



*Visualizing the Potential
Impacts of Growth and
Increased Access on the Natural
Resources of Little Cottonwood
Canyon*



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Global Changes & Society Project Proposal

SUST 6000 Midterm – Spring 2020

Title	Visualizing the Potential Impacts of Growth and Increased Access on the Natural Resources of Little Cottonwood Canyon
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Main Research Theme	Growth and environmental degradation/change in Little Cottonwood Canyon
Secondary Research themes	Stakeholder engagement, promotion of land and resource stewardship, participatory research, Photovoice
Project Problem	This project is an attempt to gain an understanding of the issue of growth and its accompanying environmental impacts in the Little Cottonwood Canyon area. Specifically, we are acquiring feedback using visual qualitative research methods to identify particular areas of concern held by local stakeholders and recreational users regarding prospective growth.

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- I. *Project Scope*
- II. *Background and Rationale*
- III. *Objectives and Expected Results*
- IV. *Management and Implementation*
- V. *Monitoring and Evaluation*

- VI. *Budget and Financial Plan*
- VII. *Project Deliverables*
- VIII. *Supplemental Information: Project Data, Charts, and Infographics*

I. PROJECT ABSTRACT/SCOPE

This project seeks to engage with the users and stakeholders of Little Cottonwood Canyon (LCC) in order to learn about their perceptions of growth in the area and visually capture the potential impact of projected growth on the valued natural resources of LCC through their lived experiences. Planning for the impacts of growth is likely to involve difficult choices because growth, which secures a more resilient and vibrant future, may come into direct conflict with ecosystem preservation; both are desired conditions. The project will utilize a social science research tool called Photovoice to represent the values and concerns of people who live, work, and recreate in LCC. Participants will be asked to respond to several prompts relating to growth and increasing use in LCC through photographs. The visual survey results will be analyzed for common themes and used to produce an artistic display representing the voices of the LCC community. Through this tool, the dominant areas of concern affecting users and stakeholders of LCC will be conveyed both quantitatively and qualitatively via images.

This compelling display of images provides a unique tool to inform a wide variety of stakeholders, including policymakers. Specifically, we propose to use this project as a pilot for the future implementation of a visual representation of LCC that would connect with the important/valued aspects and issues related to the area. We propose the continued use of the Photovoice method seasonally (Spring, Summer, Fall, Winter) in order to see how the values of potential participants might change over time through the span of the seasons. The images collected through our project will also serve as visual time capsules that serve to document aspects of the changing landscape. Stakeholders may find common ground in a collective process where they are actively involved as participants.

II. BACKGROUND & RATIONALE

LOCATION |

The project will be implemented in LCC, specifically the area around and including the Town of Alta (Figure 1). Potential participant recruitment will also occur in this area. The project team seeks to engage with tourists, residents of the town of Alta, people employed by the ski industries, and local entities and businesses. As many residents of the greater Salt Lake Valley metroplex recreate and work in LCC we will also recruit participants in the Valley, particularly at the University of Utah's main campus. While this project may be emulated in different locations, it is contingent on the values, beliefs, and environmental issues germane to LCC. As such, the results will be particular to this community.

