

FIRST STEPS TO SMALLER FOOTPRINTS: WHAT WORKS FOR WHOM IN DAVIS?

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“A city of green buildings does not make a sustainable city. We need to address wider issues such as waste, water, transport and energy supply and their interface with buildings, whilst at the same time reducing our impact on the environment.”
(Keith Riley, MD, Veolia Environmental Services).

As we charge through the first years of the 21st century, the global citizen is faced with the looming challenge of substantial man-made climate change. Sea level rise, a depleting ozone layer, and erratic micro-climatic fluctuations including drought and floods are increasingly becoming a reality rather than scientific predictions. People ask themselves if anything can be done, if it is too late, whether one person, one family or one community can make a difference. A group of citizens in the city of Davis, California, have come together to make such a difference. This pilot study has been designed to aid the Cool Davis Initiative in its charter mission “...to inspire our community to reduce their greenhouse gas emissions, to adapt to a changing climate and to improve the quality of life for all.”

The Cool Davis Initiative (a network of citizens, community organizations, businesses and the City of Davis) is striving to involve a large percentage of the community (75%) in decreasing carbon emissions (at least by 15%) well below 1990 levels in the next three years and move toward reaching carbon neutrality by 2050. CDI reaches out to the community through prominent public events including talks, films, and annual Cool Davis Festivals in October, providing guidance to adopting low carbon diets across Davis, building a network supported by more than 40 community partners including businesses, voluntary and non-profit organizations, and faith groups, and by creating an active and dynamic organization that enables action in its various projects and working groups (for additional information about CDI see <http://www.cooldavis.org/>).

Goals and Methodology

The major goals of this research project are three-fold and include:

- Provide insight into the nature of the carbon footprint of Davis, California residents at the present time,

- Identify the types of carbon footprint-reduction activities that could most readily be pursued in the future, and
- Explore if there are specific carbon footprint-reduction activities that certain types of households may be more willing to participate in than others.

These insights will provide insight into developing strategies for future efforts by the Cool Davis Initiative (CDI) to more effectively engage Davis residents in carbon footprint reduction programs.

The study is based on survey data collected between May 2011 and June 2012. The data was collected through a series of three survey questionnaires, each of which consisted of 57 questions that addressed participant demographics, food procurement practices, home energy trends and habits, and local travel and commuting patterns (Appendix A). These surveys were distributed every six months beginning the summer of 2011, winter of 2011, and lastly, in the summer of 2012. They were distributed to the same people to see how they have changed or not, why they changed or not, and what was easiest/hardest for them and/or their families to change in their lifestyle to become more environmentally neutral. The final survey included four additional questions that addressed changes in participant environmental awareness, factors that influenced changes in behavior, and suggestion to motivate Davis residents to reduce their carbon footprint.

This report first discusses the nature of the sample population, and then summarizes the overall status of Davis residents' carbon footprint. Next, differences in conservation efforts between groups of Davis residents are explored, followed by a discussion of how survey participants modified their conservation efforts during the course of the study. The report concludes within consideration of factors the participants viewed as key for reducing their carbon footprint in the future, and suggestions of how CDI can best focus their efforts in the near future in moving toward carbon neutrality.

The Sample Population

The study population included the residents of Davis, California, and the target sample population of the lead person completing the form consisted of two groups: High School students and Adults/Professionals. Considerable effort was made to include a representative sample of single individuals, families with young children, families with older children, couples without children and lastly, UC Davis students. The total sample size of households that participated in the survey was 30. In the first and third surveys, 30 survey forms were returned, while in the second distribution, only 29 survey forms were returned.

The demographics of this sample population are briefly summarized. In terms of the status of person contacted to complete the form, Adult Professionals working in the private sector made up 47% of the sample population, while those working in a public

sector (27%) and High School students (23%) are also well-represented. As for the gender of the leading survey taker, 57% were female and 43 % were male. The majority of the sample population resides in East Davis (53%) along with 20% living in South Davis. The remaining 27% reside in Central, West, or North Davis. In regards to the types of housing these participants live in, the vast majority (80%) live in houses while the rest (20%) live in attached townhomes or apartments. In terms of the age of each household's residence, 48% were built relatively recently (between 1996 and 2002), 16% were built between 1991 and 1996, and 36% were considerably older (built between 1954 and 1989).

Household composition included 60% married with children in residence, 20% single, and the remaining 20% either married with children who no longer lived at home or married without children. For the families with children, most of them have either two children or none (36% and 30%, respectively). In terms of ethnicity, 53% identified themselves as Caucasian, 33% identified themselves as Asian, and the remaining 13 % identified themselves as either Mixed ethnicity, Middle Eastern, or African American. The vast majority (87%) of participants stated that the primary language spoken in the home was English.

The sample population was pretty typical to Davis, almost spilt equally between those with a Bachelor's degree (37%), a Master's degree (33%), and a Doctorate (27%). Although the majority (57%) of participants chose not to provide their household income, 23% earned between \$50,000 and \$100,000, while 20% earned less than \$50,000.

The Consumption Footprint of Davis Residents

The base consumption footprint of the sample population at the start of the study in the summer of 2011 is briefly summarized with discussion considering recycling efforts, food sources, energy use, and transportation. Recycling is particularly strong in Davis, with 87% of the sample families always using plastic trash recycling bins, and 83% always recycling paper goods (Figure 1). These rates are well above the National average of 34% (Washington State, Department of Ecology <http://www.ecy.wa.gov/news/2011/354.html>). Recycled bags are consistently used for grocery shopping 33% of the time and occasionally used 39% of the time. Similarly, recycled or papers bags were almost always used (43%) or occasionally used (57%) for non-food shopping. In terms of food packaging, Davis residents try to avoid plastic packaging either occasionally (60%) or always (20%). Bottled water use also reflects energy conscious decisions with almost half (47%) of the sample never using bottled water, and a third (33%) only occasionally using bottled water.

