The Climate Clock Initiative:

Interaction and Network Assessment (INA)

A Project Report

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Loan Y. Luu

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THE CLIMATE CLOCK INITIATIVE:

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Loan Y. Luu

APPROVED FOR THE DEPARTMENT OF ANTHROPOLOGY

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Dr. Charles Darrah, Department of Anthropology Date

_____5/11/2012_____

Dr. Nathalie Ortar, Date
École Nationale des Travaux Publics de l'État, France

_____

Dr. Ninian Stein, Department of Anthropology Date

ABSTRACT

The Climate Clock Initiative is an initiative to build a “Climate Clock,” a public landmark, that uses art and technology to address climate change over the next one hundred years in the Silicon Valley by educating and engaging local and global communities. This public landmark is slated to be built in the city of San Jose. The San Jose State University Department of Anthropology partnered with the designers of the Climate Clock Initiative to examine how they can design a Climate Clock that encourages people to take environmental action and participate in the current climate change discourse. This report documents an applied anthropological study conducted to help inform the design of the Climate Clock. The study outlines and examines the potential impacts that the Climate Clock may have in the Silicon Valley and on a global level. In addition, future design possibilities are discussed based on the findings of the study.

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I am very fortunate to have family, friends, and colleagues who have supported me in many different ways throughout the project. Their assistance have been invaluable. Without their help, I would not have been able to finish the project on time. Finally, I would like to thank Bertrand Devort for helping me realize my potential. Thank you for your support.

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City of San Jose

Settled by the Spanish in the 1770s, San Jose started out as one of the several San Franciscan mission settlements (Brockway 1977). Over the next hundreds of years, the city rapidly grew from pueblos to orchards to electronics (Brockway 1997; Muller 1988). In the late 1800s, vineyards and orchards flourished in San Jose. Fruit production was at an all time high. By the 1950s, the city was know as the Valley of Heart's Delight (Muller 1988). In the 1980s, the city shifted from fruit production to electronic production. Santa Clara Valley came to be known as Silicon Valley, and San Jose named itself the capital of Silicon Valley. Since then, the birth and growth of computer and internet technology have fueled the economic growth in the valley and have turned it into an internationally renown place for high-technology innovation. As of 2009, San Jose has $5.286 billion in capital assets (land, infrastructure, buildings, vehicles, equipment, and other improvements) (San Jose Comprehensive Annual Fiscal Report 2009). Its population is well over 900,000, with 36.9 percent of the population being foreign born (Census Bureau 2011). Currently, San Jose is the third largest city in California and the tenth largest in the United States.

The Climate Clock Initiative

In 2006, the city of San Jose, 1stACT Silicon Valley, Montalvo Arts Center, the San Jose Redevelopment Agency, San Jose State University, and ZER01 developed the Climate Clock Initiative to use technology and art to address climate change. This initiative proposes to build a "Climate Clock" near

Downtown San Jose's Diridon Station. The Climate Clock will be a public art landmark that gathers climate change data and effectively translates it into more digestible forms for the public (Climate Clock 2011). Ultimately, the goal of the Climate Clock is to educate and engage the local and global community about climate change over the next one hundred years. Education on climate change refers to imparting easily understandable knowledge of climate change to people who interact with the Climate Clock, while engagement is a reference to civic engagement that encourages people to take personal and group action to address climate change issues concerning the Silicon Valley region and the world.

Since the inception of the Climate Clock Initiative, San Jose State University, the City of San Jose, Montalvo Arts Center, and Zer01 have sent out an international request for design proposals. Of the forty-seven teams that submitted their designs, three finalists remained to prepare for a final proposal to the city. The three teams finalized their designs and submitted their final design proposals at beginning of 2012. Of the three, one team, the Organograph Team, partnered with the San Jose State University Department of Anthropology to conduct social research to help inform the design of their proposal.

The Organograph Team

Members of the Organograph Team are Chico MacMutrie, Bill Washabaugh, and Geo Homsy. MacMutrie is the Artistic Director of Amorphic

Robot Works (ARW), a collective he founded in 1991 that consists of engineers and artists who are devoted to the study and creation of movement through anthropomorphic and abstract robotic forms (Montalvo Arts Center 2012). Washabaugh is an aerospace engineer, designer, roboticist, builder, and musician. Homsy is a computer and software architect who has an in-depth understanding of biology, physics, and robotics (Organograph 2012). The three have worked together for many years in ARW. One of the projects that came from this collective is the Totemobile, a kinetic monument constructed to represent the iconic 1965 Citroen. This life-size representation of the Citroen morphs into an 18-meter tall abstract totem pole that blooms with light in the form of organically shaped inflatable sculptures (Amorphicroboticworks 2012). The Totemobile was displayed in Citroen's flagship showroom in Paris in 2007.

The Organograph (2011)

In early 2011, Dr. Chuck Darrah, and Dr. Nathalie Ortar, and I met with the Organograph Team during their residency at the Montalvo Arts Center in Saratoga, California. During their residency, we met several times to discuss their proposal. At the time, their design process included three key elements: the Organograph monument, the Time Trail Garden, and the Seed to Plant Program.

Similar to the Totemobile, the team proposes to create a 75-foot kinetic monument called the Organograph for the Climate Clock Initiative. The Organograph is an iconic artwork that illustrates and documents earth's carbon

cycle from the beginning of the fossil fuel era (1910) and onwards for the next 100 years. This kinetic piece mimics a flower bud. The monument will slowly open up and “blossom” throughout the day as it turns 360 degrees. In addition to its rotation, the structure will travel along a mechanic path. This path will take the monument one hundred years to move from start to end, thus marking a century of sustainable development that will have started when the monument is built.

The kinetic monument and its century long mechanized path will be situated within a garden that will be known as the Time Trail Garden. This Time Trail Garden will grow colorful plants that visually represent the amount of CO2 emission in the atmosphere throughout history. Blue flowering plants represent a time of less carbon emissions in the atmosphere, while deep red plants will be grown to represent hazardous amounts of carbon emissions. The garden will document daily carbon emissions from the Industrial Revolution to 100 years in the future from when the monument will be built.

As a means to elicit community involvement with the Organograph, the Organograph Team proposes to develop a Seed to Plant Program. This program will involve students cultivating the plants that will be grown in the Time Trail Garden. Each day, one of these plants germinating in an incubation pod within the monument will be released from the structure and planted into the Time Trail Garden.

As the Organograph team continued to refine its design proposal for the Climate Clock Initiative, one of the challenges that the team faced was connecting Silicon Valley residents' behaviors and lifestyles to the Organograph. For this reason, the Department of Anthropology proposed to carry out an "Interaction and Network Assessment" (INA). Inspired by social impact assessment's (SIA) systematic framework and its focus on profiling social impacts on various levels, the INA would identify possible interactions that the Organograph can support and explore how these interactions can be related to better understanding climate change. By emphasizing both the identification and exploration of interactions within various communities in the valley, the project would explore different social interactions and social networks in the region to help the Organograph better understand how to engage the community and develop a design that best engages a wider public. The INA does not directly address the goals of the Climate Clock Initiative. Rather, the proposed INA is designed to address the Organograph Team's goal to involve residents of the Silicon Valley in the team's development of the Organograph for the Climate Clock Initiative and understand how the Organograph can foster local and global engagement to address climate change.

The Project

Social Impact Assessment (SIA)

Social impact assessment is a systematic assessment that identifies, analyzes, and evaluates social impacts that may occur on various levels as a result of a project (Goldman and Baum 2000). These social impacts include the benefits and consequences experienced by the different communities in which the proposed project is embedded in. By revealing potential social impacts, the project leaders can address any transitory effects, and anticipate and prepare for any long-term effects. There are three phases in conducting a successful SIA, and they are (1) screening, (2) scoping, and (3) assessment (Goldman and Baum 2000). The screening phase involves examining legal frameworks in which a proposed project must comply with and whether other assessments (e.g. environmental impact assessment) are necessary (Goldman and Baum 2000; Whimp 2000; Simpson 2000). The scoping phase defines the scope of the study. According to Branch and Ross (2000: 95), “scoping serves disclosure, problem definition, and planning functions for the social assessment and overall impact assessment process.” Lastly, the assessment phase is the examination of impacts, alternatives, and how these factors can be dealt with throughout space and time (Goldman and Baum 2000).

Elements from the scoping phase and the assessment phase were adopted into the interaction and network assessment to (1) holistically evaluate the impacts of the Organograph, (2) structure the INA, and (3) create a participatory process within the INA in which residents of the Silicon Valley take part in the design process of the Climate Clock Initiative.

Identifying Impacts

When conducting a SIA, it is important to consider the range of possible impacts from population changes (macro) to individual/community changes (micro) (Western and Lynch 2000). As part of the preliminary research used to inform the INA, various impacts caused by the construction of the Organograph were mapped out to help the Organograph Team determine the final design. A matrix loosely based on matrices outlined by Western and Lynch (2000) and Simpson (2000) was used in the INA to identify different levels of impacts, and the adaptability and endurance of these impacts in regards to the construction of the Organograph. Unique impacts refer to how the construction of the Organograph can make an impact within specific local communities. Local communities are embedded in larger contexts with impacts that may directly or indirectly affect them. These larger contextual impacts are considered as diverse impacts. Adaptability/endurance refers to how the Organograph can adapt over time in relation to the four fields.

Table 1. Impacts Matrix

	Immigrant Communities	Generational Shifts	Cycling of People	Reinvention
Unique Impact				
Diverse Impact				
Adaptability/ Endurance				

Prior to meeting with the Organograph Team, Dr. Darrah, Dr. Ortar, and I had met with another finalist team called the Wired Wilderness. Over the course of several discussions with the Wired Wilderness Team, we began to develop ideas regarding how the Climate Clock can touch the lives of a couple of different communities. First, the idea of working with children emerged from our discussions with the Wired Wilderness Team, because children are at a stage in their lives where compulsory education is required of them. During their childhood, they are learning about many different subjects, such as history and science, at school to help them develop different ways to perceive and comprehend the world around them. Thus, if the Climate Clock create ways to be part this learning stage of their lives, then it will have the opportunity to educate children on different climate change models, which will help them comprehend and react to the environment around them. In addition, forming habits can take a very long time. Even when people consciously try to develop habits by performing an activity daily, it can take them anywhere between a couple weeks to over half a year to develop a habit, and the time to develop a

habit highly varies among individuals (Lally et al. 2010). Since K-12 education is required by the government, there is a consistent learning environment spanning over many years that the Climate Clock can take an advantage of to help children form deep-rooted environmental habits. Reaching out to children really gives the Climate Clock an opportunity to teach children how to use environmental models to understand the world and to form environmental habits.

Another idea that came out of the discussions with the Wired Wilderness Team is to engage with elderly people. According to the US Census, the 65 and older population has been and will be growing (US Census 2011). Thus, it is important to examine how climate change will affect this population. In addition, we discussed how it would be insightful to find out what kinds environment the older generations would like to leave behind to the youth. Forming this connection between the elderly and the youth can bring families, which includes adults, to the Climate Clock. As a result, all generations of the Silicon Valley can become involved with the Climate Clock.

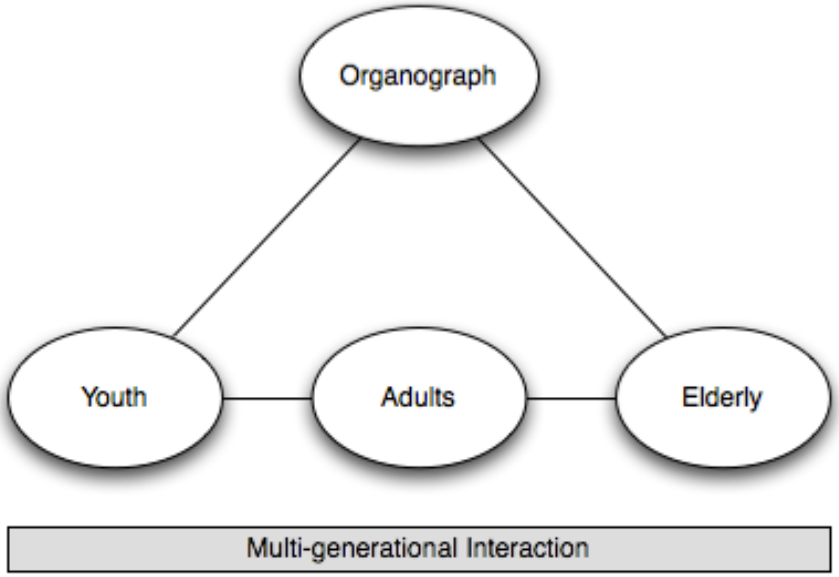

Figure 1. Multi-general Interaction Diagram

When the Wild Wilderness Team left their residency at the Montalvo Arts Center, these general ideas pertaining to the Climate Clock Initiative were further discussed with the Organograph Team during their residency. From the meetings and discussions that the Organograph Team had with Dr. Darrah, Dr. Ortar, and me, several more characteristics of the Silicon Valley became of interest. Below is a list of different characteristics of San Jose and the larger Bay Area that emerge from our discussions. These characteristics involve art, technology, and sustainability on various levels from the local to the global. Moreover, many of these characteristics deal with different notions of time, such as generational life phases and the temporality of foreign workers.

1. Technological Community

In various ways, Silicon Valley is still considered a highly technological and innovative place. Even in the Great Recession, there is an increase in patents

being granted in the Silicon Valley (9%). Thirty-eight percent of the total patents are related to computers and data processing and information storage. Fifty-three percent of the state's venture capital (VC) investment goes to Silicon Valley. The software industry attracts the largest share of VC investment (Index of Silicon Valley 2011). Due to the nature of the Climate Clock Project, looking at attitudes towards innovation and technology can give the Organograph Team ideas on how to embed the Organograph into existing and developing communities.

2. Growing sense of the Bay Area as the place to be for green technology

There is a growing sense that Bay Area is the place for sustainable technology because of the area's history in technological innovation. According to the San Francisco Center for Economic Development (SFCED), venture capital firms have invested about $20 billion in green technology start-ups in the Bay Area for the past five years (SFCED 2012). The investment in green technology will mostly continue to grow as environmental regulations and concerns emerge and become more prominent in people's lives. By studying this shift towards green technology, the Organograph will be able to put itself in the forefront of the movement and direct the future development of sustainable values and practices.

3. Art Community

When people think of Silicon Valley, their very first impression may most likely be related to silicon or technology because of the valley's name. Thus, a

flourishing art community is not something they would first identify with the valley. However, there are many art communities in the area; some of them primarily focus on the blending of the Bay Area's technology with art. Such communities and organizations include 1stAct Silicon Valley, Arts Council Silicon Valley, and the San Jose Multicultural Artists Guild. Through an extensive profiling of the art communities in the Bay Area, the Organograph Team can use the information to make the Organograph the place that connects these individual communities to build a larger artistic network.

4. Northern California/Southern California

Californians often times distinguish themselves as either being from Northern California or Southern California. This dichotomy produces some popular stereotypes that are nonetheless relevant. Where Northern California may be considered more down to earth, natural, spiritual, and a place where tree hugging and pot smoking go hand in hand, Southern California is characterized as place of sunny beaches, Hollywood beauties, and glitz.

Although they are stereotypes, the difference between "NorCal" and "SoCal" gets at people's perceived values. Most importantly, it offers a very compelling starting point for conversations about how people identify themselves in and with the Bay Area.

5. The Presentation of Being "Natural"

Since the Climate Clock is about sustainability, the Orgranograph team may want to develop a deeper understanding of the relationships between

community and nature in the Silicon Valley. In the 1980s, California was associated with the spiritual movement known as New Ageism. Now, the valley is rapidly investing in green start-up technology. The idea of sustainability in the valley has changed and will continue to change over the next one hundred years. The Organograph Team can use the information on how the concept of sustainability has developed and transformed throughout the valley's history to help them understand what the idea of nature has encompassed and will encompass in valley. For example, as a result of New Ageism, spirituality and holism were salient to how people interpret sustainability in the past, but it may have transformed into an underlying value found in the valley that is currently supporting the growth of green start-ups. Tracing the birth and transformation of sustainability in the valley will help the Organograph Team understand how sustainability is social constructed and how it may transform in the future.

6. Reinvention

The concept of reinvention is integral to the Climate Clock. Due to the 100-year timeline that the city has proposed for the Climate Clock, there exists the issue of the clock needing to maintain its relevance in the future. For this reason, the Organograph Team must explore the different adaptive mechanisms that can be implemented in the Organograph. In order to develop adaptive mechanisms that fit with the culture of Silicon Valley, the team can look at the area's sociocultural adaptive processes. Obviously, these adaptive processes will change, but identifying the patterns of these processes will allow

the team to incorporate these patterns into their adaptive mechanisms, which will ensure that the Organograph will encounter less adaptation problems.

7. Immigrant Communities

In San Jose, 37.8 percent of the population (964,695) are foreign born. US Census Bureau (2011) profiled the area, and 30 percent or more of the people identify themselves as White, Asian, or Hispanics. The diversity and the large number of first and second generation Americans make Silicon Valley a place where different cultural practices coalesce. Understanding the different cultural values and practices relating to sustainability, art, technology, and education can help create more locally specific programs and encourage civic engagement. The Organograph Team can explore how immigrant communities can work on themselves by working with the community. Because immigrants in Silicon Valley include people at very different socioeconomic and educational levels, incorporating social class into understanding the community context is equally important.

8. Generational Shifts

Compared to the nation, San Jose has fewer elderly people than the nation's average (13%). About ten percent of the San Jose population is 65 and older (US Census Bureau 2011). In past studies conducted by the department, we have found that the elderly are increasingly moving away from the Silicon Valley due to the high cost of living in the area. This facilitates (1) new family patterns and (2) the cycling of people, which will be discussed in further detail

later. New family patterns include the dispersion of grandparents, parents, and children and how these different generations negotiate with domestic migration and the lack of close family networks.

By looking at generational shifts and how different generations identify their place in the Silicon Valley, the Organograph Team will be able engage different age groups in the area accordingly. Moreover, it will allow the Organograph to anticipate for the amount of engagement that the Climate Clock can expect.

9. Cycling of People

According to the Index of Silicon Valley (2011), the growth of Silicon Valley is driven by foreign immigration. In the last decade, Silicon Valley has been characterized by large foreign in-flows and significant domestic migration. The Net Foreign Immigration was up by 3 percent in 2010, while Net Domestic Migration increased by 137 percent.

Silicon Valley is a very dynamic place. Just like looking at generational shifts, understanding the cycling of people will let the Organograph Team to incorporate this dynamic component into the Climate Clock. This will ultimately increase the flexibility of the Organograph. In addition, studying this cycle of foreign and domestic migration will allow the Organograph to create a link from the local to the global. This opens the door for transnational ideas where the team can examine how the Organograph can plant “seeds,” tangible or

intangible elements related to climate change, in other countries and thereby transcend regional and national boundaries.

The Organograph Team was already working on developing youth programs, and thus, they decided that they did not need the INA to focus in that area. Based on further discussions, the Organograph Team selected four domains that the INA should focus on: immigrant communities, generational shifts, cycling of people, and reinvention. It is important to note that the four domains were selected to sensitize the team to the region. The team picked these domains to work on, because they felt that the Organograph can best incorporate these findings into their design. Ultimately, these four domains are inextricably tied to the other domains. Examining the four domains in the INA led the research to touch on the other areas of interests as well. For this reason, it must be clearly stated that the four domains are only selected as the primary focus of the assessment, but they are not isolated from the other the domains of interests. The assessment did not just examine four specific domains. Rather, it used them as a starting point to help study the other domains and create a more holistic understanding of the values and behaviors in the valley.

Scoping and Structuring the Research

Scoping is perhaps the most important step of the SIA, because it frames the problem and defines the assessment process that will be undertaken. Two

key steps that scoping involves are (1) clarifying the purpose of the assessment and (2) performing a preliminary social analysis (Branch and Ross 2000).

Clarifying the purpose of the assessment helped the Organograph Team and I form an objective for the assessment, which is to identify how the Organograph can engage communities in the Silicon Valley and encourage these communities to take positive action towards climate change. Possibilities for global engagement would be examined. Global engagement is implied within this local engagement, because based on secondary research, local communities of the valley consist of many foreign-born people that have global ties. In addition to this indirect connection to global communities, direct connections would be explored. This objective was constantly reiterated in meetings, correspondences, and reports, so that the no one lost sight of the objective throughout the research process.

As part of the research conducted before carrying out the INA, a preliminary social analysis was conducted. The preliminary social analysis for the INA closely resembles that described by Branch and Ross (2000). First, I outlined the characteristics of the proposed project with its potential to cause different social impacts. Second, I identified the various attributes of the social environment that needed to be included in the research process. Third, I gathered information about the potentially affected communities in the valley. These three steps, along with the matrix discussed earlier, helped the Organograph Team decide which communities and social impacts they would

like to focus on in the INA. By focusing on specific communities and social impacts that the team would like to work on, I was able to structure the INA to fit with the time frame and resources available for the research.

Participatory Process

A SIA functions as a mechanism that invites different communities and stakeholders to participate in the development of the project. Negotiating and collaborating with the local communities are pertinent to conducting a successful SIA. Social impact assessment is usually a predicative assessment. When a SIA incorporates capacity building strategies into its assessment, the reliability of its predictions increases, because capacity building strategies facilitate constructive collaboration between the developer and the community, and increase the predicability of the potential impacts that might occur in the future within the target area (Liebow 2000). Since the Organograph Team's mission is to engage with the communities in the Silicon Valley to address climate change, the participatory element that is structured in a SIA is useful for the team to accomplish this goal. First, participation from the public at the beginning of the design process will encourage the public to be more invested in the initiative. Second, one of the unique characteristics of SIAs is that the factors being assessed are altered just by informing the public (Branch et al. 1984). In the case of the Climate Clock and the team's goal to engage the community about climate change, participants will begin to reflect and/or alter their environmental values and behaviors as a result of just participating in the

SIA. Third, conducting a SIA will help create a Climate Clock that best fits the communities' needs. Developing a Climate Clock that does not fit the communities' needs will ultimately discourage civic engagement. Finally, it encourages a more balanced decision making process and makes decision making more accountable (Sinclair and Diduck 2005).

Network Analysis

When examining human behavior, there are disciplines such as economics and psychology that assumes people act as individuals without the consideration of others (Knoke and Kuklinski 1983). This is an atomistic view of people and their actions, and it does not take into account of the contexts in which people act within. Network analysis is a methodology used by social scientists who aims to explain human behaviors within their contexts (Knoke and Kuklinski 1983).

Networks consist of relationships that link people, organizations, and communities together. Network studies are conducted for two purposes: (1) to identify members and patterns of interaction among different types of groups and (2) to study a person and his relationships with other people (Trotter 1999). These relationships and interactions within a network predict and give understanding to individual beliefs, knowledge, and behavior (Knocke and Kulinkski 1983). Networks studies can recruit and maintain intervention populations, create a better understanding of personal social influence on the lives of individuals, enhance the success of behavior interventions, and help

develop a better understanding of barriers of information (Trotter 1999; Roper 1983). In addition, network studies can help conceptualize social, economic, and political structures, which reveal patterns of relations among people (Wasserman and Faust 1994).

Studying Silicon Valley residents' networks and daily interactions allowed me to gain a better understanding of people's environmental behaviors and values in the valley within the contexts of their lives. It has helped me identify some social patterns shared among my participants. With an understanding of peoples' patterned relations and behaviors, a network analysis also helped reveal opportunities in which the Organograph Team can use to enhance their design to better engage communities and influence local environmental behaviors.

As part of the INA, an ego-centered network analysis was conducted, because this form of network analysis describes the contexts of the participants' lives (Trotter 1999) and examines how actions can be influenced and supported by their networks (Wasserman and Faust 1994; Fischer 1982). An ego-centered network analysis examines personal networks defined from the participant's standpoint. The focus is on the individual, or the ego, and all the people (alters) whom the ego identifies as people the ego associates with (Trotter 1999). An ego-centered analysis provided me with the ability to describe the larger contexts of participants' lives. Using an ego-centered network analysis allowed me to gather information beyond the participants'

individual characteristics and behaviors and understand how the participants' surroundings can serve as an influence on their values and behaviors.

Traditionally, network analysis emphasizes the geographical neighborhood, but it has been proposed that researchers conduct network studies on the personal community. Personal community examines a network of ties rather than a local area (Wellman 1982; Wellman and Leighton 1979). By looking at a community as a network of ties, it frees the idea of a community from geographical restrictions. Thus, communities can extend beyond the neighborhood (Wellman 1982). In addition to using an ego-centered network analysis, I applied Wellman's concept of the personal community in my study. The INA did not focus on the relationships that my participants have in the Silicon Valley. Instead, the assessment allowed participants to freely discuss whom they considered as important actors in their networks. As a result, I learned that many of these important actors in the participant's networks are not in the valley. Participants of the valley live in a global community, and they are supported by social ties that spans across the world. This helped me examine how global ties are salient and influential to some of the participant's lives. In addition, using the concept of personal community in a network analysis reminded me to consider relationships on a local and global level. There are participants who moved to the valley from elsewhere, and there are participants who interact with people from very different and faraway places. These kinds of actions, interactions, and relationships creates a flow from the

valley to other parts of the world, and I have to consider this flow when examining entry points where the Organograph can engage local and global communities.

Interaction and Network Analysis

The Interaction and Network Assessment draws from elements of SIA and network analysis, which have been discussed earlier. Primarily, elements of a typical SIA are used as a framework for the INA. These elements provide a structure to identify and explore potential impacts. Components related to network analysis are used to provide a context for people's environmental behaviors in the valley and how potential impacts may influence these behaviors. In addition, network analysis helps pinpoint opportunities to augment or mitigate impacts. In short, the INA uses elements of SIA to identify impacts, and it uses elements of network analysis to provide contexts for these impacts and to identify entry points to affect them. A SIA can describe potential impacts, while a network analysis provides more in-depth background and information to help the Organograph Team affect these impacts. For these reasons, the INA was created to combine elements of SIA and network analysis to develop a comprehensive research process that both explores social impacts and examines how the Organograph can influence people's environmental values and behaviors in ways that will have measurable impacts in the Silicon Valley region.