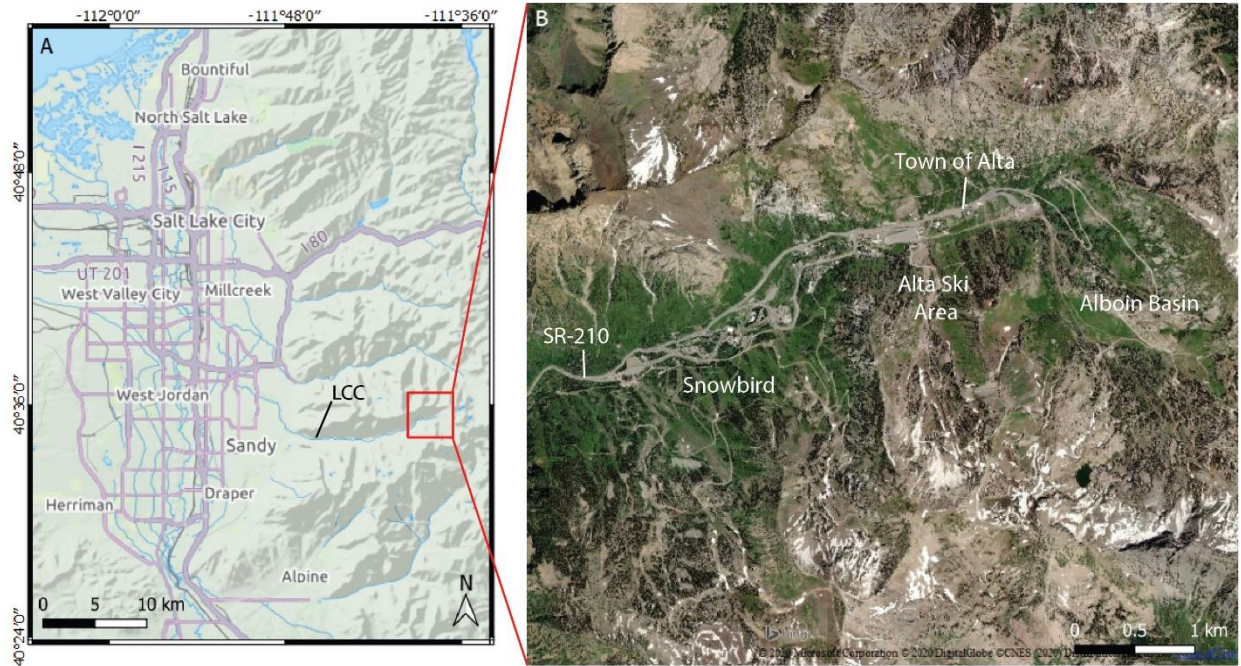


Figure 1. A) Overview map of the Salt Lake Valley and the abutting Wasatch Front, including Little Cottonwood Canyon (LCC). B) Inset map showing developed and recreational areas at the head of LCC.

BACKGROUND |

Little Cottonwood Canyon (LCC) is an important economic resource for Utah due to: 1) the presence of a world-renowned skiing industry, 2) its role as an important watershed, and 3) its role as a tourist destination for a variety of activities centered around the natural environment. These economic benefits are intimately related to the health of LCC ecosystems. However, these ecosystems are increasingly under pressure from a variety of sources. Warming due to climate change is projected to significantly decrease the snowpack in the Wasatch Range (1). Additional reduction in snowpack is expected to result from increasing dust events associated with the drying of the Great Salt Lake due to increasing water diversions toward development (2). LCC wildlife has been classified by the United States Department of Agriculture as ‘highly vulnerable’ to these changes because LCC ecosystems are more fragmented, making species adaptation more difficult, than many other Utah canyons due to past development (3). Increasing visitor usage of trail systems in the canyon has put pressure on the adjacent environment as well as visitor amenities such as latrines.

The Town of Alta is located at the top of LCC in the central Wasatch Mountains (Figure 1). It encompasses 4.1 square miles of rugged mountainous terrain and is accessible via State Route (SR) 210. Alta is most notably home to Alta Ski Area, and much of the land within the Town’s jurisdiction is open space used by the ski area for commercial skiing. The highest elevation in the Town of Alta is 11,068’ atop Mt. Baldy, and the center of town is roughly 8600’ above sea level (4). The winter season in Alta often lasts from mid-November to early May, turning the steep mountain slopes into an economic

resource, which supports the local economy and constitutes a major attraction for tourists to visit the State of Utah (4).

Further economic development of LCC is an important part of future economic plans for the Wasatch Front. Utah's population is projected to increase from approximately 3 million in 2015 to 5.8 million in 2065. Salt Lake County is projected to add nearly 600,000 new residents by 2065 and capture 21 percent of the total state population growth; it is projected to remain the most populous county in the state, reaching nearly 1.7 million people (5). This growth expectation is manifested in plans by the Utah Department of Transportation (UDOT) for road expansion in and to LCC that is projected to increase traffic by 45% (6). The Town of Alta is concerned about the effects of the road expansion and has adopted a resolution to develop a management plan to "evaluate and address the impacts to the facility infrastructure, environment, watershed, and natural resources in LCC that could result from the increased visitors as a result of roadway capacity and mobility improvements on SR-210" (Resolution 2019 R-14). An environmental impact statement (EIS) is currently underway (6) making this an important juncture for stakeholders in LCC to comment on these plans.

The tradeoffs between desired economic growth and the environmental degradation of crucial ecosystem services are a difficult social problem (7). Socially speaking the LCC area serves the role of a place with many values (historical, economic, social, cultural, aesthetic, etc.) and these values are not static but in constant flux offering a temporal element to what and how the area is used and valued (8). LCC now serves as a place of recreation where people from around the world take families and friends to partake in outdoor activities that revolve around the natural environment. It also serves as an indispensable source of freshwater for the Wasatch Front conurbation. Difficult social problems that arise from the changing of climate require techniques to address these emotion laden tradeoffs between stakeholders. A novel social science technique for addressing these issues is the image based technique, Photovoice, which lends itself to both qualitative and quantitative interpretation.