In general, there is a wide range of food use trends (Figure 2). Many grow their own vegetables, typically using them either occasionally (17%) or regularly (43%) in their meals.

Figure 1. Overall recycling trends in the sample population

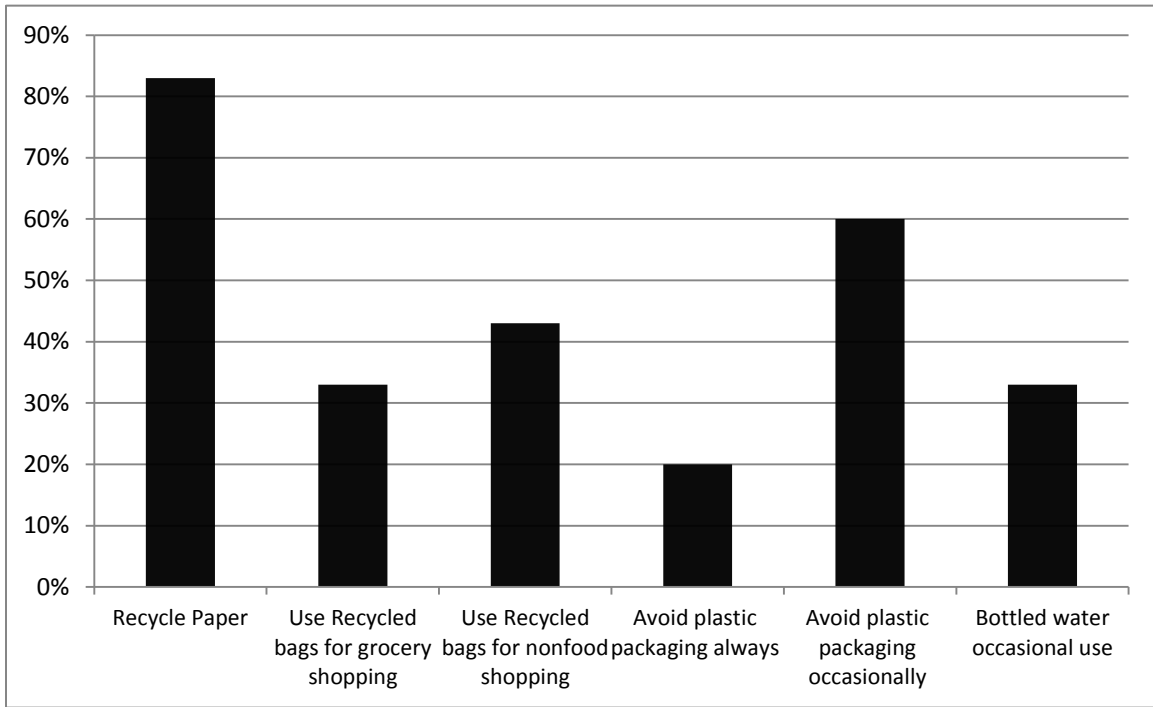
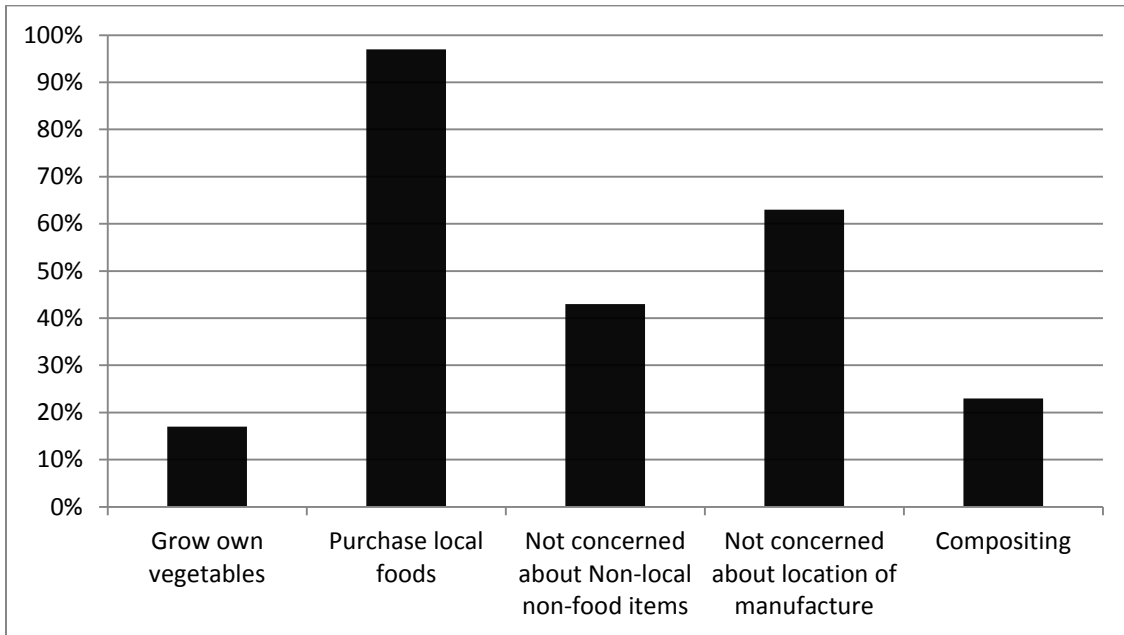