In addition to adopting principles from SIA and network analysis, the INA incorporates participatory features in its research process. From the very beginning of this research, I have worked with the Oranograph Team to formulate the research plan. It was a constant iterative process where whenever data were gathered and analyses were performed, the results and their implications for the design of the Organograph were communicated to the team members to gain their input. Their responses helped shaped and guide the direction of the INA. This helped me create an INA that was most relevant to their goals for the project.

Aside from having the Organograph Team's participation, the INA sought to have Silicon Valley residents' participation as well. Governments conduct social assessments to fulfill legislative requirements (pre-assessments) or to address an impact caused by the implementation of the intervention (post-assessments) (Western and Lynch 2000). In this particular case, the INA was conducted as a means to start addressing the primary goal of the Organograph Team, which is to educate and engage local and global communities to actively take part in addressing climate change over the next one hundred years. This INA serves as a starting part for this public engagement for the next one hundred years. Participation in the INA allows participants to start reflecting on and negotiating with their environmental values and behaviors. It is intended, as discussed with the Organograph Team in multiple meetings, that engagement

with the public continues after this initial research project so the public's participatory effort will grow and strengthen in the future.

Anthropological Difference

Since the 1970s, researchers have noted that people are living in a world of increasing risks (Goldman and Baum 2000). In the past, societies primarily dealt with natural risks such as storms and famine. In the modern period, people are able to manage these risks with advanced technological and scientific innovations. Although modern societies are able to mitigate these risks, the technological and institutional order imposed on these societies created new kinds risk (Goldman and Baum 2000). Moreover, it is the rapid and intense development of technology and science found in industrial modernization that has created these new risks (Beck 1992). People became less concerned with what nature can do to them and more concerned with what they can do to nature (Beck 1992; Giddens 1999). Nature has become vulnerable to humans and their technology.

Past studies have shown that bridging the gap between environmental values and environmental actions is a daunting task. Many researchers have studied how people perceive these new kinds of natural risks. However, there are few studies that attempt to connect people's environmental values to their behaviors as a consequence of too many factors and problematic assumptions involved (Eiser 2001; Ester et al. 2003; Flynn et al. 2010).

Although such studies are considered rare, anthropologists have worked tirelessly on understanding and connecting people's values and behaviors since the early beginnings of the discipline. Anthropological studies have focused on holistically understanding people's behaviors within their social and physical contexts and how these contexts explain and support these behaviors. Rather than pinpointing and isolating particular factors that influence people's behavior, anthropologists examine these factors in terms of a larger network and how they relate and interact with each other to influence behaviors. Such studies have helped explain and reconcile the differences between what people say and what people do. It is for these reasons that Organograph Team and the Department of Anthropology are working together to take on the task of understanding people's environmental values and behaviors.

The purpose of the INA is not to predict impacts based on an anthropological understanding of people's interactions and networks. Rather, it is to explore the complex relationships between environmental values and actions situated in the Silicon Valley context *and* identify entry points in which the Organograph can use to engage residents to take environmental actions that will lead to positive impacts in the valley. Traditional anthropology has been reticent about using research findings to cause a change in the culture of interest. Anthropologists have always been viewed as a passive observer. However, much of that has changed in the past few decades. Since the 1970s, applied anthropology has taken on momentum (Kedia and van Willigen 2005).

Applied anthropologists now work in various industries to help inform design, influence policy, foster grassroots development, and more. They are adept at conducting empirical research and applying their findings to create strategies and solutions for their clients; applied anthropologists move anthropology beyond the realm of research and into the field of application. Thus, an applied anthropological framework is most fitting for the proposed INA.

Anthropology and Sustainability

As discussed earlier, scholars have expressed concern on connecting environmental values to behavior; there are just too many factors involved. This reason should serve more as a challenge than a discouragement for researchers to connect perceptions and values to behaviors. Many anthropologists have taken on this challenge and have studied human values and behaviors in relations to environmental concerns (Strauss and Orlove 2003; Crate and Nutall 2009; Kempton et al. 1996; Haberman 2006; West and Vasquez-Leon 2008; Blair 2009; Wilk 2009). Studies have examined physical and symbolic factors that contribute to people's environmental values and behaviors. In addition, anthropologists have attempted to reconstruct the past to understand how climate change has affected human history and will affect the future (Hassan 2009; Van de Noort 2011). These anthropological studies attempt to provide a comprehensive and holistic view of how people perceive and interact with the environment.

Through these studies, anthropologists have found that people's environmental values and behaviors are affected by many different factors. Religion, consumption practices, beliefs about the weather, cognitive constructions of time, government policy processes, and other factors contribute to how people take environmental action. These studies not only identify these and other various factors, they also reveal the complex web of relationships between these and other factors that influence people's environmental values and behaviors.

In addition to revealing and connecting these factors, anthropologists have also used their insights to advocate for social change. Their expert knowledge of the local contexts and their relationships with their research communities allow them to work with the locals to develop strategies for change. Anthropologists have made much progress in affecting environmental behaviors by acting as cultural brokers and by creating participatory programs (Button and Peterson 2009; Stuckenberger 2009).

The field of anthropology and sustainability have made great progress in understanding and bridging the gap between environmental values and behaviors. They have also worked to promote community action to address local environmental concerns. As a result, anthropologists have made the discipline develop a rich and unique compendium of studies relating to people and their environment. For this reason, the use of anthropology, especially anthropological studies regarding environmentalism and sustainability, provides

the Organograph Team an advantage in designing a Climate Clock that encourages climate action and civic engagement.

Anthropology and Design

People have attempted to control the environment around them since very beginning of human history (Kingery 2001). In order to do so, humans have developed tools and strategies to manage the world. In earlier societies, there was no separate role for the designer. Rather, everyone designed to some degree in their daily practices. However, as technology and social systems became increasingly complex and designs became more specialized, the role of the professional designer emerged.

Generally, design processes consist of imaging, presenting, and testing (Zeisel 2006). Imaging refers to the mental process of developing a mental picture of a design. Presenting is the active transformation of the image from the mind to a tangible design. This can be a sketch, a model, or some kind of outline. Testing is the process of critically evaluating the design. These three steps of design make up an iterative process. Thus, once testing is done, the design goes through the cycle of imaging, presenting, and testing again. This iterative process continues until the design reaches the realm of acceptable responses (Zeisel 2006).

Anthropologists have studied these design processes in various ways; they have studied product, policy, and service designs. These processes help anthropologists understand what are the purpose and goals people have

attempted to achieve and what are their problem solving and decision making methods. Exploring how goals are set and met and how people choose to go with one specific design trajectory over another can reveal how the ultimate design of a policy, product, or service is influenced by the cultural contexts they are created within.

Anthropologists studying design can cooperate with and help designers in many ways throughout the design process. First, they can help inform currents designers about their design. It is often the case that there exists a temporal problem in design. Designers do not have any tools to anticipate for the changes that may occur between the users and the design (Zeisel 2006). Anthropologists have studied designs ranging from the arrowhead to complex policy programs and how they fit into their cultural contexts. As a result, anthropologists possess the knowledge and tools that can help reveal the different social aspects that may affect design decisions. For this reason, they are adept at helping designers with design programming.

Second, anthropologists can contribute to design review. In a typical design process, designers use information from their design program and from available research to create test designs (Zeisel 2006). These designs are then reviewed for alterations and further improvement. In the design review process, anthropologists can provide designers an in-depth understanding of how users perceive and interact with the test designs. They can study users from an emic and an etic perspective to gain a more comprehensive understanding of the

users' interactions with the design. Thus, anthropologists can help expand the design's criteria of fitness to account for design factors that may have not been considered earlier in the design process.

Finally, anthropologists can help with post-occupancy evaluation (POE). No matter how much designers would like to refine their designs, they ultimately have to create the design and implement it. The iterative process of design must stop at some point. When the design is finally carried out, designers have to reconstruct their design process and evaluate the side effects of their designs (Zeisel 2006). Anthropologists can help designers with POEs, because they have studied how product, policy, and service designs have affected different cultures from around the world throughout history. Anthropologists have also studied these effects on a local and on a global scale. Thus, they can provide a comprehensive evaluation of what happens after a design has been created and implemented.

Anthropologists can provide insights to designers in many ways throughout the design process as described here and more. It is for these reasons that the Organograph Team and the Department of Anthropology developed this partnership to help inform their design proposal.

Methodology

Defining the Population

Silicon Valley is less of a geographical area and more of a technological metaphor used to generally describe the inland coast of the Bay Area (English-

Lueck 2002). Since it is a metaphor, different people have different cognitive maps of Silicon Valley. Generally speaking, Silicon Valley includes San Francisco, Oakland, San Mateo, Redwood City, Menlo Park, Palo Alto, Mountain view, Cupertino, Saratoga, Los Gatos, Sunnyvale, Campbell, Santa Clara, San Jose, Milpitas, Fremont, Hayward, Livermore, Scotts Valley, Santa Cruz, Morgan Hill, and Gilroy (English-Lueck 2002). For this research project, Silicon Valley is defined as a region that includes all the cities mentioned above.

Secondary Research

First, I reviewed widely available aggregated data and reports prepared by city and county government, and regional organizations (e.g. US Census Bureau, Joint Venture Silicon Valley, California Department of Finance, United Way) based on the four domains of interest identified by the Organograph Team. Using these secondary sources, I identified a set of trends or conditions that are generally accepted as posing significant challenges for the future of the region and how they are related to climate change. The patterns were discussed in relation to the possible impacts of building the Organograph (Appendix B).

Second, this information was then discussed in detail with the Organograph Team members in order to determine which communities (e.g. ethnic, professional, generational, etc.) they would like to profile. From this preliminary analysis and discussions, the Organograph Team decided to focus

on profiling networks within (1) the high-technology community, (2) immigrant communities, and (3) the elderly community.

The high-technology community is defined as people who work in the high-technology industry in the Silicon Valley. The Organisation for Economic Co-operation and Development's (OECD) definition of high-technology industry will be used for this research. OECD's definition of high-technology is based on two approaches: the sectoral and the product approach. Both approaches calculate R&D intensities to identify what is high-technology. Sectors that fit into the high-technology include aerospace; computers, office machinery; electronics-communications; and pharmaceuticals. High-technology products include aerospace, computers-office machines, electronics-telecommunications, pharmacy, scientific instruments, electrical machinery, chemistry, non-electrical machinery, and armament (Hatzichronoglou 1997). Thus, anyone working in these high-technology sectors or in companies that produce high-technology products are considered to be part of the high-technology community.

Immigrant communities are defined as people who were born outside of the United States and are currently living in the Silicon Valley. The immigrant communities are further defined according to the ethnic descriptions provided by the California Department of Finance (2011) (White, African American, Asian-Pacific Islander, Hispanic, Asian and Other). These terms were used as a general guideline for the project. According to United Way (2005), Asians

experience the largest population growth in the Silicon Valley, followed by Hispanics. As an emerging trend in the valley, I particularly sought participation from immigrants within the Hispanic and Asian communities.

Finally, members of the elderly community are defined according to the standard retirement age under Social Security, which is 65 years of age (Social Security 2012). I define the elderly community by this national standard, because people at that age can choose to retire and get their Social Security and Medicare benefits. Thus, they are financially and medically secured to some degree as a result of government support. For the study, I only interviewed elderly people who are in good mental and physical health. The judgement is made at my own personal discretion. I made sure to not interview any elderly people who are in a nursing or medical institution. I also made sure that participants could carry casual conversations with me without any difficulties prior to conducting the interview. If they were able to, I then carried on with the interviews.

Field Research

The Climate Clock Initiative and the Organograph Team set deadlines by which the project had to be completed, thereby compressing the initial assessment into something more akin to a rapid assessment (Beebe 1995). Recruitment, research, analysis, and the deliverable ultimately had to be completed in less than four weeks. Between November 19, 2011 and December 3, 2011, twenty participants were recruited for the study. I recruited

them by publicizing the project through my own and others' social networks and by using the snowballing method to recruit more participants. These twenty participants fit one or more of the three research populations that the Organograph Team would like to explore: (1) professionals working in the high-technology industry, (2) immigrants, and (3) elderly people. Other factors such as gender, age, geographic location, and ethnicity were considered as well to ensure a heterogeneous sample.

It is important to note that given the sample size, the data collected are not representative of the research populations. The purpose of the INA is not to collect a data set that is truly representative of the research populations so that the study would produce conclusions that are valid for the whole of each population. Rather, the goal of the study is to help the Organograph sensitize themselves and their design to some of the values and behaviors of the region. This form of sensitization gave the Organograph Team and me the opportunity to gain insight into what is going on in the valley. Moreover, this research is meant to serve as the initial exploratory guide for future studies in refining their research questions and determining the most fitting research methodology for the areas of interests discussed in the paper. For these reasons, this study neither attempted to collect a sample size that is representative of the research populations nor conduct a random sampling process to select potential participants.

I conducted interviews with sample members to explore their social networks, understand who they interact with, why they interact with the people in their networks, where they interact with them, how they interact with them, the conditions affecting their interactions, their visions for an improved region, and actions they and their communities can take to work towards an improved region. Participants were interviewed in a setting of their choice, and the interviews were audio-recorded. The interview was projected to last between 30-60 minutes. However, the actual time that the interviews took range from 15-95 minutes. Some participants were thoroughly involved with the questions asked and provided in-depth answers to the questions.

After completing the interviews, I analyzed the them using qualitative and quantitative methods (Bernard 2006; Gorard 2003) in order to find social patterns and build generalizations about different social networks in the Silicon Valley. The data were then used to develop implications for design (Zeisel 2006), since the Organograph team sought to design social programs that are relevant to the communities in the valley.

Due to the short timeframe of the project, none of the interviews were transcribed. Instead, shortly after the interviews were conducted, I listened to the interviews and filled out contact summary forms for each interview (Miles and Huberman 1994). After completing all the contact summary forms, the forms and interview notes were reviewed once again and coded for recurring themes among the interviews (Bernard 2006). For the study, I also used simple

analyses of frequencies (Gorard 2003) to summarize quantitative figures. These quantitative figures include the number of times social patterns or themes appeared in the participants' interviews. The quantitative data are all presented in frequency formatting because of the sample size of the study. No percentages, graphs, or any visual representations are used, because these have the potential of misrepresenting the data and concealing the real numbers behind the study (Gorard 2003).

The findings from the interviews, the contact summary forms, and the implications for design were presented as a written report to the Organograph Team in mid-December of 2011. The Organograph Team then used the data to inform their designs for the social programs that would be part of their monument. My deliverable was incorporated into the main body of their final proposal, and the complete version of the 56-page report was attached as a supporting document. This was presented to the public and to the stakeholders in February 2012.

Findings

Twenty participants were recruited for the study. Below are maps representing the demographics of the participants.

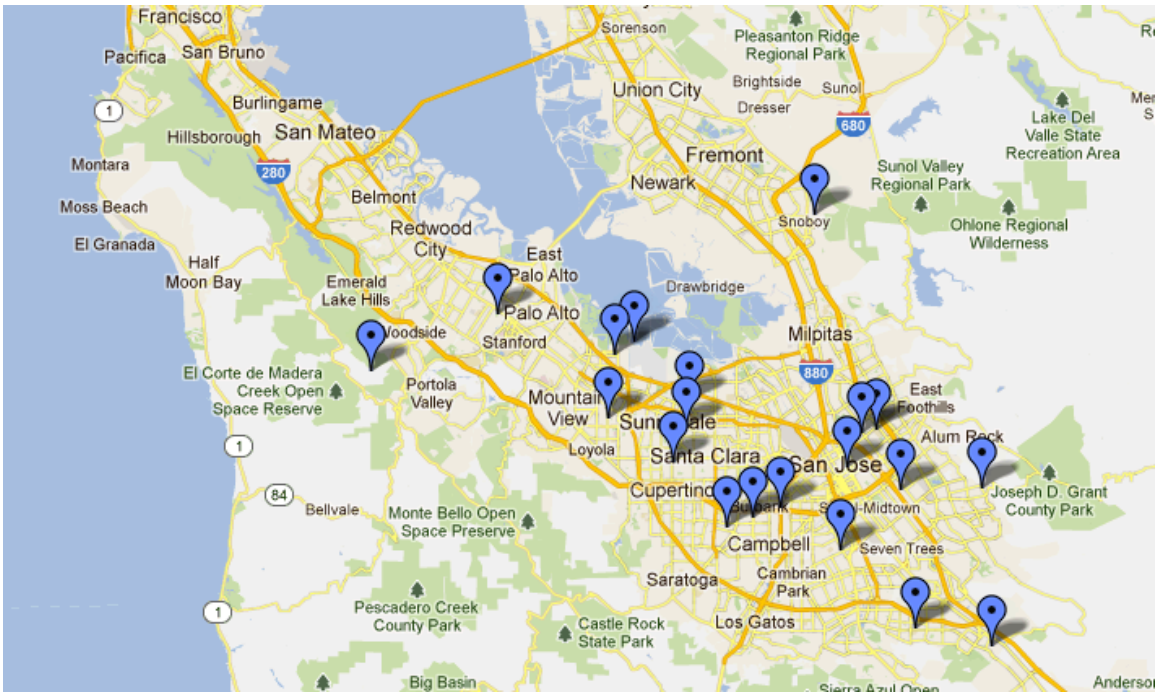

Figure 2. Total Number of Participants in the Silicon Valley

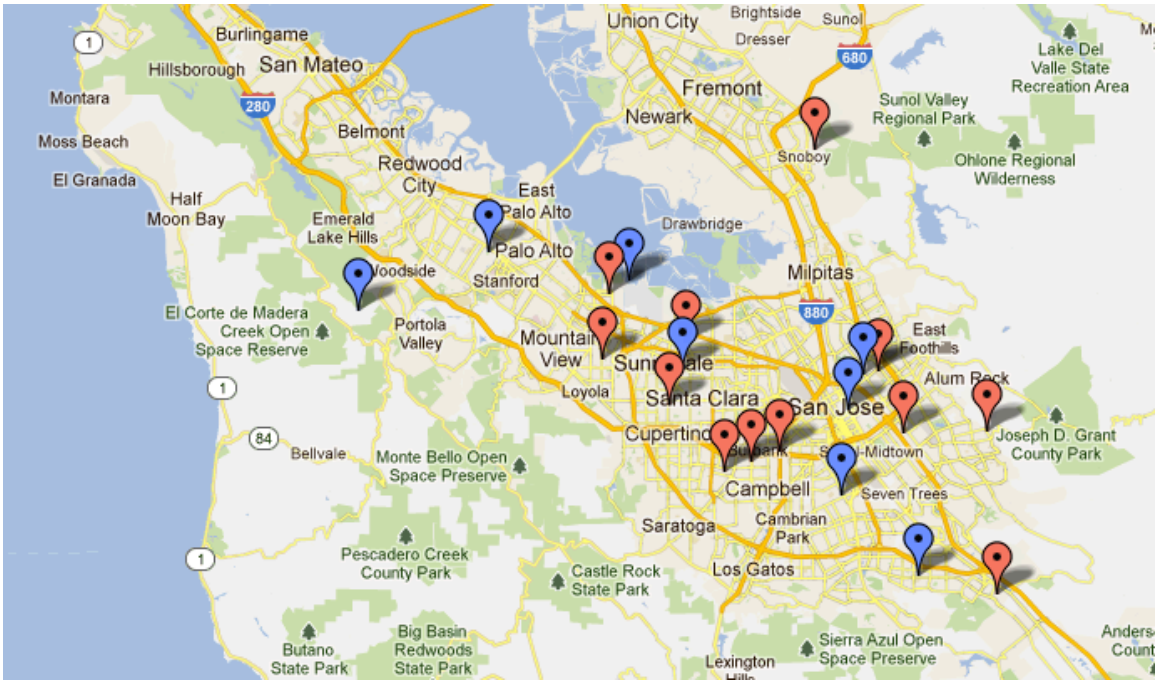

Figure 3. Participants Who Were Born Outside of the U.S. (Red)

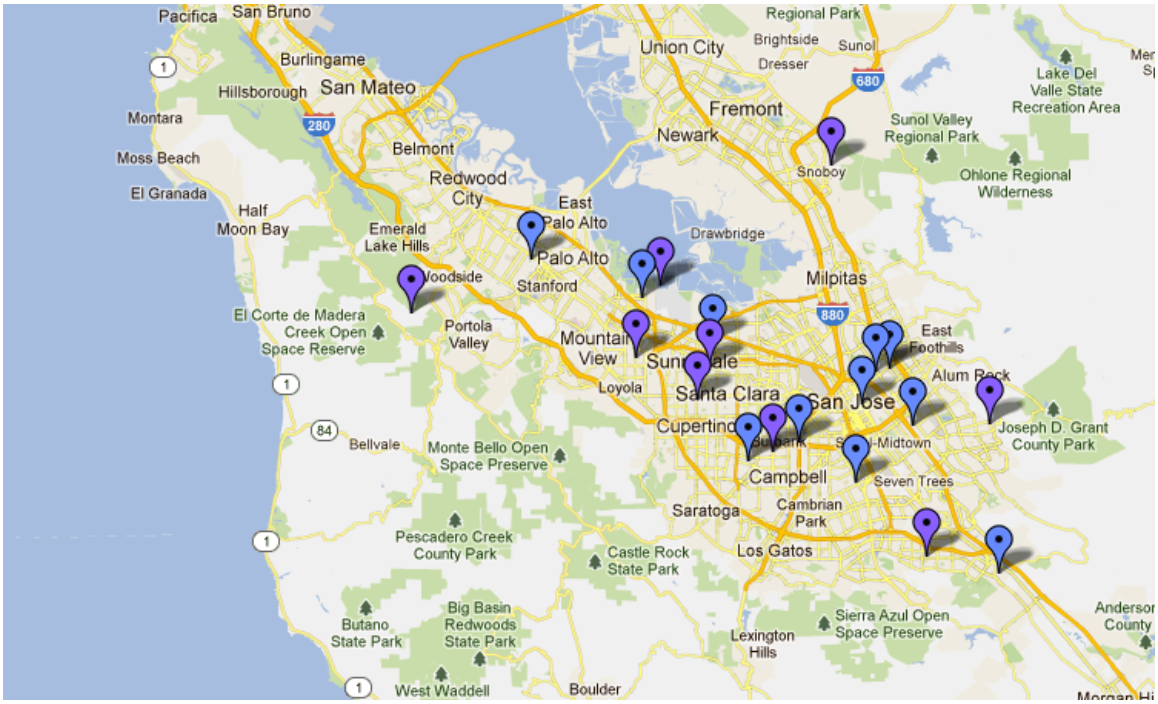

Figure 4. Participants Who Are Professionals Working in the High-Technology Industry (Purple)

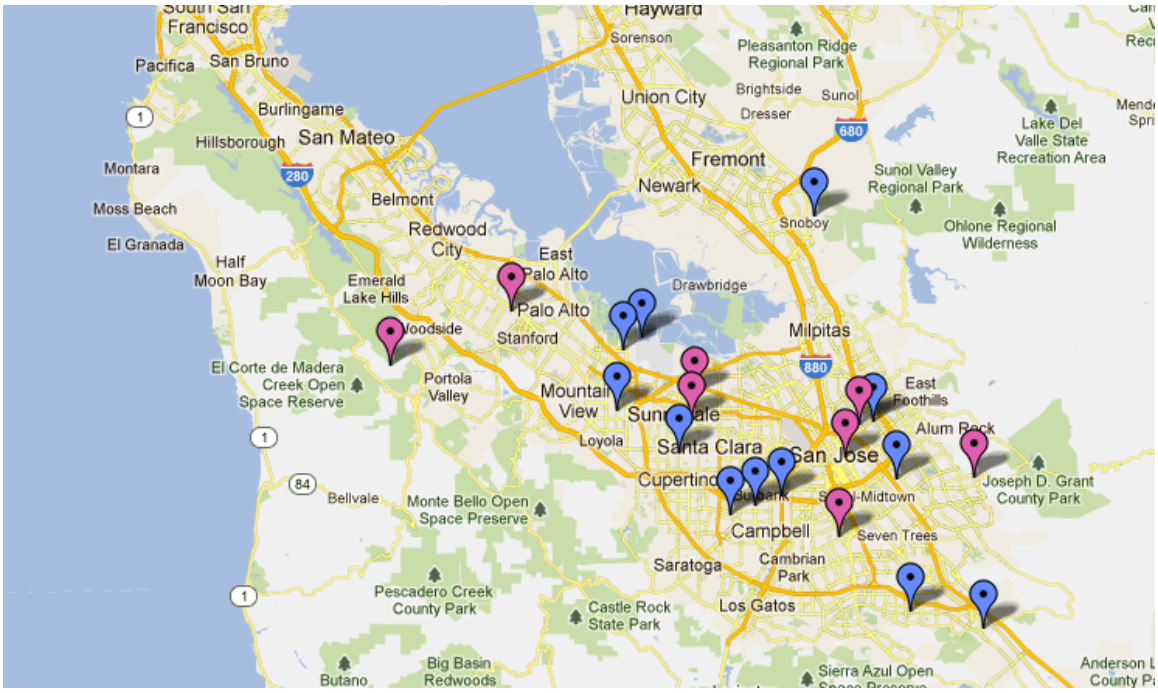

Figure 5. Participants Who Are at Least 65 Years of Age (Pink)

Each participant was interviewed and audio-recorded. The interview asked the participants to describe and talk about the people whom they consider as important in their lives and their different perceptions of the future. From the interviews, several key themes emerged regarding people's social behaviors, environmental concerns and roles, and global connections in the Silicon Valley.

What Do People Do in the Valley?

When asked to describe the people with whom the participants interact and consider as important in their lives, a majority of participants put down their families, friends, and coworkers. Many of the people whom they listed live in the Bay Area or in California. In some cases, families, friends, and coworkers outside of California are also listed, but the participants mainly interact with them online through chat programs or social networking websites.

In general, when the participants get together with their families and friends, their activities mainly revolve around food. They would usually get together between once per week to once per month, and they would either eat at each other's homes or go out and eat. When they go out and eat, participants usually eat at restaurants near where they live or stay within the Silicon Valley. Some participants would go to cities in the periphery of the Silicon Valley, such as San Francisco or Santa Cruz, a couple of times per year to eat with their families and friends. In one particular case, the participant drives to the Sierra Nevada with his family every other week to spend the weekend there as a getaway.