Photovoice is a community-based participatory research method that was developed by Wang and Burris (9) as a way to blend both narrative and photography to explore community based issues and initiate social change by engaging with the greater public, policy makers and/or other political elites. This method has been implemented to understand health, racial, gender, and class-based disparities by collecting images that represent the reality of participants and provide visual data to ground their lived experiences. Often, this method is used among populations that have been marginalized in our society and who do not have a voice at the table regarding decisions that affect their lives (i.e. indigenous populations, racial/ethnic minorities, gender/sexual minorities, people with disabilities, etc.) and provides a platform to individual and community action. In the arena of LCC, however, this method provides an opportunity for community participation and empowerment; participants choose to engage and offer immediate feedback in the form of a photo. Participants take an active role in critically examining what they choose to photograph to represent a point.

In recent scholarship concerned with issues of sustainability and climate change, Photovoice has been used to visually represent a changing landscape and the effects that the changing climate has on greater social organization (labor, production, family dynamics, etc.), the health of community members (specifically, children and the elderly), and the impact on the overall well-being of a community (11, 12, 13, 14). This method could potentially also serve as a catalyst to bring attention to issues that a community is experiencing. As explored by Bell (15), Photovoice can be used to draw attention to issues of environmental justice and the role that extractive industries have in polluting the land and negatively impacting the health of families for generations. In her project based in the Appalachian mountains, Photovoice was used as an empowering method of participation for 40 women that were involved in the project. In this project they assessed the strengths and assets of their communities and the problems and concerns associated with these areas and the direct impacts that it has on them. The group then developed a platform to engage with policy makers that made it difficult to negate and disregard “hard” visual data.

RATIONALE |

This project has developed based upon insights from class guest speakers as well as an overall keen interest in the dynamics and visibility of growth, climate change, and increased pressure on landscapes and critical resources such as water and air. In light of the current UDOT proposal for an integrated transportation system and improvements to SR-210 that focus on reliability, mobility, and safety for residents, visitors, and commuters, this is a critical juncture for considerations of the impacts of increased traffic and use on the ecosystems and recreation facilities of LCC.

According to Robert Gehrke (16), LCC already sees about 2.1 million visitors per year. On a busy powder weekend, 21,000 people per day may be accessing LCC. With Salt Lake County’s population to grow by nearly 40% by 2050, the strain on our canyons will only become more acute. Further, Gehrke notes, “How our Wasatch canyons, and specifically Little Cottonwood, will look in the next 50 years will be directed through UDOT’s process”.

Mayor Harris Sondak, in the Town of Alta’s public scoping comment letter on the UDOT LCC EIS noted, “the Town has always sought to balance the provision of safe and reliable services to our residents and visitors with the impacts that providing those services can have on the critical watershed environment where the town is located, on the character of our small mountain community, and on the experience of being in the Canyon” (17).

The backdrop of the LCC EIS adds some urgency to the task of understanding the impacts of increasing use and recreation on natural resources. Our use of Photovoice will help elucidate the tension between use and a conservative or stewardship imperative we believe recreational users of LCC may hold. A shift in usage from a consumptive orientation to one that foregrounds stewardship may be facilitated by the involvement of stakeholders in evaluating LCC and why they value it. An orientation towards stewardship may help future conservation and management efforts in LCC. We see this as an

important added value for current residents, managers, and recreationists as well as generations to come.

III. OBJECTIVES & EXPECTED RESULTS

OBJECTIVES |

Immediate objectives

The immediate objective of this project is to engage members of the LCC and Alta communities in an unconventional discussion about the environmental impacts of the increasing demand for recreational use in LCC. By inviting individuals who live, work, or recreate in LCC to express their perceptions and ideas about recent and future changes in LCC through Photovoice, we will gather images and data with which to develop a photo mural display that will be displayed in the community of Alta. In addition to visuals, this display will include quotes and statistical information that portray the values and concerns of participants. We plan to present the photo mural display at Alta Earth Day 2020 and hope to work with other organizations in the area (e.g., Friends of Alta, Alta Community Enrichment, Alta Historical Society) to coordinate longer-term displays. This project will provide visually impactful images of how increased use has impacted the area and the concerns that individuals have regarding future impacts. The implementation of this project is timely in light of recent increases in traffic and recreational use and the LCC EIS, which plans to accommodate an additional 45% traffic increase in the near future (6).