Figure 2. Trends in food use in the sample population

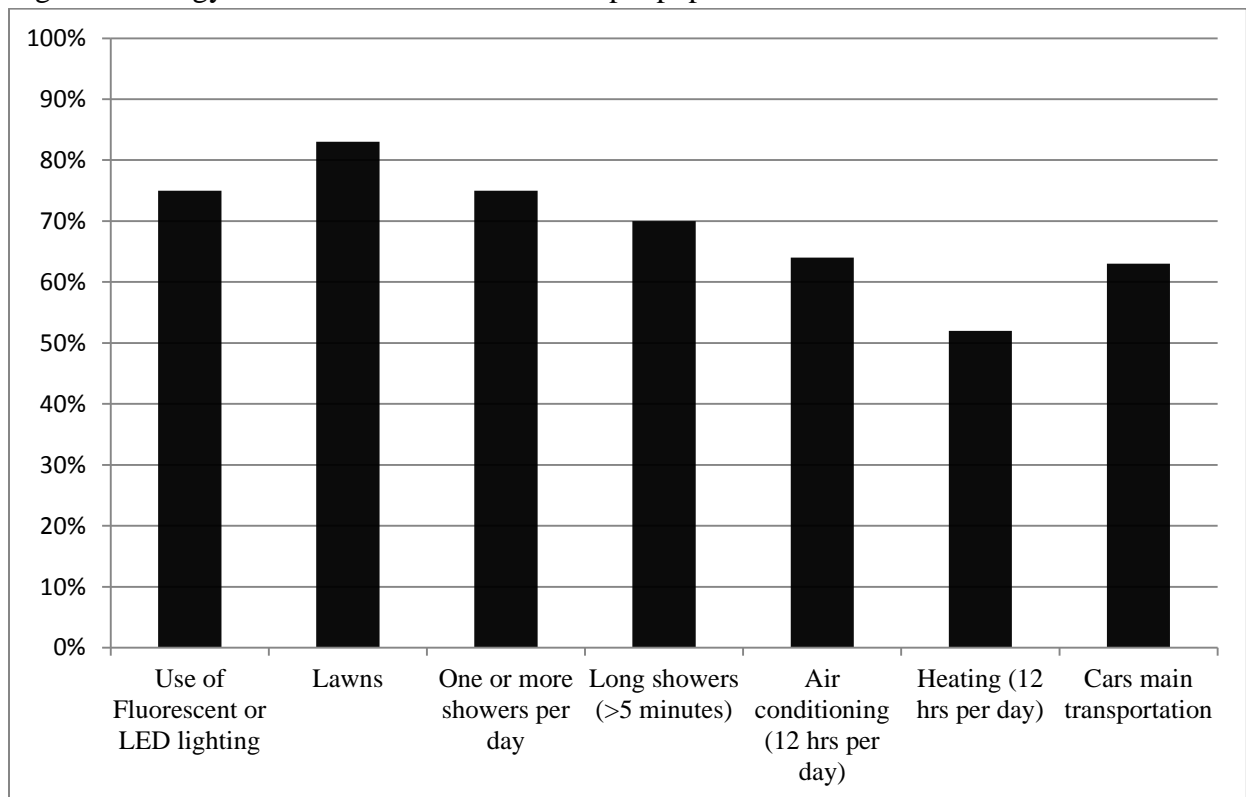


Winter gardens are most heavily used (providing the majority of vegetables for 53% of the sample population), followed by summer gardens (providing the majority of

vegetables for 27% of the study group). Davis residents tend to put considerable emphasis on buying local foods, and only 3% never buy locally. Less consideration is given to where non-local foods come from, as 43% do not take into account if the food is from outside of California but within the US, and 40% do not consider if foods are labeled as originating outside the US. The trend is even more obvious with non-food items as 63% of the study group never consider the location of manufacture when making purchases. Finally, composting is infrequent with only 23% of the group engaging in this activity.

In contrast to recycling, overall conservation in energy use is less evident (Figure 3). The only bright spot is lighting where 57% of the group use compact fluorescent or LED lighting in at least 75% of lighting options (the remaining respondents had 25% or less usage of energy-efficient lighting). Water usage reveals many opportunities for future energy savings: 83% have grass lawns, 75% take one or more showers a day, and very few take short showers (30% take 2-5 minute showers, and 70% take 5 minute or longer showers). Heating and cooling energy conservation is somewhat lower with only 26% never using air conditioning (64% have summer time use up to 12 hours per day and 10% use it more than 12 hours per day), and only 26% rarely or never using heating in the winter (52% have winter-time use up to 12 hours per day, and 19% use it more than 12 hours per day).

Figure 3. Energy conservation trend in the sample population



Turning to transportation, Davis households typically have two cars (72%), and occasionally (17%) more (see Figure 3). Cars are the main form of transportation to go to work (with 63% doing so always or most of the time and only 13% never using it). Bike are used regularly (37%) or sometimes (23%). Most respondents never walk (80%) or use public transportation (73%) to work. Children typically either bike (38%) or get a ride from their parents (43%); they infrequently car pool (15%).

Differences between groups within the sample population

In order to provide full insight into how to successfully target sections of the community to conserve better, it is useful to explore if some portions of the population are currently undertaking more sustainable activities than others. When looking at the usage of recyclable bags when going to the grocery store, Caucasian families surveyed more regularly participate in this conservation activity more than do surveyed Asian families (Caucasian: 47% always do use them, while 7% never do; Asian: 30% always use them, while 30% never do). There are also differences in the use of recyclable bags at the grocery store when the highest educational degree in the family is examined. There is clear trend that the higher the degree the greater the use of recyclable bags. For example 30% of household with B.A always use recyclable bags, 50% of households with an M.A always use recyclable bags, while 57% of households with a Ph.D. always use recyclable bags. Another interesting difference within the community entails use of recycling bins: all households (100%) residing in townhome and apartments use these bins, while slightly fewer (93%), of households residing in houses do so.