In addition to participating in activities revolving around food, some participants mention going to churches, temples, senior centers, community centers, and shopping centers with the families and friends in their networks. A third of the participants who were born outside of America (4/12) attend religious services and activities quite often at their local churches and temples; the frequency of attendance ranges from everyday to once every week. Participants who are at least 65 years of age often go to senior centers or community centers to participate in activities such as ping-pong tournaments, dances, yoga and music classes, and hands-on activities such as IBM 1401 restoration. These participants often meet at least once per week with their families and friends for these activities.

Aside from families and friends, many participants also list having important interactions with their coworkers. These interactions are usually related to work and business. On occasions, participants would have group lunches with coworkers at work or at a restaurant near their work once per month. In some cases, participants would attend company outings a couple times per year.

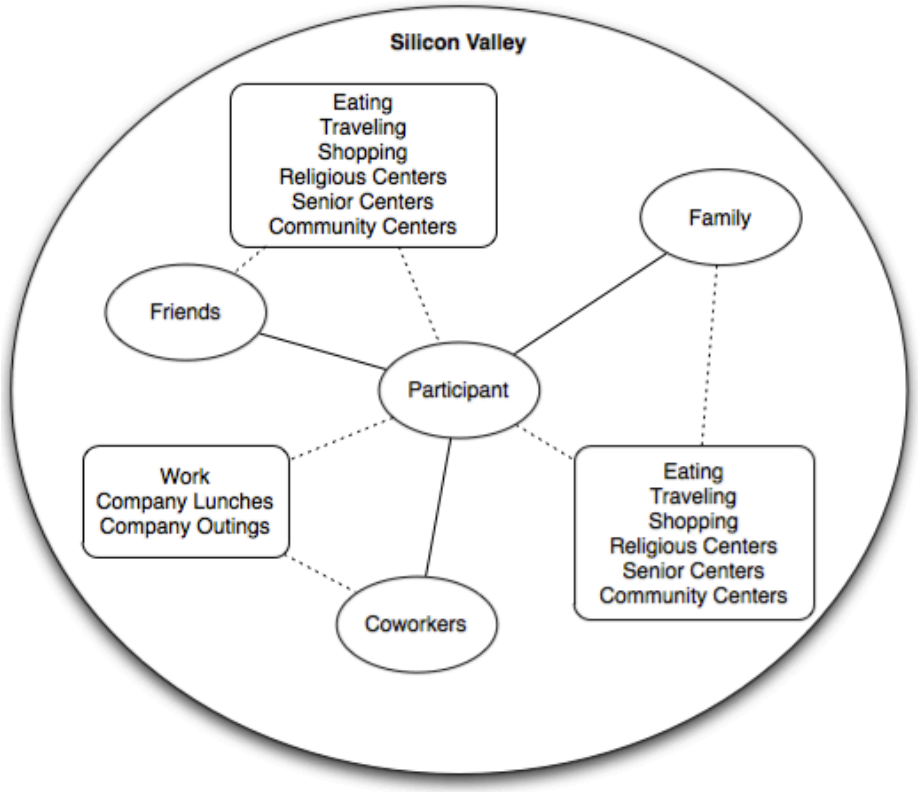

Figure 6. Networks and Interactions Diagram

From the research data gathered, I recommended that the Organograph to:

- Create activities that generate table conversations. Participants primarily interact with the families, friends, and coworkers at the dining table. They converse and share their ideas as they eat. Topics relating to climate change can become one of the regular assortment of topics that they can talk about.
- Develop partnerships and classes with community centers. Many senior citizens participate in activities in their local community centers and senior centers. Transportation may prove to be difficult for senior citizens, so it may

be better for the Organograph to reach out to these seniors than for the seniors to come to the Organograph.

- Indirectly connect to working individuals or create evening activities for working individuals. People in the valley do not usually have traditional 9-5 work hours, and work is an important part of many people's lives in the valley. As a result, the Organograph Team will have to find creative ways to accommodate to people's work schedules if the team wants to engage with the adults in the area. One of these ways is to create evening activities at the Organograph that allow these people with odd work hours to attend.

How Do People Perceive Their Roles in the Environment?

Five most mentioned environmental concerns emerged as participants discuss about the future of Silicon Valley. From the most discussed to the least discussed are (1) congestion/air pollution, (2) fuel consumption, (3) overpopulation, (4) water consumption, and (5) food consumption. Many participants are concerned about the increase in traffic and air pollution in the Silicon Valley in the coming twenty years. This primary concern is connected to their second concern, which is fuel consumption. Although participants are hopeful for better public transit in the future, many feel that they will still be driving their cars. Fuel consumption not only means more air pollution, but also dependency on foreign countries. Participants are concerned with the Silicon Valley being increasingly crowded and in general, with the world becoming overpopulated. This means more consumption of resources, and participants

speak of scarcity and resource sharing as a possible future. The lack of usable water and water disasters are major concerns for participants; participants allude to the possibility of the Silicon Valley flooding or the need for water sharing in the future. Finally, participants discuss the importance of eating locally grown food and developing healthy eating habits. Eating locally grown food is not only good for the environment, but for their health as well. Participants also indicate seeing more community gardens and urban agriculture in the future.

Although all participants express concern about the environment, they also all claim that they are “doing their part” for the environment. “Doing their part” is a vague term, and all participants defined their part in saving the environment differently. In general, participants mention recycling, driving fuel efficient cars, and/or using less plastic. At the same time, they also admit to being less environmental friendly in other parts of their lives. However, they justify that by claiming their energy consuming activities balance out with their energy saving activities, although without substantiating evidence. For example, the very same participant that bicycles to work everyday would drive 300 miles every other weekend to the Sierra Nevada as a weekend getaway. Another participant who had lived in Germany discuss how she would turn off the water when she soaped up for her showers in Germany. After moving to Mountain View, she no longer does that. Her reason to this is because she hears her neighbors taking long showers, and she feels that she, too, is entitled to long showers with uninterrupted water flow. These examples reveal that people are using the

justification that they are already “doing their part” to not accurately assess and calculate the environmental costs of their actions. Participants only factor in some of their actions while neglecting others in their calculations. Understanding what they do or do not include into their calculation and the reasons behind why they make these unclear calculations appear to be a key to narrowing the gap between environmental values and behaviors. One of the possible reasons why people may not make such clear cut calculations is that there is a strong belief that future technology will solve any environmental problems. Half of the participants express confidence in technology solving environmental problems or facilitating environmental actions in the future. Based on these findings, I recommended that the Organograph:

- Incorporate key concerns into the Organograph’s carbon cycle. The five key concerns mentioned by the participants show that climate change is an issue that incorporates many different environmental concerns. Although air pollution is the primary concern, there are other environmental factors that the participants consider pertinent to climate change.
- Explore, define, and support common environmental notions and practices in the valley to help everyone understand his/her part in the environment. Participants show that they do not have a clear calculation of how their actions affect the environment. This means that they do not have a clear idea of their roles in the environment. The Organograph can help people better define their roles by exploring and examining their daily practices.

- Develop a role for the Organograph in which technology cannot replace. There is the belief that future technologies will solve the current and future environmental problems. The Organograph Team should identify the issues on climate change that cannot be solved by technology. Problems such as the extinction of flora and fauna may not be solvable by future technologies. As a result, the Organograph can play a role that technology cannot play in these environmental problems.

Revealing Hidden Connections and Building Social Consciousness

In the interviews, over half of the participants (12/20) express the need to see the connection between their actions and the impacts they have on the environment. One participant suggests that seeing complex connections and processes in simplified formats will help him and others draw the connections between their actions and how they affect the wider community. This will ultimately help build a social consciousness and encourage people to make better environmental decisions.

In addition to connecting to people's actions to the environment, participants discuss the need to see how the environment is connected to other parts of their lives. Primarily, participants refer to how the environment is connected to health and finance. Some participants, especially the elderly participants, consider how the health of the environment will affect their personal health and public health. They also comment how good and affordable healthcare is important to them. In other cases, participants explain how financial

constraints prevent them from making the most environmentally friendly decisions.

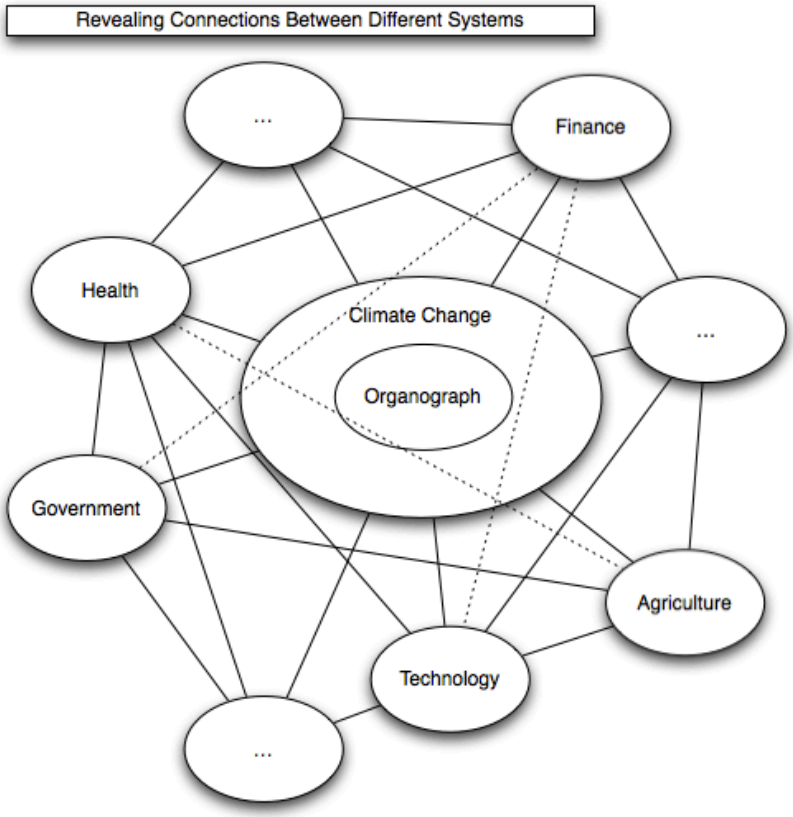

Figure 7. Revealing Hidden Connections Diagram

Over half of the participants state that community engagement and leadership (12/20) and political engagement and leadership (16/20) are crucial to creating a better environment for the future. Entrepreneurship, innovation, political activism, and public health are topics mentioned in relation to community and political engagement. As mentioned before, health is a topic that participants

have expressed as an important connection to the environment. Participants tie the discussion of climate change to personal and public health.

When these topics are discussed, some participants refer to the cyclical nature of human history. To them, humankind goes through ups and downs, and understanding these patterns of cycling through the ups and downs will help them prepare for the future. One high-technology professional mentions the need to learn from the past so that he can use it as a foundation to build his future on. Another retired participant speaks of how she grew up in the hippie years and that made her into a person who cares very much about the environment. She now feels that the new generation in which her son is part of has reverted back to non-environmental friendly practices. In addition, she also discusses how this generation may be into hybrid cars. However, she feels that this trend will revert back to gas inefficient cars, because that is the cycle of car trends she has seen throughout her life. Based on the research data, I recommended that the Organograph:

- Reveal hidden and complex connections between actions and impacts on the environment. In previous discussions with the Organograph Team, the team's goal is to create a simplified model of the carbon cycle to represent climate change. From the interviews, it seems that participants want to see more extensive connections between the environment and the social systems they live in. The Organograph Team may want to explore how the

carbon emissions are connected to other parts of people's lives, especially their health and their finance.

- Complex relationships between actions and impacts should be simplified for easy understanding. Although participants would like to see more connections between the environment and other parts of their lives, creating a complex web with many degrees of connections may make people feel disconnected between their actions and the environments. Thus, the relationships between actions and impacts should be immediate and clear.
- Widen environmental scope to include how environmental health affects other parts of people's lives (e.g. public health and finance). Participants explicitly connect the environment to public health and personal finance. Some participants express how these two factors encourage or inhibit them from taking more environmental action. Addressing environmental concerns in a larger social context of peoples' lives may help the Organograph Team develop more employable strategies that people in the valley can incorporate into their lives.
- Incorporate different historical cycles to help inform people's current decisions and plans. Participants have expressed an interest in the cyclical nature of history. The team should explore how they can use different historical cycles (e.g. innovation, consumption trends, etc.) to inform people's actions.

The Big Picture: What Are People Thinking about on the Global Level?

Throughout the interviews, participants (11/20) refer to environmental problems as a global problem. Participants would discuss how pollution in developing countries such as China and India need to be addressed, because pollution from one area can spread throughout the world. In addition, three participants contrast Silicon Valley to Los Angeles in their perceptions of the future; these participants feel that Silicon Valley may become the next Los Angeles where there are significant air pollution and congestion.

In addition to perceiving environmental concern as a global concern, participants (12/20) can see themselves leaving Silicon Valley in the future. Some participants show interest in leaving the country; others are thinking about moving to less populated and inexpensive cities such as Gilroy. A couple of participants who were not born in America discuss about retiring in their home countries. According to these findings, I suggested that the Organograph:

- Examine the contrast between Northern and Southern Californians to better understand the valley's values. As mentioned in our preliminary research, understanding the dichotomy between "NorCal" and "SoCal" may help reveal the valley's environmental values. This domain should be further explored, since several participants have used this comparison to frame their perceptions of the valley.
- Incorporate global values and practices into the Organograph. Participants have either contemplated on leaving or are actively planning to leave the valley in the future. Silicon Valley attracts many people to come from around

the world. Some stay; others leave. For people who are staying the valley, the Organograph Team should look at how they can incorporate these people's environmental values and practices into the Organograph and into the larger social context of the valley.

- Create a "piece" of the Organograph in which people can bring back to their countries to make the Organograph a global climate clock that addresses climate change. Silicon Valley appears to be a very dynamic place where people move into, out of, and within the Silicon Valley. These flows of people can make it hard for the Organograph to maintain a connection with those who move around a lot, especially those who move out of the valley and to other parts of the world. As a result, the Organograph should think of ways to let people bring a piece of the Organograph with them as a means to maintain a connection with the Organograph and to introduce ideas of climate change to other parts of the world.

Deliverable

These results were given to the Organograph Team in mid-December 2012 in the form of a report (Appendix A). The Organograph Team used the report to inform their final design proposal and included the complete version of my report as a supporting document. As a result, the report became one-third of the team's final proposal, which was submitted in early 2012 to the jury panel for review.

Organograph's Proposal

On February 2, 2012, the Organograph Team completed their proposal for the Climate Clock Initiative. On February 22, 2012, the Organograph Team and the two other teams gave a public presentation on their proposals at Montalvo Arts Center, Saratoga. In addition to the public presentation, the teams also submitted a written proposal that was reviewed by a jury panel. The panel consists of local stakeholders representing 1stACT Silicon Valley, the city of San Jose, Montalvo Arts Center, San Jose State University and ZER01 (Climate Clock 2012). On March 14, 2012, the jury released a public statement announcing that the Organograph Team has been selected for the design of the Climate Clock. The team won a monetary prize and the opportunity to further develop their design. Below is an overview of the winning team's proposal.

The Monument

The primary component of the Organograph Team's proposal is a 75-foot tall and 48-foot wide kinetic monument called the Organograph. The conical monument is shaped like a heliotropic flower made out of steel, brass, glass, and long-life recycled plastic lumber (MacMurtrie et al. 2012). At sunrise, the monument "blooms" by opening up its "Solar Petals" made out of photovoltaic cells and closes back up into a flower bud at sunset. Along with this daily blooming process of the Organograph, the monument also rotates once per day while physically traveling about 3 feet per year along a path made out of submerged rail-like tracks.

Within the monument, there are four levels accessible to visitors. Beneath all four of these levels are gears that drives the clock mechanism (the opening and closing of the petals), the rotation of monument, and the movement of the monument along the rail-like tracks. All the energy used to run these gears come from one small centralized motor (MacMurtrie et. al 2012).

Time Maps

Attached to the clockwork system inside the Organograph are two time maps projected by visual indicators. The first Time Map displays the current time and date. The second Time Map displays a simulated time that runs 1000 times faster than normal time. The simulated time starts at about 100 years in the past in January 2012 and ends 100 years in the future in January 2112. The approximate time it takes to run one full simulation cycle of 200 years is two months. At the completion of each simulation, the clock resets itself and starts a new simulation cycle.

The Simulation

The Organograph Team decided that they would use CO2 emissions as the indicator for climate change. For this reason, they have decided to highlight the carbon cycle in the monument. Corresponding with the simulated Time Map discussed earlier, the Organograph will be running simulations of the Earth's carbon cycle at a speed of 1000x faster than normal time. The simulation conveys the flow of carbon through three primary reservoirs: (1) biosphere, (2) atmosphere, and (3) fossil fuels. The three reservoirs are located below level 1,

level 2, and above level 4 of the monument. The fossil fuels reservoir is located below level 1; this reservoir represents the carbon found beneath the earth's ground. The biosphere reservoir is situated below level 2 where it represents carbon in the form of vegetation, soils, and animals. The atmosphere reservoir is located above level 4. This reservoir illustrates the amount of CO2 in the atmosphere (MacMurtrie et. al 2012).

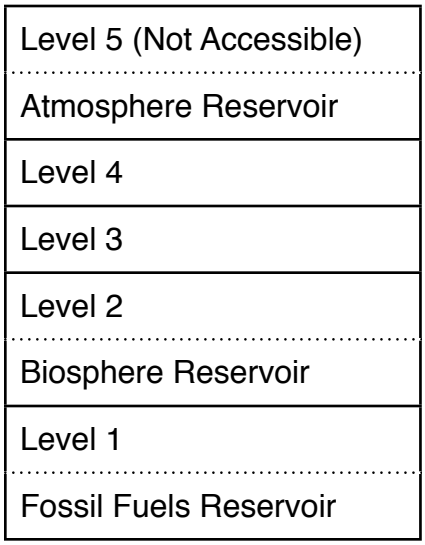

Figure 8. Structure of the Organograph

In addition to these three reservoirs, the simulation has three "Actors" that represent the anabolic, catabolic, and extractive processes of the earth's carbon cycle. These three Actors are plant (anabolic), animal (catabolic), and machine (extractive). They facilitate the cycle of carbon movement in the various reservoirs mentioned earlier. The Plant Actor moves carbon from the atmosphere to the biosphere through the photosynthesis process. The Animal Actor moves carbon from the biosphere to the atmosphere. The Machine Actor

directly moves carbon from the fossil fuels reservoir into the atmosphere (MacMurtrie et. al 2012).

In order to illustrate the movement of carbon between the reservoirs by these Actors, the Organograph Team decided to use 20,000,000 marble-like spheres to represent the actual carbon element. Each sphere amounts to 400 kiloton of carbon. These spheres come in two colors: white and black. White spheres represent preexisting carbon in the atmosphere and biosphere before the Industrial Era. CO2 that exist in the atmosphere as a result of the extraction and burning of fossil fuels are represented by black spheres. The spheres represent the average fossil fuel usage of 500-1000 Americans. One can visualize this number to represent the people living within a few blocks of oneself, the size of a high school, and more.(MacMurtrie et. al 2012).

The simulation will be historically accurate. Starting from 1912, one can see the nonexistence of the black spheres that represent anthropogenic CO2. The atmosphere reservoir will increasingly acquire black spheres at an accurate rate that the earth has been historically accumulating CO2. When the simulated time coincides with the current time, the proportion of black spheres to white spheres will represent the current amount of CO2 in the atmosphere. A sample of this proportion will be extracted from the simulation and used to create a the CO2 Trail that is located outside of the monument. Once the simulation passes the current time, the amount of black spheres and white spheres released into the atmosphere reservoir will be based on simulations

and scientific formulas chosen by a community of climate scientists and political scientists working as part of the curatorial committee of the Organograph (MacMurtrie et. al 2012).

The Incubator Dome

Along with running these simulations, the Organograph will have an Incubation Dome on Level 1 of the monument. The Incubation Dome is glass dome where young plants are to be nurtured, electronically tagged, and planted in the garden outside of the monument. Everyday at noon, one of these plants from the dome will be planted in the garden outside of the Organograph to document the global average temperature of the day (MacMurtrie et. al 2012).

The Time Trail Garden

A garden will be built outside of the monument. This garden will be named the Time Trail Garden, because it will document global temperature and CO2 emissions. The garden has two components: (1) the CO2 Trail and (2) the Temperature Garden.

The CO2 Trail

As mentioned earlier, the monument is situated on a rail-like tracks, which allows it to move along a path over the next one hundred years. The path in which the monument moves on is called the CO2 Trail. The Organograph will sample the proportion of anthropogenic CO2 (black spheres) and natural CO2 (white spheres) from the carbon cycle on a bi-monthly basis. Then, the Organograph will pave this sample on the CO2 Trail to create a chronological

path that depicts the amount of CO2 in the atmosphere. Additionally, whenever the time of the simulation running on the second Time Map matches with the current time, a sample of the proportion of black spheres and white spheres will be taken from within the monument and be transferred onto the CO2 Trail to document the amount of CO2 in the atmosphere on that day. (MacMurtrie et. al 2012).

The Temperature Garden

The kinetic monument and its century-long mechanized path will be situated within a garden that will be known as the Temperature Garden. Each day at noon, a plant from the Incubator Dome will be selected to be grown in the Temperature Garden. This Temperature Garden will consist of colorful plants that visually represent the global average temperature throughout time. For example, a blue plant will be grown represent a time when global temperature was cool, while a deep red plant will be grown to represent a time when global temperature was hot. The garden will document global temperature from the Industrial Revolution to 2112. For the space that has yet to be planted with florae, it will be an open grass area (MacMurtrie et. al 2012).

Aside from documenting the global average temperature, each plant will have its own unique barcode and/or electronic identification. This will allow people to scan the code and learn about a historical climate change event that occur on that date, local or global climate data, information relevant to Silicon

Valley residents, and information about the students and schools that were involved in the planting of the Temperature Garden (MacMurtrie et. al 2012).

The Programs

Along with the physical components of the Organograph, the Organograph Team plans to create youth, adult, and university programs to encourage local and global engagement and community development. Below is an outline of the programs the Organograph Team has develop or is planning to develop.

Youth Programs

The Organograph Team proposes that the Organograph will connect and educate youth in the valley through direct engagement with the monument, special events, online interaction, and K-12 curriculum programming. The Seed to Plant Program is an example of the possible youth programs that the Organograph will implement. As outlined in the Organograph Team's proposal, this planting program is a 6-month long educational process. The curriculum for this process will be planned according to the California State Teaching Requirements for lessons regarding basic chemistry, biology, and climatology. During 6-month long planting process, the Seed to Plant program will aim to foster a generation of young gardeners who are more aware of climate change and sustainability issues in the world. This program will involve students cultivating the plants that are to be grown in the Temperature Garden. Each day, one of these plants germinating in an Incubation Dome within the monument will be released into the Temperature Garden to document the

global average temperature as discussed in the previous section. (MacMurtrie et. al 2012). In short, through this and other activities, the Seed to Plant program will promote sustainable gardening values in the future generations living in the Bay Area.

Adult Programs

In their proposal, the Organograph Team outlines potential programs for adults. These programs include creating activities that generate table conversations, building partnerships and designing classes for community centers, and connecting with working individuals through evening activities (MacMurtrie et. al 2012).

University Programs

In addition to creating youth and adult programs, the Organograph Team also plans to develop research programs with San Jose State University and University of California Santa Cruz. As of now, the team sees potential research opportunities for undergraduate and graduate students in web development, climate science, information science, 4th-12th grade curriculum planning, and horticultural studies (MacMurtrie et. al 2012).

Online Portal

An online web portal will be created to allow people to learn, discuss, and exchange information about the Organograph, climate science, and information relevant to the city of San Jose. Many of the components of the Organograph will be electronically tagged (e.g. plants in the Temperature Gardern), so

visitors can use their personal electronic devices to connect online to learn more as they walk around the monument (MacMurtrie et. al 2012).

Projected Impacts Based on Current Design Proposal

Design is an iterative process where the designer works towards the realm of acceptable responses to create a design that is ultimately contextually responsive and internally coherent (Zeisel 2006). The following section will discuss what the Organograph's future could possibly look like if the current design is maintained and built. The discussion will be split into two sections: physical impacts and social impacts. The discussion will primarily focus on the social impacts the Organograph may or may not have on the communities in the valley. The monuments structural future will be briefly discussed, because it has been extensively discussed in the team's proposal. Moreover, the team had wanted the assessment to focus on social impacts since the beginning of the research study.

Physical Impacts

Location

Ideally, the site will be 50' wide, 250' long, and 80' high. Although this is their ideal space for the site, the team has stated that the physical components of the Organograph can be adjusted according to the space available. In their proposal, the Organograph Team explores three possible location for the monument and the garden to be built: (1) the Public Plaza at Diridon Station,

(2) Diridon Station Green, and (3) Confluence Park east of the HP Arena (MacMurtrie et. al 2012).

In July 2008, the San Jose Diridon Station was a recipient of an award from Metropolitan Transportation Commission (MTC's) Station Area Planning Program (Diridon Station Area Plan - Preferred Plan 2012). Part of the Grant Progrm is to fund city planning efforts for areas where Bart stations may be possibly built in the future. In 2008, Californians passed Proposition 1A to build a high speed rail that connects southern California to northern California. One of the planned stops will be at the Diridon Station. As a result of these events, the city of San Jose developed a plan to restructure the current Diridon Station so that it can accommodate future public transportation growth. In the Diridon Station Area Plan - Preferred Plan (MacMurtrie et. al 2012), the city demarcated a space at the Diridon Station called the Public Plaza. The Organograph Team states that the Public Plaza is the ideal place to build the Organograph, because it fits in with the city's discussion of the need to develop a public realm that fosters pedestrian activity while creating an environment for art that both engages visitors and residents. In addition, the Organograph also fits with the "City Image" frame, which is the image of evolving urbanism and the spirit of innovation (MacMurtrie et al. 2012).

For the Organograph Team's second choice, they have selected the Diridon Station Green, which is the green space in front of the current entrance of the Diridon Station. According to the Diridon Station Area Plan - Preferred

Plan, this area is not expected to be redeveloped. The Organograph Team proposes to close off two streets that are primarily used by taxis to wait for potential passengers and build a pedestrian mall for the Organograph to be situated in (MacMurtrie et. al 2012). Impacts related to car traffic, pedestrian traffic, and taxi relocation will need to be examined if the Organograph is to be built there.