Long-term objectives

In the long term, the development of a compelling visualization of the impacts of increasing use in LCC will serve as a starting point for future conversations about how community members and recreational users view contentious issues regarding future development in the canyon. Additionally, by prompting individuals to think about the environmental impacts of growth and change in LCC, we hope to increase awareness of environmental degradation and promote stewardship. Furthermore, the creation of an artistic display that is derived from members of the community itself will help promote a “sense of place” in the Town of Alta (8, 18), to further awareness of the need for sustainable management and development. Furthering the sense of connection to place and the intrinsic value of a dramatic and powerful landscape and its myriad of resources may also lend itself to support for specific and consistent long-term management and monitoring efforts of key natural resources and recreation use. Furthermore, this project could help promote a culture of conversation and collaboration within the community of Alta to catalyze engagement in the current EIS, as well as future development and planning process in LCC. Beyond the timeline of the project, we envision the option for stakeholders in LCC to reproduce the Photovoice survey for a variety of purposes in the future. Our group has communicated with different LCC entities and developed an initial framework for the Photovoice method that can be replicated to engage a variety of stakeholders. This includes connecting a contemporary idea to raise awareness with a large amount of stakeholders, such as a focus on utilizing social media tools such as Instagram to share a variety of images representing sustainability in LCC.

BENEFICIARIES |

This project benefits individuals of the LCC community, which includes residents of the Town of Alta, recreational visitors, and employees. The opportunity to participate in a community-driven project allows individuals to voice and visually represent their values regarding LCC and the impacts of increasing use. Stakeholders, including Alta Ski Area, the Town of Alta, and Friends of Alta, will also benefit from the use of a photo mural display as a way to promote community engagement and awareness of issues relating to future growth and environmental stewardship.

Indirectly, this project may also benefit the wider Salt Lake Valley community, who may use the resulting information to advocate for policies concerning growth, recreation, and transportation in the valued landscapes of the Wasatch Front. Presentation of and communication regarding the project and related values and outcomes at the University of Utah will also help to promote an understanding of this incredible landscape and natural resources right in our “backyard.”

EXPECTED RESULTS |

The main result of the project will be a free standing or wall-mounted mural display exhibiting image mosaics, impactful representative images of dominant themes, and survey data. With the unusual combination of quantitative data of participant’s concerns and corresponding photographs visually representing these concerns, we expect to raise awareness of the tradeoffs between economic growth and environmental stewardship, informing decision making in these matters. Presenting at Alta’s Earth Day on April 18th will provide an opportunity for further community organization while simultaneously making visible the University of Utah’s interest and presence in the LCC.

IV. MANAGEMENT & IMPLEMENTATION

PROJECT GOVERNANCE |

Team Member Roles and Responsibilities

The team intends to work together on all aspects of the project. Thus far, Roger Renteria and Nico Hernandez have taken the lead on preparing an Internal Review Board (IRB) application. Jim Smith and Roy Smeal have taken the lead on initial stakeholder outreach, and all members have been involved in additional communications. Erin Bessette-Kirton is the lead on scheduling, meeting notes, and document organization. Linda Gottschalk is the lead financial planner. All team members have contributed to project development and proposal writing and all team members will be involved in the distribution and analysis of the Photovoice survey and creation of the photo mural. Specific responsibilities are discussed during weekly meetings.

Coordination and Communication

The project team members understand the importance of timely communication to plan meetings, strategize, coordinate task completion or problems, and produce deliverables. Team communication is predominantly via email and in person during weekly project meetings. The team has set up centralized file storage and document sharing through a Google Drive folder and Google docs. Common meeting times may be arranged via Doodle poll.

As tasks or sub-tasks are initiated, the task leads track progress and provide reminders as needed, based upon the internal project schedule. Weekly meetings include informal task status reporting and discussion about any concerns or unanticipated schedule-related or other complications. Back-up team members will be designated if needed, to assist with task completion.

Potential Project Support Needs

The project team will be developing a list of data gaps or expertise gaps in the near future. It is expected that contacts and alliances of faculty and other stakeholders will assist the team in our outreach efforts. We also expect that we will gain a more complete understanding of the project environment and complexities as we begin to connect with our stakeholders. We may seek additional support with the creation or construction of the photo mural display, since our group lacks expertise in this area.