As for changes in the household and relationship to conservation, families with children still living at home (57%) are the most likely to use compact/LED lights versus the rest of participants who do not have children living at home. Water bottle consumption also varies within the city, with the differences based on highest degree of education. For those with a B.A. 36% of the household do not use water bottles at all. This increases slightly to 40% for households with a M.A. and to 50% with households with a Ph.D. When comparing the various motivation techniques used by participants, there are also differences within the community. For example, 18% of 23% who said rebates and financial incentives were the best to use were families who had kids living at home. In addition, 14% of 18% who said that education was the best avenue to increase awareness and change in behavior, had children living at home.

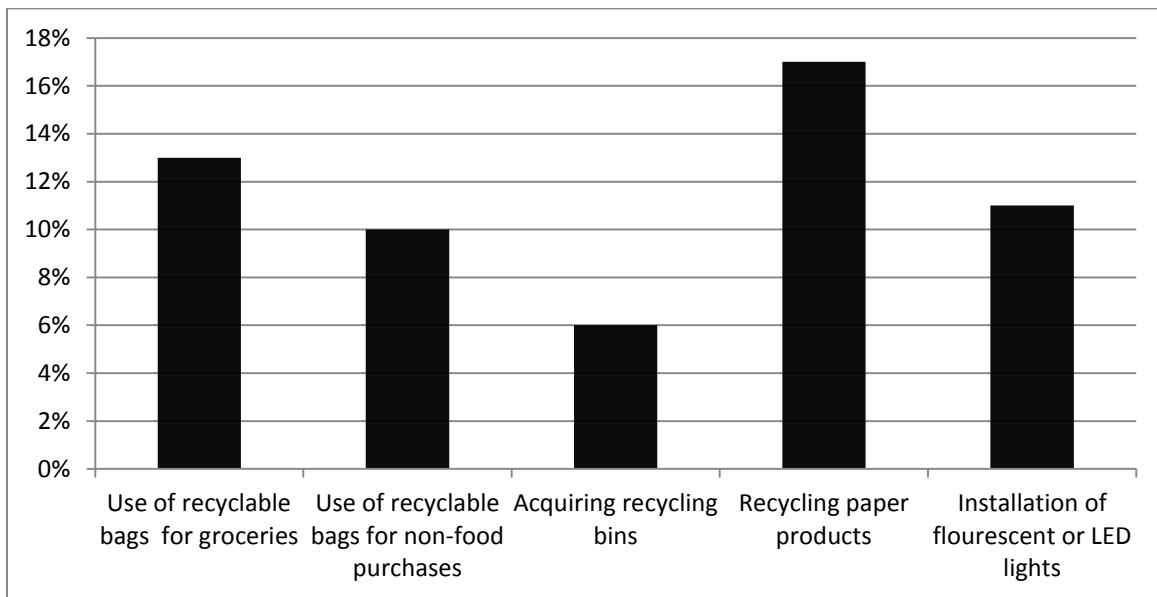
These differences between segments of the city population indicate that a number of factors go into decision making for recycling and energy conservation. Many of these factors appear to be tied to household size, type of dwelling, the presence of children in the household, ethnicity, and the amount of university education. Although preliminary, these findings provide a starting point for targeting and tailoring ways to lowering the carbon footprint of every resident in the city of Davis.

Carbon Footprint Changes During the Study

Over the course of this research project, the consumption behavior of a number of participants changed. A notable number of participants declared they made a significant change to their lifestyle and in their home to become more sustainable and environmentally aware. In both Survey 2 and in Survey 3, 47% of participants stated that they had made change in the past six months to conserve and be more environmentally aware.

Analysis of the survey data revealed four notable changes in energy conservation. In each case, these changes are most noticeable when Survey 1 is compared to Survey 3. The five factors that have changed are related to use of recyclable bags at the grocery store, the use of recyclable or paper bags at other stores, acquiring recycling bins, recycling of paper products, and the installation of fluorescent and/or LED lights (Figure 4).

Figure 4. Increase in energy conservation during project duration



In regards to the use of recyclable bags when grocery shopping, in the first survey, only 30% said they always used them. By Survey 3 this had increased such that 43% always used recycling bags for groceries. A similar trend occurs with the use of recyclable bags and paper bags for non-grocery purchases. In Survey 1, 37% always used non-plastic bags and in Survey 3 this increased to 47%.

As for recycling at home, owning recycling bins for paper and plastics, and using them regularly increased from 87% in Survey 1 to 93% in Survey 3. Similarly, 83% of

respondents said they always made sure to recycle paper-based products in Survey 1 and by Survey 3, 100% of people made it a point to regularly recycle paper products.

The usage of compact florescent and/or LED lights around the house also increased from survey one to Survey 3. In Survey 1 43% stated they used energy efficient lighting in more than 75% of the residential fixtures. This increased to 54% of respondents in Survey 3. As such, more individuals took the initiative to swap to energy efficient lights.

Overall, the majority of these changes that took place over the course of the surveyed period appear to be motivated mostly by factors tied to wanting to contribute to reducing the community's carbon footprint. Less important was the economic impact to the family budget (and this was only relevant with respect to changes in light fixtures). At the start of the survey, many of respondents had not ever heard about what a carbon footprint was or why it was important to have a low carbon footprint. Nor had they received tips on how to lower their carbon footprint. It is likely that by participating in this study these household were able to learn more and become more sensitive to the issue, and observed what friends and neighbors doing to help out to make their neighborhood a better place to live. Taking into account the ongoing news about how to be environmentally aware may also very well have been an important factor in the decisions these household made to make positive changes in their daily lives.