Finally, the Organograph Team's third choice is to build the Organograph in Confluence Park, which is located by Los Gatos Creek. Neither the east side or the west side of the park is slated for redevelopment. For this reason, the park is a suitable site for the Organograph (MacMurtrie et al. 2012).

In terms of foot traffic, the team's first and second choice will experience more pedestrians than the third choice. If the High Speed Rail is implemented, the two places in Diridon Station will most likely experience more traffic throughout time. Moreover, either of the two choices will experience more diverse visitors, since the trains will bring people in from cities all over the bay and possibly from cities all over the state of California in the future. If the Organograph is to be built in Confluence Park, the monument will experience a different set of visitors; there would be less commuters and more local residents.

Whether the Organograph is placed by the Diridon Staton area or in Confluence Park, the monument will face the challenge of underutilization. Studies have shown that urban parks are underutilized in our nation. Loukaitou-

Sideris (2011) notes that the underutilization of parks may be due to issues related to bad design, standardization of design, anxiety due to safety concerns, and the emergence of consumer electronics. Bad design includes legal constraints imposed on designs and structural failures. Standardization of designs involves using a typical model of parks and then applying it in every neighborhoods. Standardized designs are not locally specific. As a result, the parks are not supportive of neighborhood activities. Anxiety due to safety concerns refers to the increasing concerns that parents have about letting their children go out and play. These concerns generally come from fear of gangs, drug dealers, and pedophiles being at the parks. Finally, consumer electronics such as TVs, computers, and game consoles may inhibit children from going to parks (Loukaitou-Sideris 2011). Since the Time Trail Garden will be built as a public place where people can come and enjoy the outdoors like they would at a park, the garden may face similar problems to that of urban parks.

Bad Design and Standardization of Design

The goal of the partnership between the Organograph Team and the Department of Anthropology has been to ultimately avoid the side effects of bad design and the standardization of design. No matter how many attempts are made to address these side effects, there will always be some side effects that could not have been addressed or prepared for. If the Organograph is built in the Diridon Station, the design will need to account for the side effects of the building of the new public plaza or the construction of a pedestrian mall. If the

Organograph is placed in Confluence Park, then the side effects of the park will have to be considered.

Although bad design and standardization of design is within the realm of control, it is impossible to prepare for the use and development of technology. Since San Jose is known as the capital of the Silicon Valley, it can be assumed that technology is and will continue to be a big part of the valley. The current cycle of new technological development occurs too fast for the Organograph to physically adapt to. The most current touchscreen T.V. may be popular now, but it may seem like an archaic technology twenty years from now. As a result, the Organograph Team will have to develop strategies that give people an experience that they cannot encounter through technological devices. This will encourage both children and adults to physically come to the Organograph. In addition, the Organograph may need to develop a way to incorporate the latest technology and yet preclude the issue relating to the technology's permanence.

Finally, since the monument and the garden will be located in the Diridon Train Station, the location may become an issue when the Seed to Plant program or any other educational program attempts to reach out to different schools and communities. If the a high speed rail is built, thousands of commuters are projected to travel through the station on a daily basis. Due to the busyness of the station, inviting classes to garden by the station may be difficult. Teachers and school administrators may fear for the safety of their students.

The Structure

The Organograph Team has extensively discussed how to maintain the structural integrity of the monument in their proposal to the city. All the materials used will either be made from recycled resources or can be recycled at the end of their life cycles. Moreover, they will mostly use materials that are endurable, interchangeable, and can easily be maintained. The team has decided to physically incorporate maintenance directions onto the monument whenever possible (MacMurtrie et. al 2012). All that is required is an individual, such as an inquisitive visitor, to follow the directions.

In terms of physical maintenance, the structure itself will probably not pose any major positive nor negative impact on the surrounding communities. In other words, if the Organograph Team builds the structure with the goal of low maintenance in mind, the monument will not be a major burden for the city or the local communities to maintain granted that the cost of the replacement materials have been accounted for by the Climate Clock Initiative. Long lasting and easily replaceable materials will be specifically chosen for the construction of the monument. The team states in their proposal that the structure of the monument will be built with clockwork technology, which has proven to be reliable and enduring throughout hundreds of years. The clockwork technology will be understandable for current and future generations (MacMurtrie et al. 2012). Directions to replace the components of the monument will be provided

to the public. Thus, so long as there are visitors interested in maintaining the Organograph, it is assumed that maintenance accounted for.

If everything goes as planned by the Organograph, the structure will be low maintenance for the city and the local communities. There are some assumptions that the team should consider that may contribute to the impacts that the maintenance of the structure may impose. First, the question of where the replacement materials will come from must be asked. The Organograph Team may store some replacement parts in the structure, but ultimately, not every replaceable part of the monument will be stored on site. Someone has to make sure the parts are available. Then the parts has to be ordered and replaced, and the old defunct part has to be properly thrown away as well. There is a whole process of replacement that needs to be accounted for that the team did not discuss in their proposal. Second, in addition to the replacement process, there will need to be a monitoring system in place with someone to observe and check the structural integrity of the monument. If there is no monitoring system, no one will know when the Organograph needs repair. Third, there is the underlying hope that there will be visitors at the monument in the next one hundred years. If no one goes to the park and no one monitors the functions of the Organograph, the monument can be break down and remain broken for years before someone comes and fixes it. Fourth, not everyone will be capable of replacing the parts even if they understand clockwork technology, and there is documentation for maintenance. For example, the replacement of

the Solar Petals will require someone with technical knowledge. Finally, if anyone can learn to replace the components of the monument, they can also use the knowledge to take the monument apart. The team states that taking the parts of the Organograph will be unlikely in the event of theft, because the components of the structure will very heavy and bolted down. If that is the case, then this contradicts the description of the easy maintenance discussed earlier. Either the parts of the Organograph can be easily replaced or stolen, or they can be difficult to replace or steal.

The Garden

As mentioned in their proposal, the Temperature Garden will use local florae that are drought tolerant, have low invasive spread, and a long life expectancy. It is expected that some of the plants will not survive or take root. For this reason, the Organograph Team plans to enlist the assistance from the San Jose Parks Department. A garden caretaker from the department will be funded to come and maintain the Temperature Garden bimonthly.

One of the key concerns with planting a garden is the amount of resources and energy it would take to maintain the garden over the next one hundred years. If the garden plans to grow one plant everyday starting from the Industrial Revolution onward until one hundred years after the monument is built, then the size of the garden will be immense. Starting at the beginning of the Industrial Revolution (1912), the garden will approximately have about 36,500 plants if it starts building the monument in 2012. By 2112, the garden is

projected to have 73,000 plants. A garden of that magnitude will need many natural and human resources to stay alive. Having one garden caretaker come to the monument bimonthly to take care of the garden seems like an optimistic estimation of the care the Temperature Garden will require. Moreover, the plants will need more intensive care as the climate in San Jose gets warmer in the future, which is something that will bound to happen (Bedsworth 2009). As a result, even if drought tolerant florae are used for the garden, the increasing amount of water needed for the warmer climate and the need to replace florae as they die will require a vast amount of natural resources. By 2030, California is expected to experience an imminent water crisis (Hall 2009). By 2112, the water scarcity may not allow the Temperature Garden to exist.

Social Impacts

How Does the Story of the Organograph Fit with the Stories of Local Communities?

Buildings and monuments have meanings and tell stories (Yanow 1995). Structures from the iconic, such as the Eiffel Tower, to the mundane, such as a typical skyscraper, are embedded with powerful meanings for people to experience and interpret. Narratives conveyed through public buildings and spaces have the potential to function as a bridge between deep-rooted habits and new futures (Eckstein 2003). This section examines what kind of story the Organograph is attempting to convey through its design elements and how the Organograph's narrative for climate change fits with local narratives.

Narrative of the Organograph

Monuments and buildings are personal narratives of the architects and the stakeholders who finance the construction of them. The stakeholders have a message that they want to convey with the construction of the building, and the architects are the ones who interpret the message and transform it into built form. The designs and the architectural elements of a building communicate messages to passerby like how a commercial billboard communicates to the reader to buy the product. Thus, architecture connotes social agendas and cultural ideologies (Twombly 1995: Eco 1997; Vale 1992; Rogers 2001). Its physical form is a sign that signifies the meanings that the artists and the stakeholders embed in it. The signs of a building or a monument create a narrative or a story. These narratives can be very powerful in that they suggest and preclude norms and ideas and in turn, perspectives and actions (Peterson and Broad 2009).

For the city of San Jose, the ultimate narrative is about climate change. It is stated in the Climate Clock Initiative that the Climate Clock will (1) use art and technology to address climate change and (2) gather climate change data and effectively transform them into more digestible forms for the public so that they are encouraged to take action towards climate change (Climate Clock 2011). Through their interpretation, Organograph Team addresses these goals by designing a kinetic monument that symbolically represents the carbon cycle and documents CO2 emissions. In addition, it uses solar technology to traverse

a garden that documents global temperature. The data used by the Organograph will be gathered from the Global Historical Climatology Network (GHCN), Intergovernmental Panel for Climate Change (IPCC), and other scientific resources (MacMurtrie et al. 2012). By artistically presenting these scientific resources, the physical elements of the Organograph is embodying and perpetuating the Western scientific narrative on climate change, which is a scientific discourse based on research conducted by experts with esoteric climate change knowledge.

In addition to the physical attributes of the Organograph, the online portal and the youth and university programs that the Organograph Team has designed were also created based on the scientific discourse of climate change. The adult programs were outlined in general terms that could either be based on scientific or local discourse. Regardless, the Organograph heavily favors a climate change narrative that emphasizes global climate and scientific knowledge.

How the Organograpah's Narrative Fits with Local Narratives

The Organograph's emphasis of global climate and scientific knowledge on climate change corresponds with the current dominant narrative of climate change prevalent in almost anywhere (Peterson and Broad 2009; Button and Peterson 2009). By embracing this dominant narrative of climate change, local narratives are often overlooked. As a result, there is a devaluation of local knowledge, which in turns makes communities vulnerable (Button and Peterson

2009). This feeds into the ongoing sentiment that climate change is a "scientific" problem best left to specialists (Coburn 2005). As a result, this can make communities even more reluctant to take action. Communities become vulnerable, because their interpretations become invalidated and disregarded by the dominant narrative. This can lead communities to believe that their knowledge is not correct, because they do not have the expertise that scientists do. As a result, these communities will become increasingly detached from the issue of climate change until, finally, climate change is something "out there" and not within their consideration for action.

Based on the data gathered from the INA, 18/20 participants expressed air pollution and congestion as the main concern in regards to climate change. This corresponds with the Organograph's emphasis on the carbon cycle and the CO2 emissions in the atmosphere. However, participants have a complex understanding of climate change that does not explicitly emphasize CO2 emissions. Fifteen of the 18 participants who mentioned air pollution and congestion as a primary concern relate it to fuel consumption. Ultimately, fuel consumption leads to CO2 emissions, which make the Organograph technically right in highlighting the carbon cycle and calculating CO2 emissions. Yet, CO2 emissions and the carbon cycle are not how participants (local residents who have been living in the Silicon Valley anywhere between 2-65 years) think of climate change. They understand climate change through their daily lives and through their activities, such as driving.

One-third (15/20) participants are also concerned with overpopulation. 13/20 participants indicate that water consumption and food consumption are tied to climate change. From the data gathered from the INA, it is evident that participants living in the Silicon Valley understand climate change through various environmental concerns. They do not just reduce these environmental concerns into CO2 emissions. Rather, their understanding of climate change consist of complex connections of various personal environmental actions and concerns to climate change. By reducing climate change to just CO2 emissions, there exists a certain danger of losing the understanding of climate change as a complex phenomenon interconnecting society and nature (Høyer 2010). Such reductionism precludes understanding climate change in a holistic manner, because the CO2 discourse obscures other environmental concerns that connect to climate change.

Why Local Climate Change Narratives Are Important

For the Organograph to perpetuate the CO2 narrative – a dominant scientific narrative of climate change – it is neglecting local narratives of climate change. Local narratives of climate change are just as salient as the scientific narrative of climate change. In fact, local narratives of climate change can be more accurate and informative (Button and Peterson 2009) about climate change in regards to the Silicon Valley context. Residents of the Silicon Valley are attuned to the environment they live in. They experience the weather and the environment around them on a daily basis; they are there during the short-

term and long-term changes of the environment. Residents are knowledgeable of the environmental patterns and outliers that occur in the valley. Thus, they are more sensitive and aware of the environmental changes related to climate change than a CO2 count can detect.

It is also important to recognize that scientific resources, such as the IPCC, are restricted to documenting temperature increases, vegetation change, decreasing water supplies, and other measurements of environmental and biological indicators. Such scientific resources like the IPCC do not address impacts on the human systems (Finan 2009). One must critically ask, where is the human in these reports? There is no doubt that there is value in these scientific reports, and that is clearly conveyed by the Organograph. However, if the purpose of the Organograph is to engage and educate local communities, then there is a problem.

Two primary issues emerge from the discussion of the the Organograph's narrative. First, local communities and their climate change narratives are devalued, because the Organograph primarily emphasizes and embraces the scientific narrative to address climate change. Second, it is hard to identify where people fit into this narrative, because it is based on scientific resources that do not examine the impacts of climate change on human systems. Thus, it may be hard for people to situate themselves within the Organograph. These two issues are crucial to engaging and educating the local communities in the Silicon Valley. If people cannot see where they fit in the Organograph, they

cannot situate themselves in the climate change discourse. If they cannot situate themselves, then they cannot negotiate with their own environmental values and behavior.

It can be argued that the programs will be the social component of the Organograph and that these programs will give the Organograph a human face. There is some validity in the argument. Youth programs, such as the Seed to Plant program, will educate students about climate change through learning about the carbon cycle in terms of plant biology. The aim of these youth programs is to foster community caretakers (MacMurtrie et. al 2012). In addition, the university programs are outlined to develop novel research in various disciplines. Adult programs will be directed to support common notions of climate change and help people understand their impact on climate change (MacMurtrie et. al 2012). Alone, these programs have the potential of embracing and using local narratives to address climate change. What is missing is the connection between these programs and the landmark that facilitates a continual flow of ideas and people to and from the Organograph. The challenge that the team faces is connecting the programs back to the Organograph. External of the Organograph, there is potential to foster climate change actions in local contexts through social programs, but it is a difficult to see what the local citizens can take away from visiting the Organograph itself other than the common dominant scientific narrative about climate change.

Long Term Engagement

Addressing climate change is not a one-time event. Effective action for climate change requires long term engagement and for people to be in an environmental frame of mind when they go about their daily activities. The Organograph Team has expressed the need to explore a plan for long-term engagement. Based on the description provided in the proposal, it is hard to say whether the programs they plan to implement will facilitate long term engagement or not.

The most outlined program, the Seed to Plant program, is a 6-month long project (MacMurtrie et. al 2012). As discussed before, the program aims to educate students about climate change through plant biology. According to the curriculum that the Organograph Team's used in their pilot study, which was conducted with a 6th grade class at Don Calejon School, it appears that students attend lessons about the carbon cycle and CO2 emissions in the atmosphere while their seeds grow. In addition, they will have the opportunity to record their stories on the web portal that is linked to the electronic tags on their plants. On the website, students can discuss their perceptions of climate change, display their artwork and other observations about climate change. Based on this description of the Seed to Plant program, there are several potential impacts that the program may have on youth. First, students will develop or reinforce their scientific understanding of climate change and plant biology through hands-on experiences. Second, they will acquire technical

knowledge from their online interaction. Third, they will develop a historical understanding of climate change, since their plants will document the history of global temperature. Finally, they will develop their creative thinking skills by learning how to represent scientific knowledge in art and online media.

Although the program primarily emphasizes the broadly accepted scientific narrative on climate change, the students have the opportunity to express their own views on climate change. There is potential to create a curriculum that help students take this dominant scientific narrative and locally situate it in their personal lives. At the same time, the students' narrative on climate change can shape their curriculum to make it better fit the kinds of environmental situations students face in their own neighborhoods. In short, if both the scientific narrative and the students' narratives of climate change are incorporated in to the curriculum, it is possible to create an open and participatory forum where both narratives are valued and used to help students develop local actions to address climate change.

Despite the fact that the Seed to Plant program has potential to make a positive impact on youth, there are some elements of the program that can hinder this impact. First, the description of the program only states that the children will be able to share their stories and art online. Sharing these personal narratives and perceptions online will only be helpful if they also share it in class and discuss how their personal knowledge parallels or differs from what is taught in the program. If they do not share, discuss, and build on their ideas

about climate change, there will be little that the students will take from this program beyond the knowledge of how to plant some kind of flora and that there is an increasing amount of harmful molecules in the air. Second, at the moment, the Seed to Plant program seems to end after the plant is in the garden. Short term involvement is less likely to have lasting influences in people's lives, while continual long term involvement can foster sustainable values and practices. For this reason, it is difficult to see if the program will have a lasting impact. Finally, there is no clear connection between the program and the physical monument aside from the fact that the plants that the students have grown will be placed in the Temperature Garden. The students may be taking field trips to the Organograph, but a field trip is also a singular event. These one time events at the Organograph may prove to have little impact on constructing positive climate actions.

Global Impact

It is inherently impossible to separate the local from the global because people are ever more connected to each other as a result of developing technologies that facilitate faster communication and that support the development of social networks that span across the world. So far, local engagement has been discussed, but it important to talk about global engagement as well. Thus, the impacts of the Organograph should be examined on a larger scale to see how the Organograph can possibly affect climate change on a scale that extends beyond the Silicon Valley. Global

engagement has not been explicitly discussed in the current plan of the Organograph; there is no direct connection between the local and the global. However, implicitly, the programs and the simulations run by the Organograph will have some global impact. The simulations will be designed by political scientists and climate scientists. Programs, such as the university programs, will have their academic research published and shared with other universities around the world. Youth programs, like the Seed to Plant program, will offer students the chance to share their knowledge online. Adult programs will support people's common notions of climate change to understand their impacts on the environment, be it local or global. Although there is a global reach, it is an indirect one. In order to have a greater global impact, the Organgraph Team will have to develop a specific strategy that emphasizes global engagement.

Future Possibilities

In the previous section, the Organograph has been critically discussed to explore possible impacts on local communities in the future. In this section, the future possibilities of the Organograph will be discussed. This will be an exploratory effort to identify strategies that the Organograph can employ to address the issues mentioned earlier and to further support environmental actions in local and global communities as mentioned in the INA findings. This discussion will be split into two sections: (1) a section discussing general strategies that will fit any possible locations of the Organograph and (2) a

section discussing strategies that will specifically fit the Confluence Park. The ideas discussed in the first section are general possibilities that do not relate to the physical context of where the Organograph will be built. It is hard to imagine where the Organograph will be situated in, because the Diridon Station reconstruction plans are not secured, the closing of a couple of streets for the monument has yet to be permitted by the city, and the use of Confluence Park has not been approved. There are too many uncertain factors that can change the location of the Organograph. For this reason, I focused on developing general strategies that the Organograph can use regardless of where it is situated. These strategies focus on the social programs of the Organograph, and how they can distributed anywhere in the valley. The second section of this discussion examine strategies specifically related to building the Organograph in Confluence Park. Since the park is a stable environment that is not slated for construction anytime soon and is where other environmental events and activities are already taking place, I will discuss how the Organograph can embed itself into environmental networks that exist at the park.

The strategies discussed here are just a few of the many within the realm of acceptable responses that the Organograph can use to address the concerns discussed earlier. There are definitely more. However, the point of this discussion is not to outline all the possibilities, because they are endless. Rather, this discussion functions as a starting point for the Organograph to begin formulating creative and unique ways to engage local and global

communities. The strategies presented in this section are based on some of the findings and recommendations developed in the INA. They address local and global interaction in the valley, the examination of history and historical cycles, the connection of the carbon cycle to other key environmental concerns, the understanding of mental calculations of environmental actions and impacts, the connection of climate change to other parts of people's lives, the creation of table conversations regarding climate change, and the development of partnerships with local communities and organizations. Again, it must be emphasized here that the ideas and strategies outlined in this section are general strategies that are meant to be refined as the Organograph Team moves along with construction the monument. As more information are gathered and analyzed for the construction of the Organograph, there will be more data for the development of these or other new strategies. It is an iterative process, and this discussion serves as the start of this process. It is ideal that these ideas will be revisited and refined as the team develops new insights in the design of the Organograph.

General Strategies

Creating an Open and Configurable Space

Creating an open space that is capable of accommodating a very diverse set of activities is a very plausible strategy that can help the Organograph Team incorporate local narratives to address climate change, connect their programs to the Organograph, and work towards bridging the local and the global.

Regardless of whether the Organograph will be built at the Diridon Station, in Confluence Park, or anywhere else, having a reusable space that can be a gallery that displays students' artwork on climate change or a space to hold workshops for adults to share their environmental practices, will facilitate comprehensive and diverse engagements. Building a "loose" fitting place will allow the Organograph to work with the local communities from time to time to configure the space to fit current local events related to climate change. This loose fitting space will allow the Organograph to adapt to different communities' needs (Zeisel 2006), which will help maintain the monument's relevance over the next one hundred years. It can also help connect the Organograph's social programs back to the monument. Creating such a space will have significant impact in the Silicon Valley and beyond. It will bring different people to the Organograph based on their interests. The Organograph can host events, shows, workshops, and other activities related to local or global actions on climate change. In addition, it offers something new for previous visitors to come back and experience the Organograph again.

Program Strategies

Art and Technology Shows

If the Organograph Team decides to design an open space, then it opens up many possibilities for program development. One possible program strategy for the open space is that instead of just having students post their stories and art online, the open space can function as gallery that displays the stories and art of

students in the Seed to Plant program. The Organograph can house art shows for these students. This will encourage students and their families to visit the Organograph to celebrate local art and stories. Moreover, commuters and travelers taking the train will experience something that is unique to the valley.

Such art shows do not have to be limited to students or the Seed to Plant program, nor are they limited to just art. The Organograph can partner with cultural organizations in the local area and share their environmental arts, traditions, and artifacts with the Organograph. This will allow the Organograph to use community resources to bring global interpretations of climate change into the climate change discussion. People coming in to the valley from other parts of the country or the world can contribute to this discussion. At the same time, they can share their experiences of the Organograph with other people in their networks. Through this kind of activity, the Organograph will be actively exploring ties between the local and the global that both residents and visitors can experience and share.

The goal of the Climate Clock Initiative is to use art and technology to address climate change through local and global engagement, and as the findings have shown earlier, the Organograph has yet to develop a strategy to directly connect with the global communities. To expand on the global level, the Organograph can create traveling exhibits. These exhibits can travel to other regions and other parts of the world to show how Silicon Valley residents address climate change. As a result, these collections become “seeds” of the

Organograph. These seeds can be planted elsewhere to engage other communities and cultures about climate change, and they ultimately allow the Organograph to directly connect to other communities.

These shows and “seeds” need not be necessary artistic in its nature. Art is used as an example because the Climate Clock Initiative aims to use art and technology to address climate change. Technology can easily be switched with art in this case. Silicon Valley is known for its start-up companies creating novel technological inventions. The Orgnograph can function as a place to showcase what kinds of technologies the valley is currently working on. They can be artistically driven or not. In either case, having these shows and exhibits allow the Organograph to work with new technology over the next one hundred years.

Oral History Project

Another possible strategy is for the Organograph to start creating an oral history archive that documents how local senior residents interpret climate change. Since one of the primary populations that the Organograph want to engage is the elderly population, developing an oral history project with them is ideal. There is much to learn about how climate change is interpreted by people and how these interpretations change throughout time. Senior citizens of the valley can offer a very unique view of the region and can detail how climate change has personally affected them in the Silicon Valley context. Yet, there is currently no central place where people can go and learn about these local climate histories. For this reason, the Organograph can start building an archive

and showcasing these local histories in the Organograph. By creating an oral history archive, the Organograph will be embracing one of the many local discourses of climate change, which will make the Organograph fit better in the local environmental context. Such a project will also help reveal historical cycles and trends that existed in the valley in the past and that may develop in the next one hundred years. This will address how the research findings show participants would like to learn more about the historical cycles in the valley. In addition, the oral histories will function as a unique climate change indicator that will be available nowhere else but at the Organograph. This will make ultimately add to the uniqueness of the monument.

Photography Project

Almost everyone of all ages can point and click to take a picture. One way to understand how local communities perceive climate change is to let them take pictures of the environment around them. The Organograph can create a photography project that asks residents to submit photographs that they feel represent climate change. This will literally let the Organograph see what climate change means to local residents through their eyes. As the findings in the assessment has shown, climate change means more than CO2 emissions to residents. This photography project will allow the Organograph to connect climate change to other environmental concerns. Another photography project idea is to have elderly residents submit old photos of them in different environments in the valley. This will provide a historical account of climate

change in the valley. Such projects will offer insights on climate change that interviews and other research methods would not be able to put forward. Moreover, these insights will be unique to the Organograph, which will encourage more people to come to visit it. Along with having this opportunity to gain a unique view of climate change, the photography project can be presented at the Organograph as part of a gallery collection or a traveling art show as described earlier. In addition, the Organograph can archive these photos and put them online. These photographs can serve as research materials for students in the Organograph's youth programs and for students working on environmental science at school. A photography project like this will create social ties between the Organograph, the residents in the valley, and beyond the local region.

University Projects

Aside from showcasing art, technology, and oral histories in the Organograph, the monument can act as a meeting place for university students and faculty to meet and exchange ideas about climate change. In the proposal, the team states that they will form a committee of climate scientists and political scientists to run different simulations for the Organograph. These simulations are displayed through the time maps and the physical simulation carbon cycle in the monument. In addition to displaying the data simulation, the Organograph can hold interdisciplinary talks and forums related to these simulations and to climate change in general. This will generate more climate change interest among other various academic disciplines. Thus, it will not limit climate change discussions

and simulations to just climate scientists and political scientists. By opening up the climate change discourse to other disciplines, this will prevent the Organograph from just emphasizing the dominant scientific notion of climate change.