DURATION & TIMELINE

Implementation Steps

Stakeholder Outreach

During the initial stages of the project, we will reach out to Stakeholders in the Town of Alta and the greater LCC area to gauge interest in the overall project scope and collect feedback on implementation details. We will discuss possible installations of the photo mural display with relevant stakeholders and we will additionally use these lines of communication to broaden the reach of the Photovoice survey. Relevant stakeholders (and points of contact) include: Alta Community Enrichment, Alta Ski Area/Alta Environmental Center (Beth Yetter), Alta Historical Society, Friends of Alta (Kyle Maynard), Snowbird Resort (Hilary Arens), and the Town of Alta (Chris Cawley).

PhotoVoice Survey

The Photovoice survey will be distributed to participants through outreach to stakeholders in the community in addition to individual interactions with community members through two field days in LCC. We aim to reach 1) residents of the Town of Alta, 2) employees who work in LCC, and 3) recreational visitors (either local to the Salt Lake City metro area or elsewhere). Participants will be asked to respond to three open-ended questions with 1-3 photos, with the option to include a few words or a sentence about the photos. The survey will be distributed digitally to avoid paper waste and

we will provide a group email address for participants to submit responses. A copy of the survey can be found in the supplemental material section.

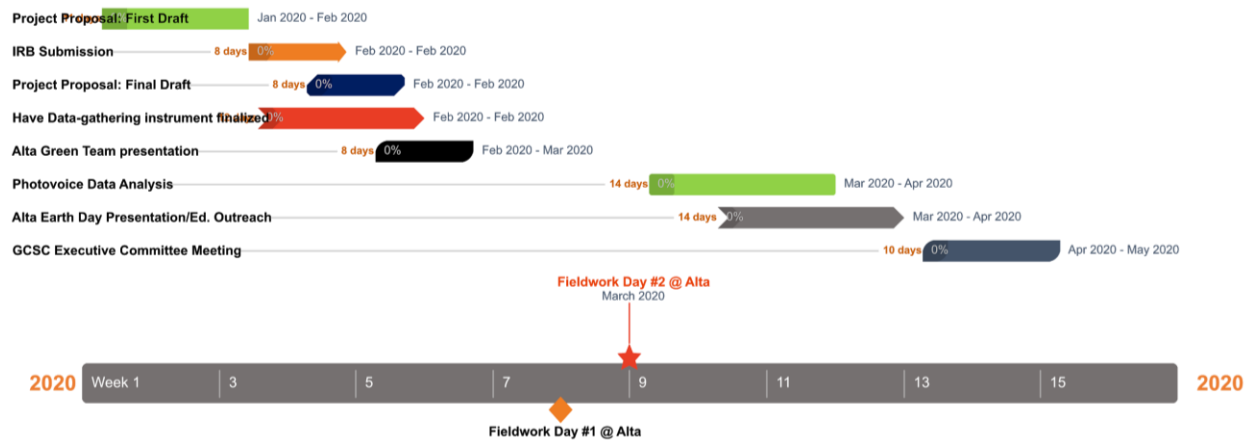
Prior to initiation of the survey, we will obtain approval through the IRB at the University of Utah. Although we do not have plans to publish research with the results of the survey, IRB approval will not limit the use of results in the future.

Data Analysis and Photo Mural Display

Upon completion of the Photovoice survey, we will analyze the photos and text pertaining to each question to identify the major themes that are represented by participant responses. We will use basic statistical methods to quantify the results based on these themes. In conjunction with this analysis we will combine some or all of the photos into a visually appealing photo mural display. Depending on the results obtained, we may also include text excerpts from the survey and statistical information relating to the identified themes in the photo mural. Thus far, we have pursued several standalone, portable display options for the photo mural. We intend to make the display portable so that it can be displayed in multiple locations over time.

Key Dates & Checkpoints

The Gantt chart shown below documents major deadlines for project completion.



V. MONITORING & EVALUATION

RISKS AND ASSUMPTIONS |

We are seeking a waiver of informed consent through the IRB at the University of Utah for participant involvement because the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context. Based on preliminary discussions with individuals on the IRB, we anticipate that our waiver should be approved within 1-2 week(s) of submission. If however, approval requires more time than expected, our project may be delayed. We will make accommodations accordingly during the early stages of the project.

An additional risk of our project is a lack of participation in the Photovoice survey. Our main results and deliverables are contingent upon an ample number of participants (at least 20-30) from varying backgrounds. The inability to collect enough survey data will inhibit our final product. However, we will work diligently to gain as much participation as possible and will work to make the survey as simple as possible to enhance the willingness of individuals to complete the survey. Through our initial stakeholder communications, we expect to gain a reasonable indication of level of interest and potentially of participation.