Motivation Techniques and Implementation

Throughout this research project, individuals have had to muster up the motivation to continue making green changes to their household, lifestyle, and consumption as much as possible. In the third and last survey, participants were able to write a free response regarding the various motivation techniques they used along the 1.5-year period. The top three motivation techniques used by participants were accessible tips to improve carbon footprint, education on the topic, and rebates and small incentives. Some thought that it was best to begin action at the youngest level, children; and encourage them to join the green movement. Overall, participants thought that awareness of one's carbon footprint, and ways to reduce it was important on all levels.

As for implementing these techniques into their future plans, 43% said that they would start with household energy conservation, such as changing light bulb to energy efficient ones, or decreasing the usage of AC/heating throughout the year. About 18% said that they would begin buying more food locally, and 14% said they would alter their travel habits to use less energy in order to reduce their footprint.

Throughout this project, there have been some limitations that may have affected the overall outcome. First, the sample size of this project it quite small, compared to most, at 30 participants. Second, the data is from interviews and not based on observation of activities. In addition, the representation of all types and backgrounds of people in

Davis was difficult to obtain. Notably, Hispanics were not represented in the survey despite comprising 12.5% of the City population based on the 2010 census, Caucasians were underrepresented (53% of the survey sample versus 65% of the City population), and Asians were overrepresented (33% of the survey sample versus 22% of the City population). Third, the questionnaire asked about use of recyclable bags for shopping; instead it should have asked for use of reusable bags. This becomes particularly relevant because plastic bags are recyclable and cloth bags are not recyclable but they are reusable. Lastly, some participants were not able to return a survey, and that may have skewed the data and comparison of one survey to another. Despite the limitations, this project has proven successful in collecting enough data to gain baseline information and understand several trends in how particular portions of the population area changing their daily activities to become more environmentally friendly.

Conclusion

The results of this pilot study have identified major trends in consumption behavior in the sample population in terms of transportation, recycled paper use, water use, energy consumption, and food and non-food purchases. Overall, modes of transportation (use of personal vehicles primarily) and water use (long showers and watering of lawns) were two major contributors to higher carbon footprints. There were also significant differences between families in the purchase of non-local products, mainly for non-food items. This this is not surprising and is reflective of the economic times where most products are made outside the USA. In contrast, recycling, energy efficient lighting, and the regular purchase of local food products were activities that many families are readily embracing to help lower carbon emissions. Interestingly, families with children at home tend to be leaders in the transition to energy efficient LED and similar lighting.

Given the scale of this pilot study, several behaviors could not be explored effectively. Future studies of Davis residents should look at the relationship between consumption patterns and family type (with and without children), economic status of families, and exposure to environmental awareness programs. There are a number of factors that Davis residents could be made more aware of that would help them reduce their carbon footprint and consumption behaviors. Some examples of these are bottle water usage, using home grown vegetables, not buying products that are from outside CA/USA, composting, using efficient light bulbs, shortening shower lengths, and decreasing usage of AC/heating.

Given that a relatively passive survey questionnaire prompted many families in the study group to change some of their consumption patterns; it is quite likely that effective and active outreach efforts by CDI would quickly result in significant changes. Many of the changes during course of study were tied directly to things that people were motivated to do to help their families and also the community to reduce their carbon

footprint. There are certainly other changes that require more effort but that would also affect their pocket book in a positive way. For example, reducing shower times, replacing lawns with drought resistant landscapes, installing faucets with low discharge faucets and other similar measures. These sorts of changes require even more education and outreach to demonstrate the long term savings that households will obtain.

It is a well-known fact that climate change is the greatest threat to our common future, and there is a very short period of time to tackle the problem before it is too late to make any difference. It is imperative that changes take place now rather than plans be made for some time in the future (Chris Huhne, Secretary of State for Energy & Climate Change May 2010). Ken Livingstone, Mayor of London (foreword to the Mayor's Climate Change Action Plan, 2007) put it eloquently when he said "To tackle climate change you don't have to reduce your quality of life, but you do have to change the way you live."

Data gathered through this study provides insight into consumer behavior and associated motivation factors of a sample of Davis residents. In doing so the study has identified some initial activities that can effectively alter behaviors to the lower carbon footprints of Davis residents. It also provided insight into differences in consumption trends between sections of the community, and is a starting point for new and enhanced conservation programs aimed at a more sustainable lifestyle. Furthermore, this pilot study shows how a portion of the sample population successfully changed from the summer of 2011 to the summer of 2012 very likely as a reaction to the study which brought conservation to their attention. Likewise, we received direct feedback from participants on their opinion of the best types of motivation to encourage change.

With all the information and data from this pilot project, CDI will be able to better support individuals of Davis on their road to sustainability. One of CDI's goals is to decrease carbon emissions in the next three years and move toward reaching carbon neutrality by 2050. It has been argued that by 2050 all global activities outside agriculture need to be near zero carbon emitting if we are to stop carbon dioxide levels in the atmosphere from growing (David Miliband, Secretary of State for the Environment, Food and Rural Affairs, personal blog, 1 November 2006).

In the upcoming years, Davis residents can turn to helpful websites, books, or even their neighbor in finding their best fit to become more environmentally aware and motivated to make less impact. Every step along the way matters, so we need to get the word out to make each step count.

Acknowledgements

This project would not have been possible without the guidance of CDI core group members Lynne Nittler, Chris Granger and Mitch Sears. Thank you for your patience and time in helping me design the project, and for reviewing versions of this paper. I also thank the families in my sample population who willingly took the time to complete the questionnaires for my project.

Appendix A – Survey Questionnaires

Survey 1, Summer 2011

Cool Davis Initiative: Low Carbon Diet “First steps to smaller footprints: what works for whom?”