Organograph Fellows Program

The Organograph Fellows program is a program that connects people interested in climate change with companies working to address climate change and other environmental issues. People who are interested in addressing climate change but do not necessary have the skills will be connected to professionals who do have the skills and expertise and are working on sustainable issues in the valley. The fellows will be able to learn from their mentors and develop their networks through this program. If feasible, the program can additionally offer internships to encourage people to work in the sustainable industry. These forms of mentorship and internship will foster long term engagement between the Organograph and local communities. This will enable the Organograph to help people develop environmental habits. A program like this does not require the Organograph to directly offer any internships or mentorships. It only acts as as an intermediary and connects interested individuals with people already working to address climate change. As a result, a networking fellows program like this is very feasible for the Organograph Team to implement.

Garden Activities

Gardens can be aesthetically pleasing but not mentally or physically engaging, since they often have visitors take on the role of the passive observer. In order to preserve the beauty of the garden, many public gardens have signs that say, “Do not touch.” Sometimes, they even have chained links around the plants to clearly convey to visitors that nothing is to be touched or moved. If the Organograph Team is striving to educate visitors about the different taxonomic names of the plants in the Time Trail Garden, then having a garden more geared towards showcasing plants will be appropriate. However, since the Time Trail Garden functions as a tool to illustrate global temperature and to involve students in planting the plants, designing a more sensory-friendly garden is more fitting to the purpose of the garden. Therefore, the idea of designing a more hands-on garden should be explored. Instead of just having students watch their plants be automatically released into the garden each day or use their phones to connect online to learn about the history tags, the Organograph Team should look at creating a participatory maintenance project as part of the garden. This way, general visitors, gardening clubs, and schools from distance areas can come to the garden for the day and enjoy gardening activities on-site after they have seen the wonders of the monument. In addition, doing hands on gardening will help these people develop gardening skills that they can apply to their gardens at home. The Organograph can provide lessons on sustainable gardening, composting, and sustainable food practices. This will allow visitors to bring these

lessons home and potentially to other parts of the world. Having a participatory garden instantly changes the visitors from observers to participants in the Organograph's dialogue about climate change. Moreover, the burden to care for the garden does not weigh on just the caretaker from the San Jose Parks Department. Not all of the Time Trail Garden needs to be open for participatory gardening; the Organograph Team should look at having visitors help maintain a part of the garden or participate in a selected few activities.

Annual School Events and Family Activities

Gatherings allow people to congregate and socialize with each other, which foster social cohesion. At the beginning of the late nineteenth and early twentieth century, San Jose and the surrounding communities started to have blossom festivals. These festivals celebrated the arrival of spring when fruit trees and exotic plants began to bloom (Brockway 1977). These festivals were filled with food and athletic activities. Residents would invite guests to come in and showcase their gardens to visitors. At its peak, the blossom festival gathered thousands of visitors from all over California (Brockway 1977). Ultimately, the blossom festival turned in the Carnival of Roses (Fiesta de la Rosas). These social events had thousands of attendees, and it made roses into an enduring symbol of San Jose. Although Carnival of the Roses no longer exists in San Jose, the recurring theme of using roses as a reason to bring people together remains. There are two public rose gardens in Downtown San Jose. These gardens house thousands of roses (City of San Jose 2011). Today, there is the

Roses, White, and Blue Parade that is held every year on Independence Day in Downtown San Jose (Rose White and Blue Parade 2011). One can confidently say that roses became a symbol that gathers people together and cultivates tradition.

The Organograph can facilitate a similar tradition. The Organograph Team can design an annual event that invites families in the Bay Area to come together and enjoy a day of celebrating and promoting sustainability and climate change awareness. Most importantly, such events can build lasting values that cut across generational boundaries. Local schools, businesses, and environmental and cultural organizations can assemble together and co-create music, shows, and activities for people of all ages and from all backgrounds to enjoy and learn about climate change.

Environmental Calculation Workshop

The INA has shown that participants in the valley do not use very clear or concise methods to help them calculate how their actions impact the environment. The Organograph can host workshops to help residents of the valley understand how their actions contribute to climate change. They can learn how to measure and calculate their impacts. Such workshops can also help reveal to the residents how some of their daily actions can affect the environment in ways that they are not aware of. The INA findings have shown that participants would like to see how climate change connect to other parts of their lives. Having people calculate their environmental impacts will allow them to see the hidden

connections between climate change and other parts of their lives, such as health and finance.

Sustainable Dining Workshops and Tours

The findings from the INA show that participants primarily interact with other people in their networks at the dining table and that food consumption is a primary environmental concern. The Organograph can address these two issues by creating a workshop that teaches local residents how cook healthier meals. Residents will develop a skill that they can bring home with them to address a key environmental concern. Furthermore, the meals can become a topic of conversation at the dinner table where residents and people in their networks can start discussing the food and how it ties into climate change. Generating table conversations about climate change was a recommendation made to the Organograph Team, and this one way the team can encourage climate change discussions in people's networks.

Additionally, the Organograph can organize dining tours where residents can learn and experience restaurants that emphasize using locally farmed plants and animals that characterizes the valley's local ecosystem. As the findings in the INA have shown, adults in the valley may only be available in the evenings because of their work schedules. A dining tour can serve as an evening activity for working adults, which will allow the Organograph to engage with a hard to reach population.

Strategies for the Confluence Park

Although being in Confluence Park will generate less foot traffic for the Organograph, the park may be an ideal place for the Organograph to carry its climate change goals. If the Organograph were to be built at the Diridon Station, the designers will have to build and foster a social network that facilitate climate change through community engagement. Rather than building a new network of interactions with the local communities, the Organograph has a unique advantage to embed itself in the networks already available at Confluence Park. Currently, Confluence Park carry out events and educational programs that relate to art and the natural environment. Confluence Park is where the Los Gatos Creek and the Guadalupe River come together. This point of confluence has been celebrated as the confluence of technology and ecology and of multiple ethnicities and cultures (Guadalupe River Park Conservancy 2012). Confluence Park has programs such local history, organic gardening, photography, girl's and boy's scout related programs, and seasonal festivals and events. By building the Organograph in Confluence Park, the Organograph will be embedded in a network that already supports positive environmental behavior.

Annual Events

As of now, Confluence Park has annual events related to environmentalism. The park holds the Spring in Guadalupe Gardens, the Window on the River Park, and the Water Wizard Festival (Guadalupe River Park Conservancy 2012). The Spring in Gaudalupe Gardens is held in April. At this

event, there are musical concerts and the viewing of San Jose Heritage Rose Garden in full bloom. There are also gardening and composting workshops. In addition to all these activities, there are vendors selling plants, garden art, and other gardening products. The Window on the River Park is a reception that celebrates the Guadalupe River Park Conservancy. The Water Wizard Festival is an annual educational event held to celebrate the local watershed. Environmental organizations from the Bay Area come to the event to teach 300 third graders hands-on lessons about pollution prevention, water conservation, the value of water as a natural resource, and human impacts on the watershed (Guadalupe River Park Conservancy 2012). The events described here can be potential entry points for the Organograph to work with local communities on climate change. Moreover, this will give the Organograph the advantage of tying climate change to other environmental problems such as water conservation, which is a key concern that the participants in the INA have expressed.

Children and Adult Activities

Guadalupe River Park Conservancy has a wealth of activities for children and adults. For children, they have K-12 field trips, special needs field trips, homeschool programs, small group programs, and badge programs for boy and girl scouts. For the adults, the park has workshops such as nature photography, sustainable gardening practices, container gardening, landscape water painting, raising urban chickens, garden pests and disease management, and yoga in the park (Guadalupe River Park Conservancy 2012). With these programs available,

the Organograph can create a partnership with the park to develop climate change courses in their already available programs.

Building the Organograph in Confluence Park has its own advantages. With the support network and the programs already going on in the park, the Organograph can easily find many points of entry to create partnerships with the park to engage the community. The Organograph Team can develop new programs, like they would have to if they were to built the monument in Diridon Station, or they can also develop a partnership with the park and create components to add on to existing programs.

Lessons Learned

Prior to partnering with the Organograph Team, Dr. Darrah, Dr. Ortar, and I had spoken with another finalist team that was also competing to win the Climate Clock Initiative. The team had expressed interest in incorporating anthropological research into their design. After months of discussions, I was confident that I could carry out a research for them that would help them build a socially relevant Climate Clock. However, after the end of their residency here in the Bay Area, I had lost communication with the team. When I tried to connect with them to see how the department and the team could move forward and help them with their design proposal, there were no responses. Dr. Darrah and Dr. Ortar discussed this with me, and we came to the conclusion that the team did not know how anthropology could contribute to their project. There were too many uncertainties with their design that they could not have

really provided me with a concrete goal that I could have helped them with. This discussion made me realize that defining goals is a really important step to conducting research. If the clients do not have a substantial goal for the anthropologist, then the anthropologist does not have a research goal and cannot possibly construct a suitable framework for research. Unlike traditional anthropologists, applied anthropologists conduct research for their clients; rarely would they be able to do research for research's sake. As a result, there must be an end goal for the applied anthropologist, and in my case with this first team, they were unclear with their goals. Thus, the partnership between the team and me was not secured.

Needless to say, I moved ahead and explored other research opportunities available to me. I wanted to continue exploring this Climate Clock Initiative, and surprisingly I was able to connect with another finalist team interested in research and design cooperation. Over the course of a few months, I was able to outline a loose research framework for them. Through an iterative process where I shared my findings in each step of the research with the team, I was able to design a research study that fit the team's interests. We collaborated on exploring different domains of interests and on creating interview questions for the participants. As a result, the findings from the research correspond with the team's goals and interests.

Although the collaboration and the iterative process of the research were extraordinarily beneficial to the results of the research, it was very difficult to

maintain connection with the team. Since the members do not live in San Jose, we mainly corresponded through emails, Skype, and phone calls. Email correspondence was the primary form of communication. Unfortunately, the team members were really busy with their work. There were times when communication was delayed, and it would take weeks for a reply. As a result, the iterative and participatory research design process was slow, and sometimes, it even came to a halt. From this, I learned that maintaining a strong and frequent connection with my clients is very crucial to moving the research process forward, especially when it is collaborative effort to create a research framework.

In addition to communication maintenance, time management is very important for an applied anthropologist. Unlike working in academia, applied anthropologists have to work around their client's deadlines. Originally, I had thought that I would have around two months to complete my research from recruitment to handing the deliverable to the Organograph Team. Unfortunately, the IRB process and the team's rescheduled deadline for the research project resulted in me having less than four weeks to complete my research. In their email, the team had asked for the project to be completed within 2-3 weeks. At that point, the completion of the interviews and the deliverable seemed like an insurmountable task. It was during the holidays, and people were busy with Thanksgiving. Due to the holiday season, it was very difficult for me to schedule interviews. Whenever I thought I had enough participants for the research, I

had participants drop out of the interview. I came to a point where I thought I would not get enough participants for my interviews. Thankfully, I had Dr. English-Lueck, my friends, colleagues, and family to help me reach out to potential participants. After two weeks of many back-to-back interview sessions, I was able to collect enough interviews to see some patterns in the data. In less than two weeks, I handed my deliverable to the team. The research whole process took a little more than three weeks, but it was still within the Organograph's timeframe.

Future Applications

The context in which design and research is based upon constantly varies. The physical environment, the people, and the social contexts in which the design of the Organograph is based on will fundamentally change in the future. The purpose of conducting research to inform design is to help designers mitigate any foreseeable side-effects of the design. This is why the Interaction and Network Assessment was conducted in the Silicon Valley; both the Organograph Team and the Department of Anthropology want to create a Climate Clock that is and will be relevant to the local communities and that fit with the communities' needs.

The recommendations offered to construct future possibilities of the Organograph are based on the Interaction and Network Assessment conducted in 2011. The local communities in the valley and the Organograph will ultimately change throughout the next one hundred years. For this reason, it is critical to

build an iterative social research and design framework for the Organograph to use as its social indicator so that the Organograph can adapt to the changing needs of the communities and maintain its relevance. This kind of iterative social research design is within the capabilities of an anthropologist. Anthropologists are trained and equipped with a diverse set of tools to build projects and programs that include capacity building, empowerment, and participatory components.

Based on the INA performed, it is recommended the next research study should further explore how residents of the valley define “doing their part.” Over and over again, participants of the assessment discuss climate change in detail and how it will affect their lives in the future, but they also claim that they are already doing their part. This overarching term needs to be demystified. Otherwise, people can hide behind this term. Then, the phrase “doing their part” becomes a barrier that prevents residents from taking more action. This will ultimately make the development of environmental habits evermore challenging.

The dichotomy between “NorCal” and “SoCal” came up several times interviews with the participants. Participants would contrast the valley to Southern California. For example, some expressed concern that the valley will become the next Los Angeles. This dichotomy deserves further examination, because it has the potential to reveal underlying values of the valley. The Organograph can use these values as a leverage to motivate Northern

Californians to take environmental actions, so that they would not become like their “SoCal” counterparts.

Furthermore, it is highly recommended that future researchers study people’s daily routines and habits and how they reveal the ways people negotiate between their local climate change perspectives and the scientific perspectives that they have learned. By studying how people navigate between these different frames of climate change to help them make daily decisions that affect the environment, it will help provide the Organograph with a deeper and more profound understanding of the gap between environmental values and behaviors. Based on past research studies, it is known that there is a great divide between what people say and what they do. Countless interviews can be conducted to understand people’s environmental perceptions and values, but one must recognize the fact that these answers are given in an interview setting, which is out of their natural daily social contexts. It is for this very reason that a network analysis was incorporated into the INA so that we can get a glance at how people’s surroundings affect their actions. In order to truly understand what kinds of environmental actions people are actually taking, further in-depth research that goes beyond interviews and survey methods is necessary. If feasible, it is highly recommended research continues with an emphasis on employing participant observation to study people’s environmental actions in their daily contexts. This will allow the researchers to compare what people say they do and what they

really do. Moreover, it will help researchers to identify environmental actions and impacts that participants may not be even aware of.

Anthropologists have the qualifications to design and carry out such social research, because they study communities holistically. People do not act just as individuals. Rather, their actions are influenced by various environmental factors such as social, physical, economic, and political factors. Anthropologists possess the knowledge and tools to understand how they act in relation to their contexts. Understanding how people situate themselves within their environments and how these environments affect their standing patterns of behaviors will allow anthropologists to identify entry points for the Organograph to encourage positive environmental behaviors. Through a continual and iterative research project, anthropologists can identify new entry points for the Organograph to incorporate in its programs. This will ultimately help the Organograph maintain its social relevance over the next one hundred years.

Apart from conducting research to help the Organograph maintain its relevance, anthropologists can play a key role in the Organograph's program development. Anthropologists can find entry points, and they can also help translate communities' needs into actionable strategies for the Organograph to adopt. As a discipline, anthropology stresses the importance of acting as cultural brokers; anthropologists are known for examining different perspectives of a situation and looking for solutions to reconcile these different perspectives.

As climate change becomes a bigger problem and environmental uncertainties increase, government and scientists will need to rely on partnering with local communities for more accurate environmental information and more locally tailored actions. For the Organograph, implementing programs that encourage the use of local knowledge is the key to building this partnership, which will become a crucial factor in addressing climate change in the next one hundred years. Anthropologists have significantly contributed to locally driven strategies and program development. For this reason, they can help the Organograph with program development. Anthropologists can expertly build participatory processes where residents of the valley use their local expertise to address climate change. This will ultimately help residents develop self-determination and improvement. Such capacity building efforts will help them get past the “already doing their part” barrier and bring the climate change issue from the esoteric scientific realm to a more personal and manageable level.

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APPENDIX A: The Climate Clock: Interaction and Network Assessment
(Deliverable Given to the Organograph Team)

THE CLIMATE CLOCK: INTERACTION & NETWORK ASSESSMENT

2011 San Jose State University | Department of Anthropology

Executive Summary

Between November 2011 and December 2011, the Department of Anthropology carried out an “Interaction and Network Assessment” (INA). Inspired by social impact assessment’s (SIA) systematic framework and its focus on profiling social impacts on various levels, the INA identifies possible interactions that the Organograph can support and explore how these interactions can be related to better understanding climate change.

During that time, twenty people from the Silicon Valley were interviewed. These twenty participants fit one or more of the three research populations that the Organograph Team would like to explore: (1) professionals working in the hi-tech industry, (2) immigrants, and (3) elderly people. The interview asked the participants to describe and talk about the people whom they consider as important in their lives and their different perceptions of the future. From the interviews, several key themes emerged regarding people’s social behaviors, environmental concerns and roles, and global connections in the Silicon Valley.

What Do People Do in the Valley?

In general, participants list their families, friends, and coworkers as important people whom they interact with. Interactions mainly revolve around food. These interactions and activities usually occur at a house that belongs to the someone in the participant’s network or at a restaurant near where the participant lives. Other activities include going to religious centers, community

centers, shopping centers, and parks. From the analysis of the participant activities, it is recommended that the Organograph:

• Create activities that generate table conversations

• Develop partnerships and classes with community centers

• Indirectly connect to working individuals or create evening activities for working individuals

How Do People Perceive Their Roles in the Environment?

Five most mentioned environmental concerns emerged as participants discuss about the future of Silicon Valley. From the most discussed to the least discussed are (1) congestion/air pollution, (2) fuel consumption, (3) overpopulation, (4) water consumption, and (5) food consumption. In addition, while all participants express concern about the environment and that they are doing “their part” for the environment, how people define “their part” is rather vague and the definition varies from person to person. Finally, half of the participants believe that future technology will help solve any environmental problems that they will encounter. From these findings, it is recommended that the Organograph:

• Incorporate key concerns into the Organograph’s carbon cycle

• Explore, define, and support common environmental notions and practices in the valley to help everyone understand his/her part in the environment

• Develop a role for the Organograph in which technology cannot replace

Revealing Hidden Connections and Building Social Consciousness

Over half of the participants state that community engagement and leadership and political engagement and leadership are integral to creating a better environment for the future. Moreover, they express the need to see the connection between their actions and the impacts they have on the environment. In addition to connecting to people's actions to the environment, participants allude to the need of seeing how the environment is connected to other parts of their lives. Primarily, participants refer to how the environment is connected to health and finance. When these topics are mentioned, some participants refer to the cyclical nature of human history. To them, humankind go through ups and downs, and understanding these patterns of cycling through the ups and downs will help them further prepare for the future. From these findings, it is recommended that the Organograph:

- Reveal hidden and complex connections between actions and impacts on the environment
- Complex relationships between actions and impacts should be simplified for easy understanding
- Widen environmental scope to include how the environmental health affects other parts of people's lives (e.g. public health and finance)
- Incorporate different historical cycles to help inform people's decisions and plans for the future

The Big Picture: What Are People Thinking about on the Global Level?

Participants discuss how pollution in developing countries such as China and India need to be addressed, because pollution from one area can spread throughout the world. Some participants also contrast the Silicon Valley against Los Angeles. In addition, some participants show interest in leaving the country; others are thinking about moving to less populated and inexpensive cities such as Gilroy. From the research data, it is recommended that the Organograph:

- Examine the contrast between Northern and Southern Californians to better understand the valley's values
- Incorporate global values and practices into the Organograph
- Create a "piece" of the Organograph in which people can bring back to their countries to make the Organograph a global climate clock that addresses climate change.

Additional research that focus on specific questions or issues that are raised by the report and that are of interest to the team is highly recommended. The Department of Anthropology and the principal researcher, Loan Luu, will be available to discuss with the team if they are interested in developing a deeper understanding on any of these issues or in translating any of these recommendations into tangible actions and impacts on the communities in the region.

It is also recommended that when the Organograph Team has incorporated the data into their proposal, the team should conduct a second set

of interviews and ask the participants to give their input on the proposal. This will create an iterative process where the community starts to become actively engaged in the Organograph.

The Climate Clock: Interaction and Network Assessment

In 2006, the city of San Jose, California, developed the Climate Clock Initiative to use technology and art to address climate change. This initiative proposes to build a “Climate Clock” in Downtown San Jose’s Diridon Station. The Climate Clock will be a public art landmark that gathers climate change data and effectively translates it into more digestible forms for the public. Ultimately, the goal of the Climate Clock is to educate and engage the local and global community to address climate change over the next one hundred years.

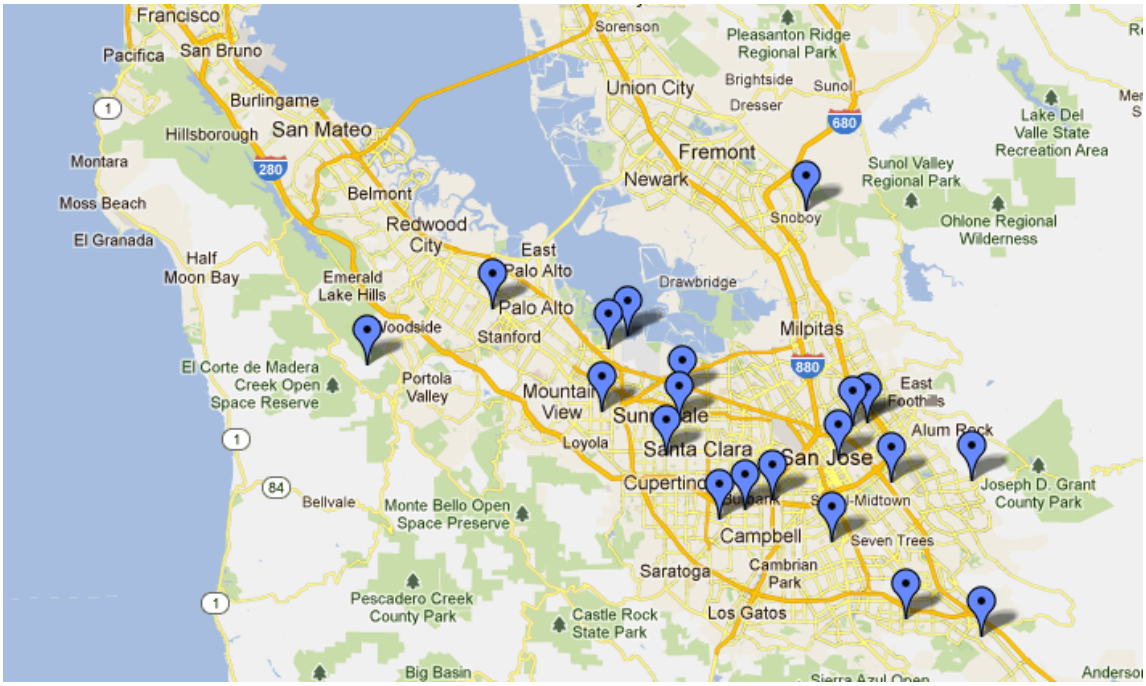
As one of the three finalists competing for the design of the Climate Clock, the Organograph Team proposes to build a 75 foot kinetic monument (known as the Organograph) and a garden that documents climate change. In conjunction with these physical landmarks, the team also plans to create social programs to promote climate change awareness and action. As the Organograph Team continues to refine its design proposal for the Climate Clock Initiative, one of the challenges that the team faces is connecting Silicon Valley residents’ behaviors to the Organograph. For this reason, the San Jose State University Department of Anthropology carried out an “Interaction and Network Assessment” (INA). Inspired by social impact assessment’s (SIA) systematic framework and its focus on profiling social impacts on various levels, the INA identifies possible interactions that the Organograph can support and explore how these interactions can be related to better understanding climate change. By emphasizing both the identification and exploration of interactions within various communities in the valley, the project explores different social networks in the

region to help the Organograph engage the community and develop a design for the Climate Clock Initiative that best engages the wider public.

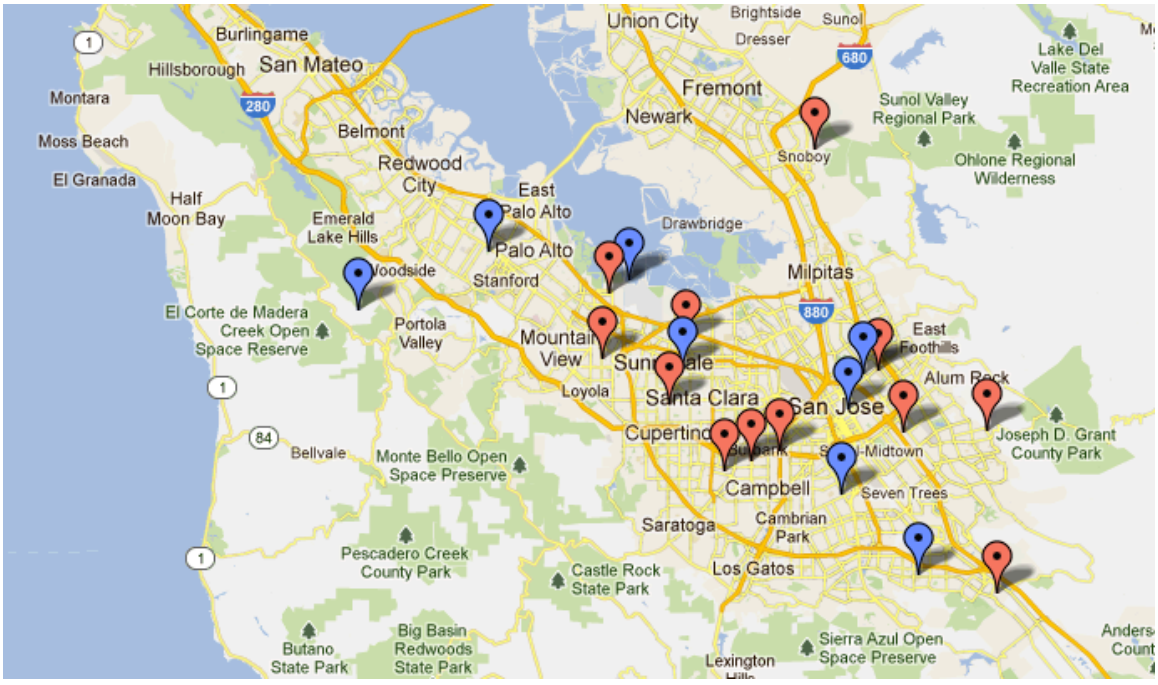
General Information

Between November and December 2011, twenty participants were recruited for the study. The researcher recruited them by publicizing the project through her own and others' social networks and by using the snowballing method to recruit more participants. These twenty participants fit one or more of the three research populations that the Organograph Team would like to explore: (1) professionals working in the hi-tech industry, (2) immigrants, and (3) elderly people. Other factors such as gender, age, geographic location, class, and ethnicity were considered as well to ensure a heterogeneous sample. Below are maps illustrating the demographics of the participants.