MONITORING AND SUSTAINABILITY |

Studies at a later date may measure the progress and potential effects of the present project. We do not expect this project to require additional labor or funding from the participants and various stakeholders of LCC. The Photovoice thematic analysis will be made available for interested parties. Digital excerpts of the photo mural display will be available via the University of Utah Global Change and Sustainability Center's student projects page. Ultimately, this project could serve as a pilot project with the hope that interests from groups in the area would find value in continuing this type of visual analysis. Photovoice is an adaptable format that could be implemented seasonally with various themes of interest. Photovoice can be used to spotlight both strengths and concerns that a community holds through their lived experiences and interactions with the natural environment. This project could potentially serve as an educational tool for children and adults alike.

VI. BUDGET & FINANCIAL PLAN

BUDGET |

The draft project budget is presented below.

6 round trips to Alta (gas)/@ 30 miles one-way, \$\$.575/mi (field work, data-gathering)	\$ 207.00
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1 round trip to Alta to present proposal	\$ 34.50
2 - 30 by 40 acrylic or metal photo displays	\$420.00
photo mural	\$750.00
portable gazebo shelter	\$200.00
PhotoVoice question cards/instructions	\$ 25.00
Miscellaneous - paper copies, supplies	\$ 10.00
TOTAL	\$1646.50

FINANCING PLAN |

A potential funding source is the ACE Grant program through Alta Community Enrichment center. The grants award \$1000-\$1500 each and are dispersed on April 1st each year with an application deadline of March 1st. The projects include but are not limited to “fine arts, performing arts, crafts, visual arts, literary arts, music, etc.” They are given to “Little Cottonwood community members”, but “a community member is someone who lives, works or plays in LCC” (<https://www.altaarts.org/our-grants>). Contacts and other sources for potential funding will be more fully investigated in the near future.

VII. PROJECT DELIVERABLES

DEFINITION|

Project deliverables are typically either physical products or documented ideas or may be concepts such as influence which are in some way measurable. A project deliverable is the driver for an intentionally focused effort that usually has a defined scope, schedule, and budget.

EXPECTATION|

The major deliverable for this project is a photo mural display to be shown at Alta’s Earth Day as a way of presenting our results and conducting community outreach to promote the continuation of similar projects.

GCSC EXECUTIVE MEETING & GCSC WEB CONTENT|

At this time, the project delivery of results to the GCSC Executive Committee Meeting on May 4th, 2020 is expected to be provided by more than one team member; specific presenters are yet to be determined. The project team will also determine who will take the lead in preparing and submitting GCSC Website Content.

VIII. SUPPLEMENTAL INFORMATION: PROJECT DATA, CHARTS, AND INFOGRAPHICS

Example survey

Hello,
Thank you for taking interest in our project!

Our group's area of interest is **growth and usage** with respect to the local LCC ecosystem. We have an interest in using a contemporary, imaged-based qualitative research method. The method is called **Photovoice**, and it's an ethnographic method used as a means to have participants (yourself) take an active role in analyzing what you see to be strengths and issues in the area broadly regarding growth and usage. Photovoice allows you to create a narrative with pictures that you decide to take. We will create a report identifying the major themes that emerge from this data. Our project aims to create a photo mural that will be shared with stakeholders at the 2020 Alta Earth Day event showcasing your input.

The Photovoice approach allows participants to elaborate on their everyday experiences through the use of photographs. We ask you to take 1-3 pictures guided by these three prompts:

- 1) What do you value most about/in LCC?
- 2) What do you worry might change in LCC?
- 3) What does growth in the LCC look like to you?

In addition to sharing the photographs, we would like for you to elaborate/think through what these images mean to you using the SHOWeD framework (Wang 1999). This framework asks you to address the following while you review your selected images. Along with submitting your images please include at least one word, at most one sentence):

- 1) What do you **See** here?
- 2) What is really **Happening** here?
- 3) How does this relate to **Our** lives?
- 4) **Why** does this situation, concern or strength **Exist**?
- 5) What can we **Do** about it?

Please send your images and accompanying reflections to (photovoiceLCC2020@gmail.com)

Thank you for participating!

If you know of anyone who might be interested in participating in this project we would appreciate you forwarding our invitation to be part of this project.

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Definitions & Abbreviations

EIS - Environmental Impact Statement

LCC - Little Cottonwood Canyon

UDOT - Utah Department of Transportation

IRB - Institutional Review Board