Thank you for participating in my research project through Cool Davis Initiative (CDI) (<http://cityofdavis.org/cdd/sustainability/cooldavis/index.cfm>). CDI is a community based organization whose goal is to engage three-quarters of Davis households in reducing their energy use through a variety of means, including the **Low Carbon Diet**, installing solar, retrofit ramp-ups, eating local food, biking, and more.

I am the High School representative on CDI core group team, and one of the things I do is facilitate the involvement of students from Davis schools in CDI projects. I am also very interested in helping Davis finds a successful path to being sustainable. In this endeavor, I am conducting this project to collect data from Davis residences to gain insight on how CDI can help, guide and facilitate residents to becoming more energy efficient and environmentally responsible. The main goal of this project is to figure out if there are particular behaviors and changes in lifestyles that would work best among different groups of Davis residents. My data collection is through the attached questionnaire which I am requesting you to complete. I will have a similar questionnaire again in Nov/Dec 2011 and again in May/June 2012 to get a longer-term perspective.

Please note that your identity will be protected and it will not be used in any reporting. Your participation is very important to the success of my research project, and I really appreciate your willingness and for taking the time to participate.

If you have any questions, please do not hesitate to contact me either on my cell 530-902-3726 or my home number at 530-753-0319; or CDI contacts Chris Granger at 757-6892 or Mitch Sears at 757 5656 ext.5544.

QUESTIONNAIRE 1

Family # _____ (To be assigned by Asha Byrd)

Housing Model/ Type _____

Year house was built _____

Location in Davis: South East Central West North

Status of person completing form:

- High School Student
- UC Davis Student
- Adult Professional working in private sector
- Adult Professional in public sector

Highest education level in family (Check one):

- High School
- Bachelors
- Masters
- Doctoral
- Other

Household Income (check one):

- < \$50,000
- \$50,000 - \$100,000
- \$100,000 - \$150,000
- \$150,000 - \$200,000
- > \$200,000
- Prefer not to answer this question

Sex of individual completing form/taking the lead:

- Male
- Female

Ethnicity (Check all that apply)

- Caucasian
- Asian (include South Asia)
- Hispanic/ Latin American
- Native American/ Alaskan
- Other _____

Language Spoken in household

- English
- Spanish
- Other _____

- Family Size:** Single (Male/Female)
 Married with Children (____# children) (_____ age range of children)
 Married with Children but children not living at home
 Married without Children

- Residence Type:** Single Family Home/Townhome
 Apartment Rental
 Other _____

- Overall:** Have you made any changes to conserve in the last 6 months?
 Yes (specify) Not sure No

FOOD

1. Use of bottled water
 - Residential use (daily for whole family)
 - Residential use (daily for certain family members)
 - Occasional (_____ per week)
 - None

2. Buy local* vegetables
 - Always for all meals
 - Always for only parts of meals
 - Occasional (_____ per month; _____ season)
 - Never

3. Use home grown vegetables
 - Always for all meals
 - Always for only parts of meals
 - Occasional (_____ per month; _____ season)
 - Never

4. We/I would shop at local food markets (markets that carry local* food) regularly if (choose as many as applicable)
 - Prices are competitive
 - Produce quality is amenable
 - Types of produce needed is available
 - Does not apply – I would never shop there for personal reasons
 - Does not apply – I shop there always regardless

5. We/I take our own recyclable grocery bags when shopping for food
 - Always
 - Occasionally (_____ per week)
 - Haven't thought about it
 - Never

6. We/I think twice before buying grocery produce that are from outside CA

- Always
- Occasionally (_____per month)
- Never

7. We/I think twice before buying grocery produce that are from outside US

- Always
- Occasionally (_____per month)
- Never

8. We/I try to buy fruits, vegetables and nuts that are not packed in plastic

- Always
- Occasionally depending on the store
- Haven't thought about it
- Never

9. We/I may think about reducing meat consumption if it (lowers our/my carbon footprint).

- Yes, already rarely or never eat meat.
- Yes, beginning in the near future
- Possibly, but need to learn more about it
- Never

**Local: Inside Yolo and Sacramento County (for both food and other products)*

Home and Life

1. We/I use compact fluorescent or LED lights throughout the house

- All of them
- A few of them (25%)
- Haven't thought about it
- Most of them (>75%)
- None of them
- No they are too expensive

2. We/I own recycling bins for paper/plastic and use them

- Always
- Rarely
- Most of the time
- Never/Don't have them

3. We/I compost our scrap vegetables and fruits

- Always
- Never
- Don't have compost
- Never thought about it but will do so

4. We/I purchase non-food items only from the United States

- Always
- Never
- Don't check that
- Never thought about it but will do so

5. When shopping we/I use paper bags or a reusable bag to take items home
- Always
 - Sometimes/mix
 - Never/Use plastic bags
6. On an average how often does each individual in the family shower/take a bath per day (put 1 check mark next to corresponding option for each individual in family) ?
- Once a day
 - Twice a day
 - Every other day
 - Not sure
7. On average how long is a shower in your family (put 1 check mark next to corresponding option for each individual in family)?
- less than 2 mins
 - 2 – 5 mins
 - 5-10 mins
 - > 10 mins
8. Would higher water prices limit the number of showers?
- Yes
 - No
 - Depends on how high the price goes
9. Would higher prices limit lengths of showers?
- Yes
 - No
 - Depends on how high the price goes
10. In the best of your knowledge, which of the following would change the frequency and length of your shower? (you may mark more than one)
- Increase in water prices
 - Rebate on lower water usage
 - Changing global climate and environmental stress such as drought or less snow melt
 - Water rationing
11. Do you have a lawn?
- Yes
 - No
12. Was it present when you bought/rented your residence?
- Yes
 - No
13. Would you think of replacing it with drought tolerant/low water landscape?
- Yes
 - Yes, but it is not a financial investment I want to undertake at this point
 - No, the lawn is the best choice for that location
 - No, because I think my home value will go down
14. Do you have a vegetable garden that provides more than 50% of your vegetable food in the summer?
- Yes
 - No