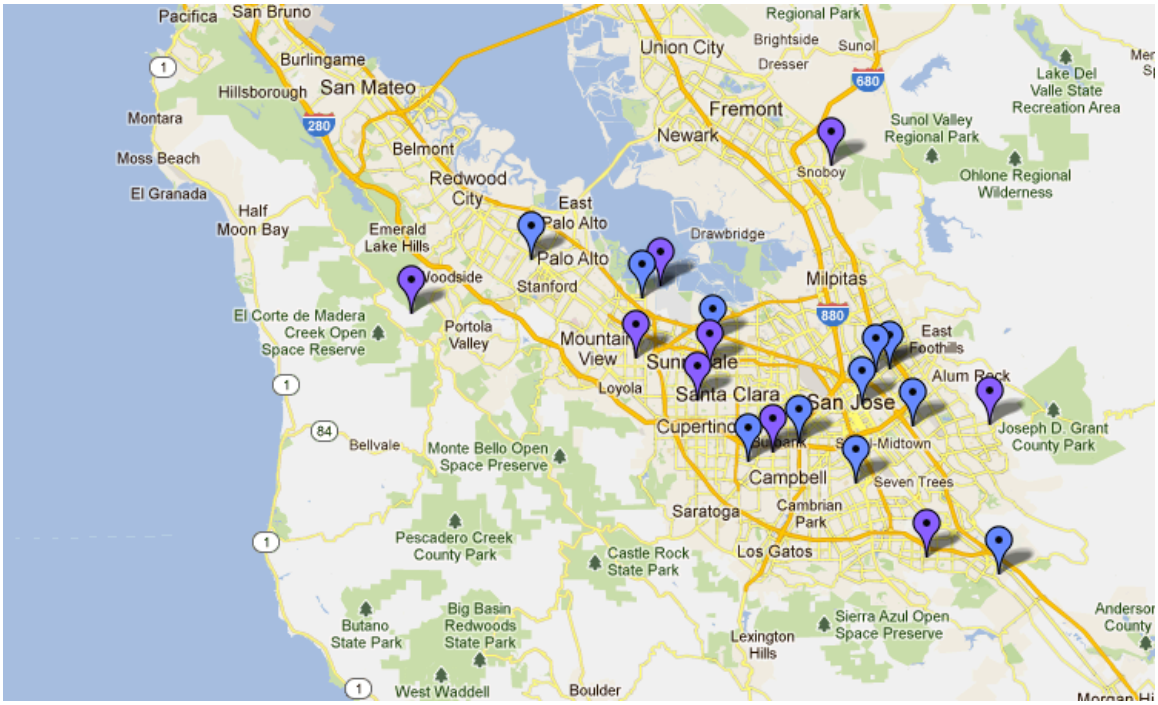
Total Number of Participants in the Silicon Valley



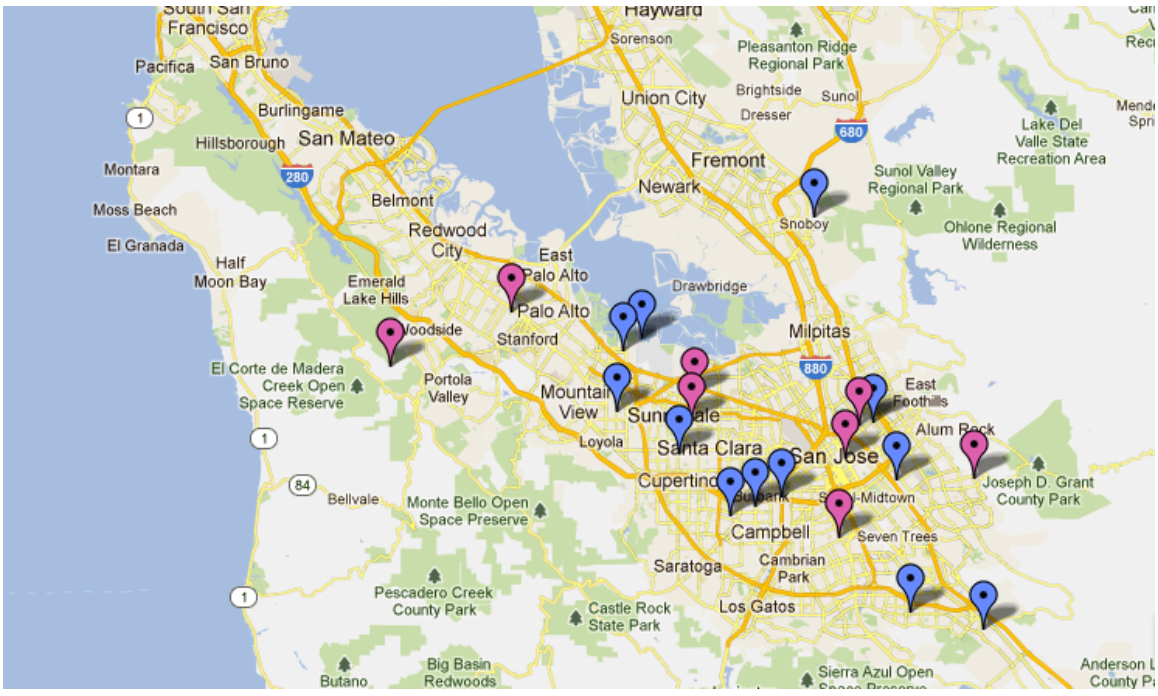
Participants Who Were Born Outside of the United States (Red)



Participants Who Are Professional Working in the Hi-Tech Industry (Purple)



Participants Who Are At Least 65 Years of Age (Pink)



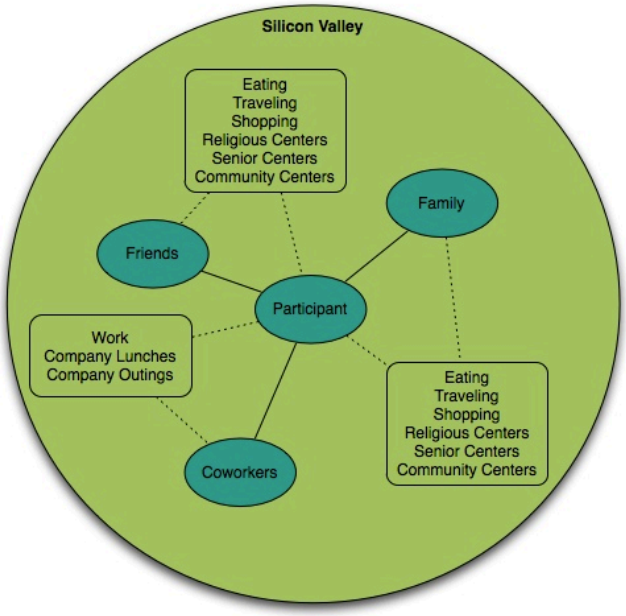
Each participant was interviewed and audio-recorded. The interview asked the participants to describe and talk about the people whom they consider as important in their lives and their different perceptions of the future. From the interviews, several key themes emerged regarding people's social behaviors, environmental concerns and roles, and global connections in the Silicon Valley.

What Do People Do in the Valley?

When asked to describe the people whom the participants interact with and consider as important in their lives, a majority of participants put down their families, friends, and coworkers. Many of the people whom they listed live in the Bay Area or in California. In some cases, families, friends, and coworkers outside of California are also listed, but the participants mainly interact with them online through chat programs or social networking websites.

In general, when the participants get together with their families and friends, their activities mainly revolve around food. They would usually get together between 1/week to 1/month, and they would either eat at each other's homes or go out and eat. When they go out and eat, participants usually eat at restaurants near where they live or stay within the Silicon Valley. Some participants would go to cities in the periphery of the Silicon Valley, such as San Francisco or Santa Cruz, a couple of times per year to eat with their families and friends. In one particular case, the participant drives to the Sierra Mountains with his family every other week to spend the weekend there as a getaway.

In addition to participating in activities revolving around food, some participants mention going to churches, temples, senior centers, community centers, and shopping centers with the families and friends in their networks. A third of the participants who were born outside of America (4/12) attend religious services and activities quite often at their local churches and temples; the frequency of attendance ranges from everyday to once every week. Participants who are at least 65 years of age often go to senior centers or community centers to participate in activities such as ping-pong tournaments, dances, yoga and music classes, and hands-on activities such as IBM 1401 restoration. These participants often meet at least once per week with their families and friends for these activities.



Aside from families and friends, many participants also list having important interactions with their coworkers. These interactions are usually related to work and business. On occasions, participants would have group lunches with coworkers at work or at a restaurant near their work once per month. In some cases, participants would attend company outings a couple times per year.

Significance to the Organograph

The research findings show that the populations that the Organograph Team is interested in reaching out to all get together around the dining table. Aside from eating, conversations are held, and ideas are exchanged at such gatherings. The Organograph Team should look at what kinds of activities or events would generate table conversations about climate change. For example, if the Orgranograph Team continues to pursue an educational program for kids, an activity that asks kids to go home and interview someone about climate change at their next family gathering will help generate conversations about the environment. Ultimately, an activity like this will allow the Organograph Team to reach out to many different networks and generate more environment awareness.

In addition to designing activities that become topics of conversations in people's personal networks, the Organograph Team can look at designing outreach programs that develop partnerships between the Organograph and the different community centers in the Silicon Valley. As revealed in the research, the 65 and older population generally attend activities at senior and community centers. At these centers, these seniors are participating in games, teaching, or taking classes for personal development. Classes that address environmental concerns and the interests of seniors can be designed and taught at these centers or at the Organograph. When designing these activities, the Organograph Team has to consider transportation as a factor that may

discourage seniors from participation. Many seniors do not drive, and as many have expressed in the research, public transportation is not always feasible. For this reason, it is recommended that if the Organograph Team wants to involve the elderly population, the Organograph has to connect with these community centers and build activities at these centers.

Finally, work and coworkers are a significant part of many people's lives in the Silicon Valley. Some participants have expressed that because they work in the hi-tech industry or have odd work hours in general, they are limited to the places they can go or the activities they can attend in the Silicon Valley. One participant who works in the hi-tech industry highlights his disconnection with his community, because he cannot attend any of the community events or meetings in his neighborhood. All the meetings and activities occur right before he gets off from work at 7:00 pm. Another participant who also works in the hi-tech industry comments on how he has limited places to go with his friends and coworkers after work, because everything is closed by the time he leaves work. These comments reveal that the Organograph Team may have a hard time directly reaching out to working individuals, especially individuals working in the hi-tech industry. For this reason, the Organograph will have to indirectly reach out to these individuals by engaging the other people in their personal networks (e.g. their kids), or the Organograph can look into creating a nightlife for these individuals by holding evening events that are more suited for adults (e.g. nightlife at the Museum of Science in San Francisco).

Key Points

• Create activities that generate table conversations

• Develop partnerships and classes with community centers

• Indirectly connect to working individuals or create evening activities for working individuals

How Do People Perceive Their Roles in the Environment?

Five most mentioned environmental concerns emerged as participants discuss about the future of Silicon Valley. From the most discussed to the least discussed are (1) congestion/air pollution, (2) fuel consumption, (3) overpopulation, (4) water consumption, and (5) food consumption. Many participants are concerned about the increase in traffic and air pollution in the Silicon Valley in the coming twenty years. This primary concern is connected to their second concern, which is fuel consumption. Although participants are hopeful for better public transit in the future, many feel that they will still be driving their cars. Fuel consumption not only means more air pollution, but also dependency on foreign countries. Participants are concerned with the Silicon Valley being increasingly crowded and in general, with the world becoming overpopulated. This means more consumption of resources, and participants speak of scarcity and resource sharing as a possible future. The lack of usable water and water disasters are major concerns for participants; participants allude to the possibility of the Silicon Valley flooding or the need for water sharing in the future. Finally, participants discuss the importance of eating locally grown food

and developing healthy eating habits. Eating locally grown food is not only good for the environment, but for their health as well. Participants also indicate seeing more community gardens and urban agriculture in the future.

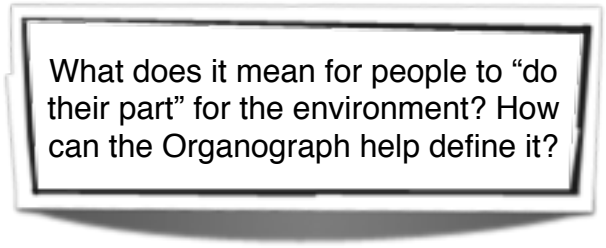
Although all participants express concern about the environment, they also all claim that they are doing “their part” for the environment. “Doing their part” is a vague term, and all participants defined their part in saving the environment differently. In general, participants mention recycling, driving fuel efficient cars, and/or using less plastic. At the same time, they also admit to being less environmental friendly in other parts of their lives. However, they justify that by claiming their energy consuming activities balance out with their energy saving activities. For example, the very same participant that bicycles to work everyday would drive 300 miles every other weekend to the Sierra Mountains as a weekend getaway. Another participant who had lived in Germany discuss how she would turn off the water when she soaped up for her showers in Germany. After moving to Mountain View, she no longer does that. Her reason to this is because she hears her neighbors taking long showers, and she feels that she, too, is entitled to long showers with uninterrupted water flow. These examples exemplify how environmental practices are a matter of comfort and convenience; people will be environmentally friendly so long as it is comfortable and convenient for them. This may be especially true for residents in the Silicon Valley, because there is a strong belief that future technology will solve any environmental problems. Half of the participants express confidence in

technology solving environmental problems or facilitating environmental actions in the future.

Significance to the Organograph

The five key environmental concerns that the participants speak of offer a foundation for the team to build their program and activities on. If the Organograph plans to build their proposal around the carbon cycle, they can emphasize any of these five concerns in their model and explore ways that residents of the valley can address these concerns.

In addition to addressing the five main concerns that participants have expressed in their interviews, the Organograph can help define common notions and practices in the valley. Defining and helping people understand what exactly are their roles in relation to the environment can potentially be the key to developing community consciousness. Moreover, the math people do in their heads that help them "balance out" their environmental friendly actions and non-environmental actions is a point that deserves further exploration. The Organograph can scientifically examine and calculate how exactly does each action balance out with another to help people understand their effects of their actions.



Finally, there is the belief that future technology will solve whatever environmental problems that may come in the future. The Organograph Team

should explore environmental problems that technology cannot solve and that needs people to take social action. Problems such as the extinction of various species of plants may not be solvable by just technology, and for this reason, the Organograph can play the role that technology cannot play in these environmental problems.

Key Points

• Incorporate key concerns into the Organograph's carbon cycle

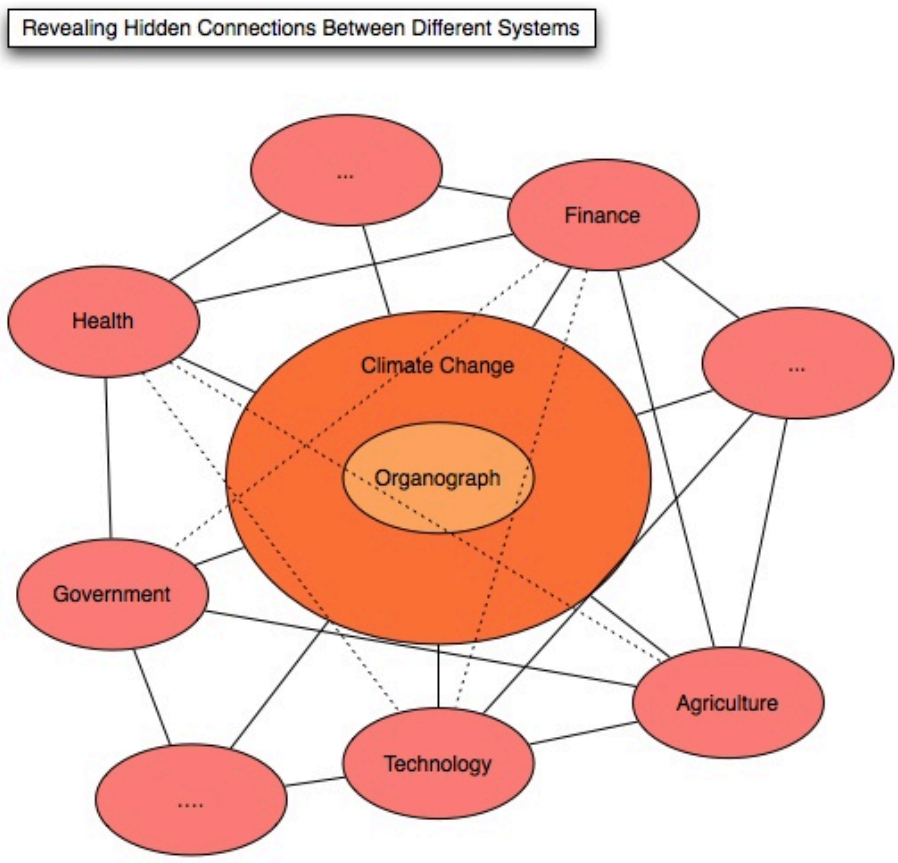
• Explore, define, and support common environmental notions and practices in the valley to help everyone understand his/her part in the environment

• Develop a role for the Organograph in which technology cannot replace

Revealing Hidden Connections and Building Social Consciousness

In the interviews, over half of the participants (12/20) express the need to see the connection between their actions and the impacts they have on the environment. One participant suggests that seeing complex connections and processes in simplified formats will help him and others draw the connections between their actions and how they affect the wider community. This will ultimately help build a social consciousness and encourage people to make better environmental decisions.

In addition to connecting to people's actions to the environment, participants discuss the need to see how the environment is connected to other parts of their lives. Primarily, participants refer to how the environment is connected to health and finance. Some participants, especially the elderly



participants, consider how the health of the environment will affect their personal health. They also comment how good and affordable healthcare is important to them. In other cases, participants explain how financial constraints prevent them from making the most environmentally friendly decisions.

Over half of the participants state that community engagement and leadership (12/20) and political engagement and leadership (16/20) are integral to creating a better environment for the future. Entrepreneurship, innovation, political activism, and public health are topics mentioned in relation to community and political engagement. As mentioned before, health and finance are two areas

in which participants have expressed connectedness to the environment. When these topics are discussed, some participants refer to the cyclical nature of human history. To them, humankind go through ups and downs, and understanding these patterns of cycling through the ups and downs will help them prepare for the future. One hi-tech professional mentions the need to learn from the past so that he can use it as a foundation to build his future on. Another retired participant speaks of how she grew up in the hippie years and that made her into a person who cares very much about the environment. She now feels that the new generation in which her son is part of has reverted back to non-environmental friendly practices. In addition, she also discusses of how this generation may be into hybrid cars. She feels that this trend will revert back to gas inefficient cars, because that is the cycle of car trends she has seen throughout her life.

Significance to the Organograh

As mentioned in the last meeting the Department of Anthropology had with the Organoraph Team, the team plans to create a simplified and easily understandable model of the carbon cycle to help people become more aware of their actions and impacts on the environment. This corresponds with what the participants have suggested that will help them take more appropriate environmental actions. From the interviews, it appears that the participants want to see more extensive connections between the environment and the social systems they live in. The Organograph Team may want to explore how carbon

emissions are connected to other parts of people's lives, especially to their health and their finance. This will expand the scope of the Organograph's environmental movement and make it more inclusive and personal to people.

In addition, participants express an interest in the cyclical nature of human history. Since the Organograph is a monument that looks at the past and the future, the team should explore how to use different historical cycles (e.g. innovation, consumption trends, environmental policy trends, etc.) to inform and affect people's actions and decisions now. Incorporating these history cycles into the Organograph can also reveal further connections and patterns that participants want to understand about the environment.

Key Points

• Reveal hidden and complex connections between actions and impacts on the environment

- Complex relationships between actions and impacts should be simplified for easy understanding
- Widen environmental scope to include how environmental health affects other parts of people's lives (e.g. public health and finance)
- Incorporate different historical cycles to help inform people's current decisions and plans

The Big Picture: What Are People Thinking about on the Global Level?

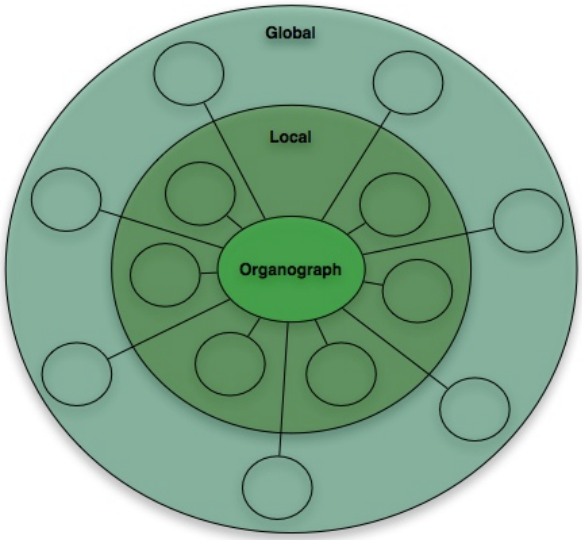
Throughout the interviews, participants (11/20) refer to environmental problems as a global problem. Participants would discuss how pollution in developing countries such as China and India need to be addressed, because pollution from one area can spread throughout the world. In addition, three participants contrast Silicon Valley to Los Angeles in their perceptions of the future; these participants feel that Silicon Valley may become the next Los Angeles where there are lots of air pollution and congestion.

In addition to perceiving environmental concern as a global concern, participants (12/20) can see themselves leaving Silicon Valley in the future. Some participants show interest in leaving the country; others are thinking about moving to less populated and inexpensive cities such as Gilroy. A couple of participants who were not born in America discuss about retiring in their home countries.

Significance to the Organograph

Californians often times distinguish themselves as either being from Northern California or Southern California. Northern California consider themselves more down to earth, natural, and spiritual. Further exploration of this contrast may help the Organograph develop a better understanding Silicon Valley's values.

On a global level, participants have either contemplated on or are actively planning to leave the Silicon Valley in the future. Silicon Valley attracts a lot of talent from around the world to move to the area. Some decide to stay; others do not. For those who are staying in the valley, the Organograph can look at how to incorporate their global ideas and practices into addressing climate change. And for those who do not stay in the valley, the Organograph can find ways in which people can bring a "piece" of the Organograph back to their countries, making the Organograph grow into a global effort.



Key Points

- Examine the contrast between Northern and Southern Californians to better understand the valley's values
- Incorporate global values and practices into the Organograph
- Create a "piece" of the Organograph in which people can bring back to their countries to make the Organograph a global climate clock that addresses climate change.

Final Remarks and Recommendations

From these interviews, several starting points where the Organograph can engage the local and global community have emerged. The team can start looking at these patterns that have emerged from the research and begin incorporating some of the valley's ideas into their Organograph. Additional research that focus on specific questions or issues that are raised by the report and that are of interest to the team is highly recommended. The Department of Anthropology and the principal researcher, Loan Luu, will be available to discuss with the team if they are interested in developing a deeper understanding on any of these issues or in translating any of these recommendations into tangible actions and impacts on the communities in the region.

It is also recommended that when the Organograph Team has incorporated the data into their proposal, the team should conduct a second set of interviews and ask the participants to give their input on the proposal. This will create an iterative process where the community starts to become actively

engaged in the Organograph. Ultimately, this will also help the Organograph Team to create a climate clock that most suits the valley's characteristics and needs.

Appendix A: Interview Instrument

Interview Questions

Name:
Age:
Gender: M/F
Ethnicity:
Country of Birth:
Zip Code:
Occupation:
Years You Have Been Living in the Silicon Valley:

1. Who are all the important people that you interact with in your life? *Please create a diagram or draw out your response. (Probes: What do you do together? Where do you interact with him/her? How often do you interact with him/her?)*

    a. *(Does any one of these people know each other? How do they interact with each other?)*

2. How do you think your current daily life affects the environment? *(Probes: Describe to me what you did yesterday. How do each of these activities affect the environment?)*

3. Think about your answer from Question 2. Imagine your life in the Silicon Valley twenty years in the future where you have to live a life that affected the environment less. Optimistically, what would your daily life be like? *(Probes: How would family, work, and transportation be affected? What do you imagine yourself doing? How would the environment have changed? What would the Silicon Valley be like?)*

    a. What would a pessimistic future look like? *(Probes: See above.)*

    b. What would the most likely future scenario look like? (Probes: See above.)

4. What do you think would push your life towards the optimistic scenario? *(Probes: What would you need to know?* What will need to happen for you to act on what you know? *What resources will you need?)*

Appendix B: Raw Data

Contact Summary

Site: Sunnyvale
Contact Date: 11/27/11
Today's Date: 12/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
32	Male	Chinese	Malaysia	95122	Line Cook	20

1. What were the main issues or themes that struck you in this contact?
   a. Plastic packaging is a major concern for the contact
   b. Believes technology will solve whatever probs we'll have.
   c. Envr problems is due to laziness/financial difficulties.
   d. Envr poblem is a global problem (developing countries).
   e. Little changes in the future.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Family; eat, grocery shopping (1/month). Coworkers; see all the time, eat at Applebees, go to bar down the stree, works at plume horse (3/week). Friends; watch movies, play video games, eat, go to driving range, shoot pool (1/week). Friends and coworkers; food centric, Gaku, 99 Chicken (1/1-2 months).
Daily effects on envr.	Negatively. Drives by himself all the time to work. Restaurant he works at is not envr friendly. Plastic wrap/pkging. No composting.
Optimistic scenario	Public transit. Lives near where he works. Own his own restaurant. Get good pkging; alt. to plastic wrap. Warmer. Ppl are doing well not polluting so much. Less freeways. Bullet trains.
Pessimistic scenario	More disposable things. Plastic bags, water bottles. Convenient stuff. More congestions. Laziness/financial difficulties. Fewer plants; less biodiversity. No greenery. Asphalt and glass.
Realistic scenario	It would still be the same as of today. Little changes; not big changes. New technology; new fuel source. More renewable energy. Solar panels. Still own a business. Not drive so much. Would stay the same; optimistic for the future. Developing countries need to recognize the impact of the envr. Not much improvement in public transit.

