Tax Credit Program may have additional documentation and evaluation standards. Final determinations remain the responsibility of the Keeper of the National Register.

Thank you for the opportunity to comment. If we may be of further assistance, please contact Mitchell K. Schaefer, Section 106 Compliance Manager, at (303) 866-2673 or mitchell.schaefer@state.co.us.

Sincerely,

Dawn DiPrince
State Historic Preservation Officer

Colorado State University

MEMO

To: Greg Ebel, Sc.D.

From: Susanne Cordery, P.E., Environmental Engineer, CSU Facilities Management

Subject: Proposed Bat Facility, Foothills Campus, Water and Wastewater Adequacy

Date: August 31, 2021

CSU owns and operates the drinking water distribution system and the wastewater collection system in the area of the proposed Bat Facility building.

Based on a proposed Bat Facility building footprint of approximately 14,000 square feet and assuming a per square foot water usage based on similar CSU laboratories in the vicinity, the maximum estimated water usage is 2,500 gallons/day, or approximately 1 MM gallons per year. Per the water service allocation agreement with the City of Fort Collins, CSU's Foothills Campus is allocated 120,000,000 gallons per year and has, in the past several years, used less than 60,000,000 gallons per year. Therefore, the proposed Bat Facility will use less than 1.5% of the available capacity in the current allocation.

The wastewater service allocation is based on a peak daily discharge amount. The total peak daily wastewater allocation amount for Foothills Campus is 433,333 gallons per day. The Bat Facility is estimated to use less than 3.7 percent of the available remaining allocation amount.

September 2, 2021

To whom it may concerned,

A review of the loading of Foothills Southeast feeder that feds the area for the new Bat facility shows a peak load of 126 A (2,880 kW) on 9/1/2020. The capacity of this feeder is 400 A (9,145 kW), which means we are loaded to 32%.

Michael Randall, PE
Electrical Engineer