15. Do you have a vegetable garden that provides more than 50% of your vegetable food in the winter?

- Yes No

16. If you do not have a vegetable garden, is it because of

- no interest
 no space
 would love to but have other limitations

17. How often do you use your air conditioner during summers?

- daily < 12 hrs per day
 daily > 12 hrs per day
 only on rare specific days when it is very hot (less than 10 days in summer or when it is over 100)
 Never

18. Which of the following do you consider when using your air conditioner on days over 100?)

- increasing your energy bill
 contributing to the green house effect if there is an inversion layer
 Prime time (turning on the air conditioner late in the afternoon when the greatest number of homes and businesses are using theirs and the electric grid is likely to be strained)
 Not sure – need more information
 Possibly but haven't thought about it

19. How often do you use heating (gas/electric fireplace or stove) during winters?

- daily < 12 hrs per day
 daily > 12 hrs per day
 only on specific rare days when it is very cold
 Never, we have a wood burning fireplace

20. Which of the following do you consider when using your air conditioner on days under 50 degrees?

- Energy bill
 Carbon emissions green house effect
 Not sure – need more information
 Possibly but haven't thought about it

21. We make it a point to recycle paper (notes, notepads, newspaper, magazines, junk mail, printer paper)

- Always Sometimes Never

22. How many cars do you own?

- _____ cars Age of car(s) _____
 Average MPG of car(s) _____

23. We/I drive to work everyday
 Always Most of the time
 Sometimes Never
24. We/I bike to work everyday
 Always Most of the time
 Sometimes Never
25. We/I walk to work everyday
 Always Most of the time
 Sometimes Never
26. We/I take public transportation to work everyday
 Always Most of the time
 Sometimes Never
27. The children in the family get to school by
 car car pool
 bike bus
 Not Applicable
28. If you or your children do not bike, take public transportation or participate in a car pool, which of the following applies to your family?
 Biking, Public transportation and car pooling is inconvenient – we like to have control on when we come and go
 Biking, Public transportation and car pooling is too time consuming and we/I have a full day and tight schedule
 We do not have Public transportation and car pooling options
 Not applicable
29. Do you plan to make any changes to reduce your energy use in the next 6 months?
 Yes (specify) _____
 Not sure
 No
30. Which of the following behaviors are you most likely to change first to reduce your energy use:
 Buying more local foods
 Reducing disposable containers
 Travel using less energy
 Household energy conservation

Survey 2, Winter 2011

Cool Davis Initiative: Low Carbon Diet

“First steps to smaller footprints: what works for whom?”

Thank you for participating in my second step of my research project through Cool Davis Initiative (CDI) (<http://cityofdavis.org/cdd/sustainability/cooldavis/index.cfm>). Your first response was excellent and I am very excited about how the project is coming along. This questionnaire is the 2nd of the three needed for the project. I will have a similar questionnaire again in May/June 2012 to get a long-term perspective

As before, your identity will be protected and it will not be used in any reporting. Your participation is very important to the success of my research project, and I really appreciate your willingness and for taking the time to participate.

If you have any questions, please do not hesitate to contact me either on my cell 530-902-3726 or my home number at 530-753-0319; or CDI contacts Chris Granger at 757-6892 or Mitch Sears at 757 5656 ext.5544.

- Asha Byrd

QUESTIONNAIRE 2

Family # _____ (assigned by Asha Byrd)

Has anything changed since the last questionnaire in terms of:

Household Income: _____ (increase, decrease, largely same)

Family Size: _____ (increase, decrease, same)

Overall: Have you made any changes to conserve in the last 6 months?

Yes (specify) Not sure No

FOOD IN THE PAST 6 MONTHS

1. Use of bottled water

- Residential use (daily for whole family)
- Residential use (daily for certain family members)
- Occasional (_____ per week)
- None

2. Buy local* vegetables

- Always for all meals Always for only parts of meals
- Occasional (_____ per month; _____ season)
- Never

3. Use home grown vegetables

- Always for all meals Always for only parts of meals
- Occasional (_____ per month; _____ season)
- Never

4. We/I have shopped at local food markets (markets that carry local* food) regularly because (choose as many as applicable)

- Prices are competitive Produce quality is amenable
- Types of produce needed is available
- Does not apply – I have not shopped there for personal reasons
- Does not apply – I shop there always regardless

5. We/I take our own recyclable grocery bags when shopping for food

- Always Occasionally (_____ per week)
- Haven't thought about it Never

6. We/I think twice before buying grocery produce that are from outside CA
 Always Occasionally (_____per month)
 Never
7. We/I think twice before buying grocery produce that are from outside US
 Always Occasionally (_____per month)
 Never
8. We/I try to buy fruits, vegetables and nuts that are not packed in plastic
 Always Occasionally depending on the store
 Haven't thought about it Never
9. We/I may think about reducing meat consumption if it (lowers our/my carbon footprint).
 Yes, already rarely or never eat meat.
 Yes, beginning in the near future
 Possibly, but need to learn more about it
 Never

**Local: Inside Yolo and Sacramento County (for both food and other products)*

Home and Life in the past 6 months

1. We/I use compact fluorescent or LED lights throughout the house
 All of them Most of them (>75%)
 A few of them (25%) None of them
 Haven't thought about it No they are too expensive
2. We/I own recycling bins for paper/plastic and use them
 Always Most of the time
 Rarely Never/Don't have them
3. We/I compost our scrap vegetables and fruits
 Always Don't have compost
 Never Never thought about it but will do so
4. We/I purchase non-food items only from the United States
 Always Don't check that
 Never Never thought about it but will do so
5. When shopping we/I use paper bags or a reusable bag to take items home
 Always Sometimes/mix
 Never/Use plastic bags
6. On an average how often does each individual in the family shower/take a bath per day (put 1 check mark next to corresponding option for each individual in family)?