Action	Government regulations. Recycling. Composting. Feels that one person can make a difference; ppl need to start believing that so they can get gov to change. Owning own place and having more control of his own living envr will help. Being financially stable-having the ability to choose. Focus on the larger picture. Need to know that there's something look forward to that there is an end goal.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Contact is a cook and is aware of the energy it takes to transport food and deliver it to ppl's tables.
    b. Thinks that developed countries are making good steps towards addressing envr issues, but not developing countries.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can ppl incorporate envr. actions as part of people's financial mgmt?
    b. Ppl eat out a lot, how can OG reveal the impacts of eating out to SV residents?
    c. How can the OG generate table discussions about envr. issues?

Contact Summary

Site: Starbucks
Contact Date: 11/27/2011
Today's Date: 11/29/2011

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
31	Male	White	France	94040	IT Project Manager	15

1. What were the main issues or themes that struck you in this contact?
   a. Financial stability and personal wealth is important to helping the envr.
   b. Sustaining technology (cloud, servers) use an unimaginable amount of energy.
   c. Altruism. Businesses aren't altruistic, economic incentives will drive envr. changes. Even if there is energy efficient technology, production may move to a different country. There will always be compromises. Envr change comes with a price.
   d. Social consciousness is important.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Emphasis on not interacting with much ppl w/in network bc his life has been going through major changes. Goes out to eat with ppl w/in network near where he lives or at friends' houses. Play games with friends. Go to Blockbuster to rent movies. Go out to eat with wife 1/week. Recently moved from Dublin to Mtn. View; see friends 1/1-2 months.
Daily effects on envr.	Don't drive, but avid computer user. Leave work computer on all the time. Recycle. Walk a lot. Long waits for buses. Go out to eat (consumes energy, meat).
Optimistic scenario	Remote work. Not confident in public transit. Better cars. Efficient power. Better streets. Will be working with friends to creat something. Wealth more spread. More social consciousness (not a tech problem). Focus on Pride and ego for people to do great things. Less use of resources; mileage improvement, regulated power usage. More social mobility. Education will be more important.
Pessimistic scenario	Difficult to meet ends meet. Concentrated wealth for the less than 1% (001). Corporate blind eye. Long commute won't be possible. People have to work locally. No public transit. No financial stability. Less trees outside; a lot more time on virtual worlds. More stress. No kids. Individualistic mindset.

Realistic scenario	In b/w the two. Comfortable life but balanced. Would have created/innovated something. Be in a good place in Asia. Bilingual. More preservation, but still some losses. Importance of virtual presence. Building and creating through virtual reality. Physical settings will be the same.
Action	Natural disasters. More collaboration b/w gov., corp., countries (macro level). More sharing of wealth. Scarcity, new systems, restructuring. Direct connections. More info, direct info from virtual reality.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Takes buses, and find infrequent bus times makes him wait too long.
    b. Family in Tahiti. Flying is important when he talks about his family.
    c. Connections are important to him, because he plans to do businesses with ppl within his network, but his business isn't just about improving bottom line but helping his friends out.
    d. He plans to work for companies or on technology that is more energy efficient
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. What is a comfortable life?
    b. Finding an audience to do something positive. What is this something that is positive?
    c. More power will be needed to sustain tech use.

Contact Summary

Site: Hi-Tech Company
Contact Date: 11/30/11
Today's Date: 11/30/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
44	Male	White	United States	95123	Internalization Quality Assurance Engineer	43

1. What were the main issues or themes that struck you in this contact?
   a. Political activism is necessary for bigger envr. changes. Small changes will occur w/o political action.
   b. Feels that he is doing his part for the envr.
   c. Air pollution
   d. Compared current envr to China and India
   e. Mass transit that connects places that ppl need to go to
   f. Community activism.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Network consists of primarily friends and coworkers and ppl met through traveling. Hiking in local areas (2-3/week). D&D (2/week) at home. Karaoke (1/week). Coworkers group lunches (2+/year).
Daily effects on envr.	House is fitted with solar panels, but have swimming pool. Water usage is high. Works in a green building.
Optimistic scenario	Pub. transit. Light-rail that runs east to west. Wind turbine for home. Don't believe in buses; traffic. US will ratify something like Kyoto Protocol. Faster transit to replace flight (or bring back Zeppelins). SV will be ahead of the curve. Work from home.
Pessimistic scenario	Nepal; rolling blackouts, trash everywhere, filthy water, plastic everywhere, air pollution. No local foods. Higher food prices. Like LA. SV under water. All forests gone. Parks become golf courses. Will leave country.

Realistic scenario	Depends on political sys; hopes democrats will win the next few elections. SV will be ecofriendly bc it is a more educated area. Pub. transit won't hit ideal scenario. More work in SV. Little envr changes will happen, but not the big ones. Overcrowded. Like LA. No privacy, no quiet bc ppl will be living very close to each other. It will be hard to have own place. Will leave country.
Action	Community activism. Political action. More buy-in. More civic pride. Would like to know if poli. sys. is in on this. Have orgs. invest. Feel like he is active enough.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Does not see himself in this country in 20 years.
    b. His house is envr. friendly, but he lives in a 4bd house with his boyfriend and a dog.
    c. Health related errands involve driving
    d. Pessimistic scenario only involves looking backwards in time (50s and 60s liberal trashing) rather than possible imposed restrictions to keep the envr. clean but may cause major burden for people
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. Convenience and comfort seems important. Contact mentions he is ecofriendly, but have been driving because of his illness. He takes the light-rail because he lives near pub. transit. House has solar panels, but he also has a big swimming pools.
    b. How do his eco-friendly practices and non-eco-friendly practices balance out?

Contact Summary

Site: Community Center
Contact Date: 12/01/11
Today's Date: 12/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
70	Male	Filipino/ Mexican	United States	95112	Retired	42

1. What were the main issues or themes that struck you in this contact?
   a. "A quick right" turn is needed to address the envr issues that we have today.
   b. Need to look at envr as a global issue (China)
   c. Doesn't really have an optimistic future scenario.
   d. Technology isn't always better.
   e. More aware of connections of actions and impacts.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Many ppl but are past. Wife; go everywhere; doctor (2/month), Great Mall Milpitas, Kohls (1/week), visit friends at dances (bars, band, community, Newark (1/2week), fish in Pacifica (1/ month), car shows SJ (1/2 weeks), like to drive/walk around sometimes. Compadre.
Daily effects on envr.	Doesn't feel he affects the envr too much. Stayed in and didn't do much. Don't smoke/build fires. Have gas efficient cars.
Optimistic scenario	Doesn't have an optimistic scenario. Very crowded. Hybrid cars. Hard to get around. No family anymore; everyone goes their separate ways. Some work; less labor work and more hi-tech. Work and family will be more stressed. A lot colder in some areas and warmer in other areas.
Pessimistic scenario	A lot of severe weather changes. Feels like it's too late to do anything about it; it's been 60 years already since the gov has attempted to address climate changes.
Realistic scenario	Stop using so much oil. Using other types of fuel. Controls start alt. fuel processes. Lower food prices bc less dependency on fuel. Gov. regulations. Riding motorcycles/ bicycles. Address third world countries' pollution.

Action	Changing the gov; ppl need to take control. Ppl need to become more aware. Address envr. damaging corporate practices. Widen the Occupy Wall Street movement. Make ppl understand their vote counts. Make people realize they have the power. Need good leaders. Reveal the “hidden” things.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Emphasizes that the weather in SJ is getting cooler. Global cooling in the area.
    b. Owns a house in Arizona.
    c. Mentions Occupy Wall Street very often. Corporations aren’t thinking about the future but of today’s profit.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can envr. health be connected to social issues?

Contact Summary

Site: Starbucks
Contact Date: 11/19/11
Today's Date: 12/07/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
56	Female	Korean	Korea	95129	Housewife	31

1. What were the main issues or themes that struck you in this contact?
   a. Emphasizes that ppl need to think and be more aware of their impacts.
   b. Convenience & comfort
   c. Mentions other countries and cities as a comparison to SV
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Daughter; talk, shopping, watching TV. Mom: takes mom to doctors and to the hospital. Brother; sees during the holidays @ mom's place or bro's place. Church members; meet during services at the church (2/week). Friend; talk on the phone (in Nebraska) (1-2/week). Ppl she knows; visits them at their business places (she used to be a business owner) (2-3/year). Politicians (in Korea); greeting cards on holidays. Doctor, lawyers; when she needs to. KCO members; used to work there (in Saratoga), call them. Mom knows everyone she knows.
Daily effects on envr.	Drive around a lot; takes mom to the doctor very often. Her car is gas efficient. Air pollution, but won't get too bad. Ppl working towards envr. goals. Ppl don't have to worry as much bc they will work towards it. More population; more business. Ppl are conscious of their impacts of the envr. More public transportation. Water usage changes. More trees. Peaceful.
Optimistic scenario	No more plastic. Water conservation bc weather will be hot.
Pessimistic scenario	Climate change will be worse. Harder to breathe. Hotter. Like LA. Restricted water usage. Restrictions. Hard living. Limited living. Inconvenience. Visiting family and friends less, but family life will be the same.

Realistic scenario	It's getting worse. Ppl getting more selfish; they don't care about other ppl. Ppl living longer. Society getting worse. More like the pessimistic scenario. Mom will pass away. Life won't be that much different. Certain things will be limited; more conservation practices. Travel; do mission work; work for the community. SV: business will go to China, won't be as strong economically.
Action	Prepare ahead for the future. Conservation practices. Educate the children. Ppl will figure out what will help the envr. She feels that she is already taking steps towards the more optimistic scenario (already saving water and cooking at home). Personally, do not feel that she will need to take more action. Each person needs to try their best. Outreach; personal visiting different communities to talk about envr. action. Ppl don't think about their actions, so ppl need to be aware of their actions.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Mentions generation, age, cultural gaps making communication hard with daughter.
    b. Takes mom to hospital often.
    c. Talks about her daughter very often.
    d. Compares SV to LA.
    e. Feels that whenever she drives, she has to drive. Driving for necessities.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. What kinds of outreach could reach older people like the contact?
    b. How do people define the part they are doing for the envr when they say they are doing their part?
        i. How can this part be widened?

Contact Summary

Site: San Jose
Contact Date: 12/02/2011
Today's Date: 12/02/2011

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
69	Male	Vietnamese	Vietnam	95148	Retired (Formerly an Electrical Engineer)	20

1. What were the main issues or themes that struck you in this contact?
   a. Waste from technological byproducts (from testing) is a main concern.
   b. Use and recycling of plastic is important. Prefer to use paper bags.
   c. Focus on the trash ppl produce.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Parents. Wife; eat at home, go to church everyday, shopping at Eastridge (1-2/month). Neighbors (used to talk everyday). Coworkers (email, see 1/year). Friends; Viet veterans, board games at Lion Plaza and Grand Century Mall (1/couple months).
Daily effects on envr.	Usually stay at home. Don't use plastics so much.
Optimistic scenario	Did not get an answer. Primarily focused on pessimistic and realistic scenario.
Pessimistic scenario	No carpooling. Cars everywhere. Many technological waste.
Realistic scenario	No company buses (like Google). Big companies may try to be more envr. friendly (in terms of transportation). Tully road is a parking lot where cars can't move. 5th freeway from Alum Rock area (?). More traffic. Grandchildren will drive. Want to move to Sacramento w/ better air. When wife retires, will have only one car.
Action	Focus on trash and recycling things you no longer use. Mentions Vietnamese company that buy trash and recycle the products. Learn about machines and systems that deal with trash. Plant more trees. More greenery. Would like to know why isn't the city expanding.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?

a. Goes to his church everyday. Participate in teaching church groups.
b. Family is important to him. He emphasizes the importance of having dinners.
c. Contact emphasizes that he stays at home often and don't waste, but he goes to church everyday and picks up his grandchildren from school 5/week.

4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
   a. How can OG spiritually connect to ppl?
   b. How does spirituality affect ppl's envr. actions?

Contact Summary

Site: Togo's
Contact Date: 11/23/11
Today's Date: 11/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
55	Male	Taiwanese	Taiwan	94539	Engineer	18

1. What were the main issues or themes that struck you in this contact?
    a. Belief in technology solving problems.
    b. Plans to leave country.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Wife; nothing. Children; daughter from SF come down (1/1-2) for dinner in Fremont. Son comes back (1/3 months) for dinner.
Daily effects on envr.	Drives around alot, but drives a Prius. Don't print anything at work. Go to school 6/week. Have 10 classes.
Optimistic scenario	Retire in Taiwan. Same lifestyle. See the doctor more often.
Pessimistic scenario	Crowded. No resources. Conservation. Use less water. Don't turn on lights.
Realistic scenario	Technology will change some things and help ppl live well. Don't see his future changing.
Action	Government info and encouragement of building and collecting new technology. Published info through websites.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Studying medicine on the side while working as an engineer; interest in health.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. What kind of envr. practices can contact bring back to Taiwan? How can OG encourage that?

Contact Summary

Site: Sunnyvale
Contact Date: 11/29/11
Today's Date: 12/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
66	Female	White	United States	94086	Museum Director	6

1. What were the main issues or themes that struck you in this contact?
   a. Internet and servers take up a lot of energy and don't know how to gauge that
   b. Mentions cycles of trends (cars)
   c. Basic necessities must be met.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Son; email 2-3/day. Son's gf; Farmer's market in Newark on Sundays, cook together. Volunteers; Hacker Dojo (1/week), events (4/year), exhibits (when it comes up). CHM; IBM 1401 Restoration (Wednesdays). Social local; neighbors lunch (every few months). Family; east coast. Seattle friends; email 2/month.
Daily effects on envr.	Try to affect envr as lil as possible. Obsessive recycler. Wash out plastic bags. Grow plants. Not a consumer. Used to plant native plants, but now live in an apt. Has a cat. Envr friendly lightbulbs. Don't know how to gauge envr impact of internet, but uses it all the time. Don't feel too guilty bc everything else uses minimal energy. Servers are huge energy. No dishwasher.
Optimistic scenario	There will be solutions. More energy efficient tech. Don't know whether she'll personal drive; pub. transit. Still seeing son, might live closer to son. Teaching computer skills to seniors. Pipeline disaster will be solved. More nuclear energy, but safer. Not sure about windmills. Solar energy. Community gardens. More management communities - open spaces in apt. Less lawns; more gardens.
Pessimistic scenario	Paved over SV. Air pollution. Restricted driving. Life will probably be the same for her.

Realistic scenario	Less social consciousness; new gen less invested in the envr. Hope that pub. transit will be affected. Bus routes aren't strategic. Will def. drive still in 10 yrs, not sure about 20 yrs. Cycles of car trends (more efficient and less efficient). Econ won't recover; needs a change we can't see, needs new paradigm. Stratified work; creative work will be more valued. Will have spare parts. Crowded; ppl will keep moving. Intellectual caliber will still be here bc too many big companies are rooted here.
Action	Care for basic necessities. Personally, need to be politically active, but can't bc of her position in the museum. Could volunteer. Don't feel like she needs any resources.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Native plants is something she is really interested in.
    b. Apt. dwellers have different energy incentives (need to consider).
    c. Younger son doesn't care about recycling; feels that if tech got them into a prob, tech will get them out.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can we get ppl like the contact to get more involved w/o being political?
    b. How does these cycles of trends affect her envr. decisions now?

Contact Summary

Site: Starbucks
Contact Date: 11/27/11
Today's Date: 12/06/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
29	Female	Latino	Nicaragua	95139	Researcher	16

1. What were the main issues or themes that struck you in this contact?
   a. Contrast envr probs to those in LA. Does not want SV to be like LA.
   b. Clean air is the main concern.
   c. Revealing envr. problems that she doesn't see explicitly.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Coworkers; everyday on phone/email. Fiancé; live together w/ his mother. 2 brothers; don't see often. 2 nieces; 1/yr. Friends; 1/month to eat in SJ area. Family outside of US; FB/phone. Fiancé knows alot of ppl w/in her network. Scott lives w/ aunt.
Daily effects on envr.	Drive by herself to Gilroy for work 5/week. Use hairspray. Used to take lightrail, but not convenient now.
Optimistic scenario	Pub. transit. Light rail. Cooking more and taking food to go. Family life is the same; already don't see family as much. Recyclable bags. Less plastic everywhere. Use less energy from using comps. SV: life will be faster. Better bus routes to cities like Gilroy. Office in home. House with solar panels. More cell phones. More awareness in schools.
Pessimistic scenario	Moving down south from Gilroy. More commute. Not seeing bros/family at all. Drive to work; like LA. Doing something diff; not doing the work now..finance/banks. Unpredictable changes. More plastic, landfills. Horrible smell. Pop. growth. SV: smelly, smoke everywhere, new LA, garbage, more cars.
Realistic scenario	More pub transit. More tech to clean air. Aunt drives everyday to Los Altos; she will stay more in Los Altos. Bros won't come less. Leave SJ and stay in Gilroy. More summers. Hot. Air pollution. Expanded freeways.
Action	Incentives to drive hybrids. Options to save money and drive. Know about the probs I don't see. Self-education. See connections. community involvement that's close to where one lives; close connections. Website/center where ppl give talks about envr. issues and it should be free.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Contact works in Gilroy and plans to move to Gilroy if she has to. This corresponds to what others have said about ppl moving out of SJ and into surrounding cities.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can one bring the OG close to where people live besides through the internet?
    b. What kinds of hidden connections does contact want to see between envr. actions and impacts?

Contact Summary

Site: San Jose
Contact Date: 12/03/11
Today's Date: 12/03/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
61	Female	Latino	Nicaragua	95133	Housekeeper	23

1. What were the main issues or themes that struck you in this contact?
    a. Good health is a primary concern for the respondent.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Name her family members both near and far (Nicaragua). Also named friends in network. See friends often (everyday or 2-3 times/week). Mainly eats together at each other's houses. Do not go out often. Perhaps 1/month to shop or eat at restaurant.
Daily effects on envr.	Drives and use the cell phone a lot. Does not see that her other activities affect the environment.
Optimistic scenario	Did not acquire an optimistic scenario except that there will be less chemical waste due to more mgmt.
Pessimistic scenario	More people; more cars.
Realistic scenario	Stricter regulations. More people; more cars. More smoke in SF. People become sick bc of too much chemicals. More expensive to live in SV. Higher healthcare. Questions access to basic necessities.
Action	Government needs to take action to address public health. Community meetings or send out flyers to help inform neighborhoods about their actions and their effects on the community. Help learn how to control the envr. Mentions school in Costa Rica that has specific programs that teaches kids about the envr. Feels that such programs need to be here in America.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Used to work in an electronic company and are aware of the chemical wastes that the company produces. Also mentions the masks and protective gear she had to wear.
    b. Feels like everyone is getting sick and they are getting cancer due to the envr.
    c. Had cancer a year ago.

d. Is a housekeeper. Does not mention the cleaning chemicals and the energy used to clean house as affecting the envr.
e. Goes to church every week and are involved in church activities.
f. Talks about how her neighbors fix their cars and drain oil into the sewers.

4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
   a. What would the contact like to learn at the community meetings that may help her and her community?

Contact Summary

Site: Company
Contact Date: 12/01/11
Today's Date: 12/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
67	Male	White	United States	94062	Researcher	31

1. What were the main issues or themes that struck you in this contact?
   a. Emphasizes the lack of time to participate in community orgs.
   b. Getting the correct and good information to inform public.
   c. Mindfulness of ppl's actions on the envr.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Wife; ski @ Bear Valley (1/month), bicycle in PA, Half Moon, Marin County (1/week). Kids; have meals @ home, PA (1/week). Friends; meals at their houses nearby (1/month). Coworkers; go out (1/week). Colleagues; lunch in PA, Santa Clara (1/week). Associates; everyday on FB and Twitter
Daily effects on envr.	Knows that all his activities leave a carbon footprint. Produces CO2 every time he drives. States that he owns a fuel efficient car (1996 Toyota truck w/ 4 cylinders).
Optimistic scenario	Have both daughters be nearby to take care of him. Living on veggies grown in garden. Won't drive around much. Rich life on internet. Surrounded by open space. SV will be energy efficient. Capturing more energy. Envr will be incrementally better; better eating/consumption habits
Pessimistic scenario	Open space used by urban space. Collapse of high tech industry. Abandoned wasteland. Burglaries. No improved in transportation. Electric vehicles would not take off. Air quality bad. Polluted oceans. Less work; higher crimes. Families are less opened. SV: empty industrial parks and closed small businesses.
Realistic scenario	Incrementally better; not radically better (bus will be good still, transit will be better, use of EV and Bart and Caltrain). Innovation and productivity will continue. More expensive to live here. Lot healthier in terms of food; ppl will eat locally produced food. Lot less plastic. Ppl will still be ignorant. Internet is not a good means to get info.

Action	Personally laid out foundation for a good life. Lives in an envr. pristine place. Claims to be a born optimist. Needs to work less and have more time; would work on envr restoration if had time. Ppl need to be more mindful of their impact of envr; much better education. Social networks & social activism; organize to do things together. Usually donates money.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Lives in the rural mountains where thousands of acres are preserved for open space. Considers himself as a nature person, but commutes about 35 minutes everyday from the mountains to PA for work.
    b. Owns livestock.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can the OG make time for contact to be more engaged with the community and the envr? What are some ways that the OG can engage the contact w/o taking time away from contact?

Contact Summary

Site: Mountain View
Contact Date: 11/23/11
Today's Date: 12/07/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
26	Female	N/A	United States	94043	Researcher	18

1. What were the main issues or themes that struck you in this contact?
   a. Political community action.
   b. Tangible experiences
   c. Comfort/convenience
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Very large network that consists of husband, immediate family, extended family, work, clients, organizations involved in work, university, HS and college friends. Cross-pollination; professional and informal relations.
Daily effects on envr.	Thinks her daily affects the envr in lots of ways. Wish she can do something about it, but can't (ie insulation in apt). Don't eat a lot of meat. Take train to work. Works in a envr. friendly company. Comp on all day. Lights on all the time. Uses a lot of paper at work. Feels better eating out bc commercial kitchens is more efficient. Husband likes mainstream lifestyle; she doesn't mind being comfortable.
Optimistic scenario	Live in their own home w/ 0 energy. Co-housing. No traveling. Lower impact trains. Don't have to drive; pub. transit. Urban farm agri; 1-2 hrs of farming. Better meet. 0 pkged food. Gadgets to do all these things. No traffic jams in SV. Infrastructures transition to bicycle friendly. Political and community cooperation.
Pessimistic scenario	Apocalyptic. No cooperation. Resistance to change. Tensions about fuel. Life won't be different. Will have to bike everywhere. In office all the time. A lot of stress. Life w/o coffee (etc). Rationing resources, don't get to read when the sun goes down. Might move. Tech industry collapses. Can't transition. Fewer ppl; fewer jams. Detroit.

Realistic scenario	Urban agriculture. More community engagement. Access to sharable resources. Sharing personal vehicles. Access to bicycles. Will probably have a family. Going to places that are at a distance. Doing more things @ a punctual time. Meeting w/ ppl and traveling. More effective tech but still having to go to office. No enormous change in pub transit in SV. More active. Denser communities. Reduce resource use.
Action	Feels what she's doing at her work is helping her moves towards an optimistic scenario. Political community cooperation. Talk to children in school. Write letters. Is part of websites about sharing. She goes to meetings, but don't think ppl hear her. Envr issue as a health issue. Having a place to talk about these issues. More tangible activities that contribute to the community; embodied exp.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Attends community meetings but do not feel like she's being heard.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can the OG create an envr where someone like the contact can express her concerns and feel like her opinions matter to the community?

Contact Summary

Site: Community Center
Contact Date: 12/01/11
Today's Date: 12/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
89	Male	Italian	United States	95133	Retired (Formerly worked for U.S. Government)	65

1. What were the main issues or themes that struck you in this contact?
   a. Mentions farmers in the valley before the valley became "Silicon Valley."
   b. Spring blossom tours.
   c. 50-70 yr cycles in the Valley.
   d. Hard to pinpoint anyone thing that affects the envr. It's a global thing (uses Japan as example).
   e. Healthcare is a big concern.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Friends @ senior centers (2-3/week). Eats with his grandson.
Daily effects on envr.	Did not really discuss his own actions. Talks about cars and air pollution. Also mentions airplane pollution. Don't think activities really affect envr. Mentions that there are already rules and regs like bbq-ing at a certain time.
Optimistic scenario	Did not really describe one. Check on gas stations for pollutions and leakage.
Pessimistic scenario	Alot of cars. More smong. Pub transit mostly runs S -> N. It takes an hour to go downtown from eastside. Everything is expensive.
Realistic scenario	Gilroy is the fastest growing cities. Ppl will move away to less congested area. Rise in health costs. Harder to live in the valley. Kids will move away bc of congestion, but will also need to consider their proximity to work.

Action	Innovation need to happen. Leadership. Restrictions of factories in SJ. Good food here; proper eating habits. Personally, contact write letters to congressmen. Hard to suggest anything bc everything is at a bare minimum. Resources for good health.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Used to do volunteer work in Santa Clara, Sunnyvale, and Mtn. View until wife died. Now volunteers at Northside and Berryessa Senior Center.
    b. Was into sports; used to fish all the time in the Delta (1/other week).
    c. Valley of Heart's Delight
    d. Used to be a mail carrier.
    e. Life was better in the farming days for contact.
    f. Mentions that he is alone and settle down; family is out of SV bc of all the congestion (they're in Danville and other cities).
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How the OG connect to seniors who are alone and settled in their houses?
    b. How can the OG use these cycles and edu the future?

Contact Summary

Site: Sunnyvale
Contact Date: 11/23/11
Today's Date: 12/05/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
35	Female	Chinese	Vietnam	95128	Director of Extension Programs	23

1. What were the main issues or themes that struck you in this contact?
   a. Very spiritual and connected to the envr.
   b. Stress from the envr.
   c. Mentions envr as a global problem (India)
   d. Gradual changes.
   e. Leadership is important for action.
   f. Need to see connections between actions and impacts.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Friends; volunteers at temples (Santa Clara, SJ, Fremont, Redwood, Sac) 1/week. Family; watch movies, eat in SJ, Mtn. View, Fremont (weekly/end). People in the community; post office, Safeway, etc. Buddhist community (ordained monks and nuns); drink tea in SJ, Santa Clara (few times/week). Co-workers; eat together (5-6/week). Classmates and teachers; meet at a restaurant near Santana Row. Friends know families, classmates. Classmates know buddhists from temples. Coworkers know friends and family.
Daily effects on envr.	Affects the envr very much; every decision affects the envr. Plans driving routes to reduce unnecessary driving. School that she works at does not have a good recycling program. Cooks at home.
Optimistic scenario	Ppl following bio and eco rhythms; sleep at night and wake up int he day. Walking more. More friendlier envr. Less hectic lifestyle. Ppl spending more tme together. Congest; growing pop, more diversity than now.
Pessimistic scenario	Congestion, poverty, overcrowded pop. More air, water, noise pollution. Lots of stress. Consumption. Traveling decisions, consolidate travel plans. Like "India." Shanty towns. Limited to pub. transit. Limited traveling. Will be doing the same thing.

Realistic scenario	In b/w the two above. Some things will be avoidable. Gradual changes. Costlier bags. Purchasing decisions, more natural products. Incentives for electrical and hybrid cars. Working at home more. Dependence on electronics; less face to face. Retired, go around and give lectures. More tech. SV will be a metropolis.
Action	Good leadership; leaders aware of their decisions. Emphasis on edu. Moral edu for the young. Need to see connections between actions and impacts (ripple effects) Small things in a great way.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Contact is embedded in the Buddhist community; very spiritual
    b. Stress is a primary concern for the contact
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can there be a move from gradual changes to big changes?
    b. How can the OG connect to the spiritual community?

Contact Summary

Site: Indian Temple
Contact Date: 12/02/11
Today's Date: 12/02/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
83	Male	Indian	India	94085	Retired (Former Director of ICC)	23

1. What were the main issues or themes that struck you in this contact?
   a. Focus on family values to help younger generations work towards a more optimistic envr.
   b. Emphasis on spirituality guiding a good life
   c. Educating the younger generation.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	First mentioned everyone in the world is a brother or sister to him. Then mentions family (1/week) for eating together. Netflix at home. Go to Sunnyvale Senior Center every day for table tennis.
Daily effects on envr.	Interdependency. Protect nature. Internal and external cleanliness.
Optimistic scenario	Control population. Postponed marriage and children. Have 1-2 children. Disciplined life. Cultivating trees. Everyone working together. Convenient transportation, but too much may be a problem. Parties will think of and work for common good.
Pessimistic scenario	Scarcity of food/water/climate. Rise in water level. People don't take care of envr/cars. Ppl w/ a lot of money won't create jobs.
Realistic scenario	New science will help keep world in current situation. Change will occur slowly, but will pick up. People will open their eyes bc otherwise they will die from disasters (natural or otherwise). SV will exp. ups and downs in industrial growth (15-20 year cycles). Policies will be adopted by ruling parties.

Action	Teach children. Teachers should be more involved. More parents meetings to disseminate knowledge; maybe have social workers come in to do workshops and help trigger ideas. Early discipline; not just home home but in community. Make sure basic necessities are met. Need processes to help bring up children. Teach people to respect each other. Education on marriage; focus on the family. Gov. need to take steps to maintain infrastructure.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Contact emphasizes on cleanliness both internally and externally. Maintaing good thoughts and a good external environment as being important in life.
    b. Founded India Community Center in 1989.
    c. Taught personal development classes at the India Community Center.
    d. Feels like America does not emphasize family values and focus on materialism.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can the OG spiritually connect to communities?
    b. How do family values affect envr?

Contact Summary

Site: MLK Library
Contact Date: 11/8/2011
Today's Date: 11/29/2011

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
52	Female	Africa	Kenya	94043	Journalist, Student	2

1. What were the main issues or themes that struck you in this contact?
   a. Contact consistently compare U.S. with Germany and Africa; finds that these two countries are more envr. friendly than U.S. However, she does not practice the lifestyle she has learned in these countries to save energy. She feels that if her neighbors can do it, she can do it too (Shower example). Social pressure.
   b. Transportation in SV is a major problem. Infrequent pub. transit makes getting around difficult.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Daugther and professors. Daughter going to a German HS. Movies (1/month) and shopping (2-3/month). Rarely eat out, but try to at least 1/month at a normal restaurant near where she lives in Mtn. View, sometimes in SJ.
Daily effects on envr.	Take light-rail to school. Machine wash; but hang dry. Recycle. Drive around to take daughter to shop. Use of computers and light.
Optimistic scenario	Ride bikes a lot. Everything fast pace, public transit needs to match this pace. More buses and more frequent pub. transit. Eat more at home. Walk around. Less congestion. Water sharing sys. like Germany. Would like to move back to rural Africa, plant own veggies, no car, walk around a lot. More air pollution.
Pessimistic scenario	Limited food. No eating at home. More cars on road. Water rationing. Over population. Drive to work; long commutes. Have to live closer to work. High unemployment -> crime. Can't imagine life more difficult than now. Ppl staying at work more like Google.

Network	Daugther and professors. Daughter going to a German HS. Movies (1/month) and shopping (2-3/month). Rarely eat out, but try to at least 1/month at a normal restaurant near where she lives in Mtn. View, sometimes in SJ.
Realistic scenario	Conscious of each other and the envr; not individualistic. More concern with what goes around. Carpooling. SV won't change much; industry will change. SV won't be as attractive as it is now. Companies funded pub. transportation. More cars in 3rd word country. Sees herself not retired and working part-time as a prof.
Action	Structuring of lifestyle. Doesn't feel like there's anything she needs to know. Will move once reach retirement age. There will be more cars in Africa, and it will become more polluted, but doesn't know how to address it.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Recycling technology (hardware)
    b. Mentioned India and China (developing countries) as major contributors to envr. probs.
    c. Bathtub example; apt. owner took out bathtub so renters can't waste water; she said she was willing to pay for it.
    d. 20 yrs is a short time for much change.
    e. Doesn't feel the need to know anything. Will move to Africa and she grew up in Africa.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. Old population may drive pub. transit, because old ppl can't drive.
    b. Social pressure drive envr. change.
    c. How has comfort and convenience affected her daily envr. actions?

Contact Summary

Site: MLK Library
Contact Date: 11/28/2011
Today's Date: 11/29/2011

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
52	Male	White	England	95117	Engineering Manager	15

1. What were the main issues or themes that struck you in this contact?
   a. Says he moved her for financial opportunities and that he had given up on the quality of life when he moved away from Europe to America.
   b. Work bleeds into all parts of the days/weekends.
   c. Emphasis disappointment in political systems and that affecting the envr.
   d. Lives and interacts in an envr. where he doesn't really interact with Americans. Major disconnect with America.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Wife; Sierra every other weekend. Daugthers; drive to school activities (M/W), eat out (4/yr) in Santa Clara. Family in UK; email, phone several times a year. Team members; self-finance lunch at restaurants near companies (1/2months). Managers; picnics (2-3/year) at local parks and event centers.
Daily effects on envr.	Personally try to cycle to/from work 5 days/week. Drive kids to school. Recycle; but feel packaging isn't clearly as labeled as those in Europe. Drives to the Sierra (has house there); 300 miles roundtrip; recognizes his effort to bicycle is cancelled out by his trips to the Sierra. Chop wood. Use computer over 8+ hrs everyday. Every one has at least one computer.
Optimistic scenario	No using a car; use pub. transit. Will have no one to visit; so won't travel much. Might fly to see kids. Generally, less energy consumption bc he's with his wife; will be living in the Sierra. No dependency on fossil fuel. Greener envr. More batter powered appliances. Solar energy.
Pessimistic scenario	Work at home more; this might blur the boundaries b/w home and work. Continue usage of petrol chemical. More breathing of fumes (especially for a bicyclist). More traffic. A lot more work. Move back to Europe. Dirt cloud in the US; Europe moving in opposite direction. SV will be completely paved over w/ no greenery.

Realistic scenario	Gas will still be around, but we'll be close to running out. Political interest to get pub. transit. If stay here; family will be the same. If in Europe, family will be more important. Be taking public transportation in BA, but not if retired in Sierra. Not sure if daughters can afford to live here; tell them to go to Asia. Low level flooding in BA.
Action	Moving; vote w/ the feet, not the ballot. More connectedness, but community has lost him. Try to influence things at work, but don't see himself influencing his family's behavior. More aware of are of laws and regs. Community resources nearby (health example)

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Emphasis his motorcycle accident as his justification that he is not wasting so much energy. Recalls incident has made him work at home more, but he needs to drive his car now. He also mentions this when he talks about needing community resources nearby.
    b. Community events/activities are not structured to accommodate people with schedules like him. He works till 7 and it is not uncommon for ppl in the hi-tech industry to work late.
    c. Don't want to be in Bay Area in 20 yrs.
    d. Feel that Europe is leading the way in envr. atm.
    e. Emphasis on Russia, US, and China as big powers. Continual expansion have envr. effects.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. Major life events can possibly change mindsets of ppl. Contact talks about how his motorcycle incident made him relearn German and may have been a turning point for him. Sees himself moving. Discusses conveniences and inconveniences he experienced.
    b. How can something like the OG connect contact with the community?
    c. How does contact balance his envr. friendly actions w/ non-envr friendly actions?

Contact Summary

Site: Work Office
Contact Date: 12/02/2011
Today's Date: 12/02/2011

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
73	Female	White	United States	95125	Retired (Works at Winery and Dental Assistant)	30

1. What were the main issues or themes that struck you in this contact?
   a. Contact sees herself doing her part for the envr.
   b. Ppl need to work for the common good.
   c. Talking and educating the young.
   d. Problems are so enormous that it is hard to tease the details out.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Partner: enetertain (2-3/week) at home, plays (1/6 weeks) SJ Rep, movies (2-3/month) local theaters, SF (2/year), travel w/ in country (1-2/yr), travel outside country (1/2 years). Friends (2/month); close friend (1/week), dinner/lunches locally. Neighbors parties/wine (1/month). Family (1/2 years) for special events.
Daily effects on envr.	Not much. Don't drive around a lot, recycle, and aware of water consumption. Has a wood burning fireplace. Take care and pick up after her dog. Don't use computers. Prints out email, handwrites responses, gives to partner to reply on computer. Pay paper bills.
Optimistic scenario	Fail to get a good idea of what her future scenario looks like.
Pessimistic scenario	Fail to get a good idea of her pessimistic scenario, but when she talks about the realistic scenario, she emphasizes that she is not optimistic about the future. Has thought about moving to Canada.
Realistic scenario	Overcrowded. Ppl will have to live close to jobs. Schedule her days out; be careful of when to do things. Think about affordability. Not sure if edu will make an impact.

Action	Basic necessities should be met, so ppl can focus on other problems aside from survival problems. Population growth awareness. Personally, need to find an org and volunteer, but can't decide on which one. Children must realize that there are some things they must do and no bribery.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Doesn't like the gov sys, but still votes, volunteer at campaigns, and help ppl register to vote.
    b. Was a teacher, and feel that families members are very disengaged from each other.
    c. Thinks "green stuff" is sometimes carried over the top.
    d. Leadership is important. Ppl at the top should realize that there are problems and address them. There is no filter from the top to the bottom.
    e. Don't connect with technology.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can we help someone like the contact join a community org to help out the community and the envr?
    b. How does contact balance her envr. friendly actions and non-envr. actions? How does her rejection of tech affect envr?

Contact Summary

Site: Sunnyvale
Contact Date: 11/28/2011
Today's Date: 11/28/2011

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
32	Male	Chinese	Vietnam	94087	IT Manager	23

1. What were the main issues or themes that struck you in this contact?
    a. Interconnectedness: people being connected to the different things around them and that their actions create a chain of effects throughout these webs of connections
    b. Environmental problems are by products of larger macro issues, such as third world issues. If those are solved, environmental problems will naturally be solved.
    c. Envr. issues will be addressed if there are economic incentives.
    d. Focus on good leadership
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Wrote down intellectuals who are important to him. Focus on intellectual and learning. Mentions interaction with other people (friends/coworkers, and but only wrote one friend in network. Activities: chat, eat at restaurants -> Santa Clara, Milpitas, NOT Sunnyvale usually (where he lives) 1/1-2 weeks.
Daily effects on envr.	Believes that he is only using just as much resources as anyone else is using. Use computer (a lot of electricity). Use a lot of water (long showers, plants, like running water in general). Feels that activities don't affect the environment. Thinks he is taking his normal share and is not wasting.
Optimistic scenario	Tools to resolve complex problems from the result of people becoming more connected. Have tools that let us see the bigger picture and see connections between processes and change. Seeing patterns. Do more efficiently. Good leadership. People coming together. More public transit. Work @ home.
Pessimistic scenario	Restrictions on freedom to choose to do certain things. Bailing on this place. Regulations (but there will be ways to work around it). Limited varieties of food. No longer having the freedom to go outside bc of air pollution. Overuse of resources and overdevelopment. Increase poverty, crime; bad maintenance. SV becoming a city of the past. More traffic; waste of human resources.

Realistic scenario	World growing up to see interconnectedness. There will be mistakes, but that is the solving process. Leadership and innovation. Personal power and development. Looking back and building on what we have.
Action	Optimistic by default. Would like to see processes and how things work. Routines should be taught to people. Simplified processes. More regulations. Economic development.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. More real probs to solve; envr probs should focus on macro level such as what third word countries are doing.
    b. Alot of info out there, but the right info has yet to be determined.
    c. Pop. growth drives envr. probs but also help sets standard of envr. mgmt.
    d. Bound by a system where work and money is important; vicious cycle.
    e. Would move on if SV decays; will not stay behind to help rebuild SV.
    f. Environmental consciousness is a first world luxury.
    g. Envr. action based on financial ability.
    h. 20 yrs is short.
    i. By the time he and his friends get off from work, there are not many places left for them to go and hang out.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. Interconnectedness is very important; people need to see how political, economic, and other systems affect the envr. These complex processes need to be revealed and summarized in a simple form.
    b. Patterns are important. Look at historical patterns to see how to build for a better future.
    c. Good leadership; primarily focused on world leaders, but what about local leaders?

Contact Summary

Site: Starbucks
Contact Date: 11/30/11
Today's Date: 11/30/11

Age	Gender	Ethnicity	Country of Birth	Zip Code	Occupation	Years in SV
83	Female	Armenian/ Assyrian	United States	94025	Retired (Formerly an Office Manger Investigator)	29

1. What were the main issues or themes that struck you in this contact?
   a. Grandson is envr. friendly and keeps her conscious of it.
   b. Getting the right answers (Medical insurance example)
   c. Technological waste/pollution in third world country.
   d. Ppl are paying attn to health. Improve envr means improved health.
2. Summarize the information you got (or failed to get) on each of these target questions you had for this contact.

Network	Eldest sister (phone everyday) (4/yr; lunch in the area) (4/yr ballet).. SJ sister (1/8weeks) at SJ restaurants. Classmates lunch. Misc. friends (1/6-7 weeks) lunch. Thrift shops in Menlo Park and Palo Alto. Classmates Jr. High/HS (2/yr) lunch in the area: Menlo Park, South SF/Upper Peninsula.
Daily effects on envr.	Don't drive too much. Walk whenever she can. Stayed home and do laundry. Hang dry laundry.
Optimistic scenario	Transit brought up to date. Convenient transport. Less cars. Things are closer together; ppl travel less for amenities. More ppl are aware. 20-30 yr olds are encouraged to be creative. Youth ppl will become entrepreneurs (Charlie Rose programs). Personal connection b/w business and people.
Pessimistic scenario	Overcrowded. More frustration and unhappiness. Toxic atmosphere. Rents will rise. Companies going under in SV bc of global envr. effects. Mentions China releasing toxic chemicals due to American companies' production of good (Apple etc.).

Realistic scenario	Will have good leadership. Ppl will be back at work. No vast difference. No gang warfare (EPA). More ppl care about the health of envr. SV may be the same. University sets the pace for things. (FB compensating commute story). Improve in envr -> health. Awareness of food consumption and other behaviors. More aligned with optimistic scenario.
Action	More awareness. Discussing w/ others in her social circles. Sign letters. Talks to ppl and exchange ideas.

3. Anything else that struck you as salient, interesting, illuminating, or important in this contact?
    a. Listens to the radio everyday (NPR). Information that contact gets comes from the radio.
    b. Talks about medical insurance and health bc 3M will no longer provide insurance for her.
    c. She talks about how her grandson believes that companies like Apple will fix their technological probs. She thinks so too, but feels that “something else” needs to happen to fix the problems.
    d. She exchanges ideas w/ friends w/in social circles.
4. What new hypotheses, speculations, or hunches about the field situations were suggested by the contact?
    a. How can the OG tie envr to the issue of health?
    b. How can the OG provide topics of convos for contact to discuss in social circles?

APPENDIX B: Impacts Matrix

	Immigrant Communities
Unique Impact	Immigrants tend to work more hours per week than US Born. Among a random sample conducted by United Way, no time (43.6%) was the most frequent reported barrier to obtaining services and education. English is the second most frequent barrier. The average hourly wage of immigrants from Mexico, Philippines, and Vietnam is significantly less than immigrants from China and India. Santa Clara County immigrants contribute substantially to the political process. 75% of registered immigrant votes reported that they vote all the time. Immigrants often maintain their cultural traditions through community centers, gardens, landmarks, cultural, educational, and social activities. Some examples include Hispanic celebrations on King Road, Little Saigon, Japantown, and Indian temples. **Implications:** Due to the ethnic and economic diversity within immigrant communities, the Organograph (OG) will need a diverse set of strategies to reach out to members of these different communities. Each community will understand and value climate change differently. For this reason, the OG must pay attention to the particular opportunities and risks that maybe involved in engaging these communities. No one strategy will be sufficient to foster environmental consciousness in the communities. However, this challenge poses wonderful opportunities for the OG team. The educational program that the OG team proposes can incorporate capacity building components that will empower each community to take on climate change on its own cultural terms. This will help address some of the educational and service needs that communities in the area currently have. Sources: United Way, US Census Bureau

	Immigrant Communities
Diverse Impact	Over 100 languages and dialects are spoken in Santa Clara County. Hispanic/Latino, and African American residents have lower median household income, higher proportion of Low-income households, and higher family and child poverty rates. East San Jose, Central San Jose, and South county are considered more “at risk” than other areas. Although Silicon Valley is ethnically diverse, there are many ethnic enclaves. For example, Cupertino and Milpitas have a very large Asian population, while the Latino population is concentrated in East San Jose and South County. Asians experienced the largest population growth followed by Latinos. Virtually, every city experienced an increase in its Asian population. San Jose has the largest Vietnamese population outside of Vietnam. Some areas, like East San Jose, have higher population of foreign-born (57%) in comparison to the county’s percentage. Foreign-born residents are largely concentrated in East San Jose, Central San Jose, North County (Milpitas, Alviso), Cupertino, and Gilroy Immigrants have a higher likelihood of low education background than US born. 53.5% of immigrants are not US citizens When immigrants’ children are added to the count, the proportion accounted for by 1st and 2nd generations approaches 60% of the county’s population. **Implications**: Diversity exists among **and** within the various immigrant communities. In addition, the diversity is represented geographically as well. Fostering diverse impacts requires paying attention to these various dimensions and the complexities involved. Otherwise, one community’s needs may be met at the expense of another. Sources: Santa Clara County Department of Education, United Way
Adaptability/ Endurance	1/3 of the workforce are immigrants. 1/4 of high tech firms are in Santa Clara County are founded by immigrants. Immigrants help increase investments in the region through their connections in their countries of origin. **Implications**: Immigrant communities are becoming a major social and economic force in the Silicon Valley. The OG team should prepare for the such demographic changes. Values and behaviors in regards to climate change will become increasingly more complex due to the conflation of different values and the emergence of new values brought by new people in the area. Sources: United Way

	Generational Shifts
Unique Impact	By 2040, the older adult population is expected to increase to 600,000, which will represent 27% of the Santa Clara County population. In 2000, 64% of adults 60 and over are white, 21% are Asians, 12.5% are Hispanic, 1.7% are African American, and 1.4% are Other. By 2050, there will be no racial majority. From 1990-2000, older adults who spoke a language other than English increased from 27% to 35%. Poor English proficiency went from 35% to 43%. Older adults indicated that they have difficulty using transportation. Older non-English speaking, non-white, older adults experience great difficulties getting where they need to go. **Implications:** In less than 40 years, the demographics will change dramatically. In short, the population will grow older and more diverse. At the same time, challenges in regards to transportation and languages other than English will arise. Since the OG is a site, the OG team should look at how to obviate the issue of transportation. How can older adults connect with the OG without necessarily having to travel to the OG or going online (Since older adults tend to use the internet less often than other age groups)? Sources: United Way, US Census Bureau
Diverse Impact	Geographically, there are high concentrations of children in East San Jose, Sought San Jose, South County, areas around the 101 corridor, Milpitas, Alviso, and Cupertino. (2000) Los Altos have the highest population of 65 and older, followed by Los Altos Hills and Saratoga. Geographically, there are high concentrations of older adults in the west valley area of the county, Campbell, Santa Clara, and Central San Jose. **Implications:** Not only are immigrant communities distributed in different concentrations throughout the region, residents belonging to different age groups are also distributed differently in the area. Some areas have a younger population; others have a older population. How does this affect access to the OG? Sources: United Way

	Generational Shifts
Adaptability/ Eduran ce	Silicon Valley population is growing older. Most cities in Santa Clara County experienced an Increase in children. Gilroy has the highest population under 18 years old (33%). 25% of the Santa Clara County population are children (some census track 33% or higher). **Implications:** Since the Silicon Valley population is generally growing older, the OG team should look at the temporal nature of the region becomes important to the adaptability of the OG. How do environmental values and behaviors change as people age? How do different age groups prioritize climate change in their lives? Knowing this will allow the OG team to devise different strategies for the OG to adapt to different age groups. Moreover, the OG can help existing and new generations adapt to different life stages in regards to climate change. Sources: United Way, US Census Bureau

	Cycling of People
Unique Impact	Immigrant workers, especially Chinese and Indian tech workers stay for several years and go back to their countries of origin. Work in technology industry drives the flow of people and ideas in the area. **Implications:** For the most part, the Hi-Tech industry perpetuates this cycle of people coming from and leaving to other places in the world. The OG team has the opportunity to create a unique impact by extending the OG to the rest of the world through this cycling of people built into the Silicon Valley. Sources: Cultures @ Silicon Valley

	Cycling of People
Diverse Impact	Although reports indicate that at least 1/4 of the businesses are created by foreign-born in Santa Clara County, there are also a number of foreign-born who move back to their countries of origin to start their own businesses. Whether it is due to visa problems or due to their own volition, foreign born workers do leave. Silicon Valley is not a place where people stay permanently. **Implications**: Since there exists a group of people that do not stay long in the region, the OG will have less time to connect with the individuals in category and effect change in behavior and/or values. Moreover, new ideas and values about climate change will be constantly coming in to the region. How will the OG incorporate these new and different cultural values and ideas into their climate clock? At the moment, the current cycle of people consists of mainly Chinese and Indians, but the next cycle of people of coming into the Silicon Valley may be from a totally different part of the world. How will that affect the OG ability to reach out to this particular group of people? As mentioned earlier, the OG team can use the fact that people come to the Silicon Valley and move back to their countries of origin as an opportunity to expand the reach of the OG. However, it will be difficult to anticipate and prepare for the different impacts (positive or negative) the OG will have in other countries. Sources: Cultures @ Silicon Valley, Work as Mission...J.M. Freeman
Adaptability/ Endurance	Foreign in-flow has increased consistently in the last several decades and will continue to increase in the future due to the region's effort to attract venture capital and talented workers. **Implications:** Due to the Great Recession, the increase in foreign immigration has dropped in the past few years. However, the population of Silicon Valley is still slowly increasing due to net foreign immigration. Foreign in-flow may regain its momentum or may stop in the future. However, the region has worked rigorously to attract foreign talent. What does the OG has to offer that will attract foreign talents to work on climate change? Sources: US Census Bureau, Joint Venture

	Reinvention
Unique Impact	The very kind of work that attracts people from all over the world to come to Silicon Valley allows the region to use diversity as a source of reinvention. **Implications**: As discussed in other areas, the Hi-Tech industry fuels the flow of people in the Silicon Valley. People come here for work. What kinds of work are people working on, and how do these kinds of work contribute to reinvention and innovation in the Silicon Valley? The OG team can incorporate social patterns found in these kinds of work into the OG. This will allow the community to better absorb the OG into their lives. At the same time, the OG can use the sources of reinvention that are already available in the area. Sources: Cultures @ Silicon Valley

	Reinvention
Diverse Impact	In the past years, Silicon Valley has reinvented itself through the notion of diversity. Silicon Valley champions the fact that it has diverse talent from around the round in the region to drive innovation. Silicon Valley is known for being a very adaptive community on many levels. On the regional level, the region has transformed itself from the Valley of Heart's Delight to Silicon Valley. On a more local and individual level, people are constantly "reinventing" themselves through their work and leisure activities. **Implications**: Silicon Valley is known for its resilient Hi-Tech industry. However, it is not the only industry that "reinvents" itself. Many other industries, such as the Service industry, had to reinvent themselves to adapt to the demographic, economic, and technological changes in the area. Aside from looking into industries, understanding there different leisure activities that people take on can help the OG team understand how people invent/reinvent their identities in the Silicon Valley. How can these patterns of reinvention be used to encourage the region to adapt to climate change? Sources: Cultures @ Silicon Valley
Adaptability/ Endurance	Silicon Valley adapts to changes through reinvention built on diversity. This diversity is nurtured by having a large foreign in-flow of people. Such reinvention has occurred for many decades in the region's history. Implications: The OG needs to be able to reinvent itself just like how the region reinvents itself. As mentioned before, the OG team can use patterns of reinvention to encourage people to adapt to climate change. At the same time, these patterns can be applied to the climate clock itself so that it too will adapt. From looking at the history of the region, the primary driving force that has helped the region adapt is people. As the only species on the planet to possess the capacity to comprehend the complexity of the environment and the ability to consciously change it, "people" will function as an important adaptive mechanism for climate change and for the OG. There will always be new technology and new indicators to replace outdated ones. However, people and communities are more permanent, and they are the force behind change. As a result, the OG should create some sort of social component to make the climate clock an enduring landmark. Sources: Cultures @ Silicon Valley, Joint Venture