- Once a day Twice a day
 Every other day Not sure

7. On average how long is a shower in your family (put 1 check mark next to corresponding option for each individual in family)?

- less than 2 mins 2 – 5 mins
 5-10 mins > 10 mins

8. Would higher water prices limit the number of showers?

- Yes No Depends on how high the price goes

9. Would higher prices limit lengths of showers?

- Yes No Depends on how high the price goes

10. In the best of your knowledge, which of the following would change the frequency and length of your shower? (you may mark more than one)

- Increase in water prices Rebate on lower water usage
 Changing global climate/environmental stress (drought or less snow melt)
 Water rationing

11. Do you have a lawn?

- Yes No

12. Has the lawn be placed in the last 6 months?

- Yes No

13. Would you think of replacing it with drought tolerant/low water landscape?

- Yes
 Yes, but it is not a financial investment I want to undertake at this point
 No, the lawn is the best choice for that location
 No, because I think my home value will go down

14. Do you have a vegetable garden that provides more than 50% of your vegetable food in the summer?

- Yes No

15. Do you have a vegetable garden that provides more than 50% of your vegetable food in the winter?

- Yes No

16. If you do not have a vegetable garden, is it because of

- no interest no space
 would love to but have other limitations

17. How often do you think you will use your air conditioner this summer?

- daily < 12 hrs per day daily > 12 hrs per day

- only on rare specific days when it is very hot (less than 10 days in summer or when it is over 100)
- Never

18. Which of the following will you consider when using your air conditioner on days over 100 this summer?

- increasing your energy bill
- contributing to the greenhouse effect if there is an inversion layer
- Prime time (turning on the air conditioner late in the afternoon when the greatest number of homes and businesses are using theirs and the electric grid is likely to be strained)
- Not sure – need more information
- Possibly but haven't thought about it

19. How often did you use heating (gas/electric fireplace or stove) this past winter?

- daily < 12 hrs per day
- daily > 12 hrs per day
- only on specific rare days when it is very cold
- Never, we have a wood burning fireplace

20. Which of the following did you consider this winter when using your heater on days under 50 degrees?

- Energy bill
- Carbon emissions greenhouse effect
- Not sure – need more information
- Possibly but haven't thought about it

21. We make it a point to recycle paper (notes, notepads, newspaper, magazines, junk mail, printer paper)

- Always
- Sometimes
- Never

22. How many cars do you own?

- _____ cars
- Age of car(s) _____
- Average MPG of car(s) _____

23. We/I drive to work everyday

- Always
- Most of the time
- Sometimes
- Never

24. We/I bike to work everyday

- Always
- Most of the time
- Sometimes
- Never

25. We/I walk to work everyday

- Always
- Most of the time
- Sometimes
- Never

26. We/I take public transportation to work everyday

- Always
- Most of the time
- Sometimes
- Never

27. The children in the family get to school by

- car
- car pool
- bike
- bus
- Not Applicable

28. If you or your children do not bike, take public transportation or participate in a car pool, which of the following applies to your family?

- Biking, Public transportation and carpooling is inconvenient – we like to have control on when we come and go
- Biking, Public transportation and carpooling is too time consuming and we/I have a full day and tight schedule
- We do not have Public transportation and carpooling options
- Not applicable

29. Do you plan to make any changes to reduce your energy use in the near future?

- Yes (specify) _____
- Not sure
- No

30. Which of the following behaviors are you most likely to change first to reduce your energy use:

- Buying more local foods
- Reducing disposable containers
- Travel using less energy
- Household energy conservation

Survey 3, Summer 2012

Cool Davis Initiative: Low Carbon Diet **“First steps to smaller footprints: what works for whom?”**

Thank you very much for participating in the *final* step of my research project through Cool Davis Initiative (CDI) (<http://cityofdavis.org/cdd/sustainability/cooldavis/index.cfm>). This questionnaire is the last of the three needed for the project. As I have done throughout this project, your identity will be protected and it will not be used in any reporting. Your participation is very important to the success of my research project, and I really appreciate your willingness and for taking the time to participate.

If you have any questions, please do not hesitate to contact me either on my cell 530-902-3726 or my home number at 530-753-0319; or CDI contacts Chris Granger at 757-6892 or Mitch Sears at 757-5610. Please return the completed questionnaire in the attached envelope by June 5, 2012.

I am planning to do the analysis and write the project report this summer. If you are interested in reading the final report, please provide an email address below and I will make sure you receive an electronic copy as soon as it is ready for distribution.

Once again – THANK YOU so much for your help and participation in my research project.

- Asha Byrd

QUESTIONNAIRE 3

Family # _____ (assigned by Asha Byrd)

Email (if interested in final report): _____

Has anything changed since the last questionnaire in terms of:

Household Income: _____ (increase, decrease, largely same)

Family Size: _____ (increase, decrease, same)

Overall: Have you made any changes to conserve in the last 6 months?

Yes (specify) Not sure No

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- Always Most of the time
 Sometimes Never
24. We/I bike to work everyday
- Always Most of the time
 Sometimes Never
25. We/I walk to work everyday
- Always Most of the time
 Sometimes Never

33. In my opinion, the best way(s) to motivate Davis residents to reduce their carbon footprint is:
