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A Survey of Multitasking by
Northern California Commuters:
Description of the Data Collection Process

December 2012

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DISCLAIMER

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TABLE OF CONTENTS

1. Introduction.....	1
2. Survey Design and Production	2
2.1 Overview of the Survey Process, Goals, and Philosophy	2
2.2 Contents of the Survey	3
2.3 Survey Production Issues	9
2.3.1 Institutional Review Board approval.....	9
2.3.2 Printing costs.....	9
2.3.3 Design and implementation of the online version of the survey	12
3. Sampling	16
4. Data Collection.....	19
5. Summary.....	27
6. References.....	28

LIST OF FIGURES

Figure 1. Survey design timeline	3
Figure 2. Example of recruitment flyer.....	10
Figure 3. Business reply mail panel (printed on 9” x 12” envelopes).....	11
Figure 4. Capitol Corridor route	17
Figure 5. Geographic area of interest based on Capitol Corridor route	17
Figure 6. T-shirts for physical distribution team (customink.com)	21
Figure 7. E-mail "blurb" inviting participants to take online survey	24
Figure 8. Yolobus.com survey advertisement.....	25
Figure 9. Second page of 511contracosta.org publicity	26
Figure 10. "Blurb" presented on sta.ca.gov.....	27

LIST OF TABLES

Table 1. Printing costs.....	11
Table 2. Costs per survey administration mode.....	21
Table 3. Overall schedule of survey distribution	22
Table 4. Cost and estimated response rate by distribution mode.....	23
Table 5. Increase in responses due to reminder messages	27

1. INTRODUCTION

Daily travel is conventionally treated by economists, engineers, planners, policymakers, and scholars as a disutility to be minimized – an action carried out solely to permit the engagement in the spatially-separated activities which are the real targets of interest for the traveler. Secondary activities (referred to here as “(travel) multitasking”), however, could affect the utility of travel. Accordingly, we are undertaking an empirical study to investigate whether, and (if so) to what extent, this occurs.

Two key decisions were made at the outset. The first was to focus on multitasking during commute travel in particular. The reason is that travel is immensely diverse (from recreational walks around the block to long-distance business trips and holidays), and it is likely that multitasking propensities and behaviors vary accordingly. Given the inevitable limitations on sample size, we were concerned that an attempt to treat all travel would result in such a heterogeneous sample of trips that it would be difficult to discern patterns – we would inevitably need to stratify by type of trip, and then would likely not have enough cases for each trip type to obtain statistically reliable results. To allow all trip types would also have complicated (and lengthened) the survey.

The choice of commuting as the single trip type of interest was straightforward: commuting is frequent, regular, a major component of all travel and an important contributor to congestion. For these reasons, it is a key target of policies directed at reducing automobile travel, and is often well-served by transit even if non-commuting trips are not – providing a good opportunity to evaluate the role of multitasking in the choice of transit over auto (or the converse). Finally, for many if not most people, the commute is long enough (and repetitive enough) to make several types of multitasking feasible and potentially attractive.

Given the decision to focus on commuting, the second key decision was to limit the sample to Northern California commuters. This was simply for logistical convenience and cost economy. However, conditional on mode choice and sociodemographic characteristics, we have no particular reason to think that Northern Californians would dramatically differ from others in their multitasking attitudes and behavior, and thus we believe that our empirical results will be generalizable far beyond this regional context.

With this background, the research questions we want to address include, but are not limited to, the following:

- (1) How do the various kinds of activities that are commonly conducted while traveling differ by mode, by personality type and attitudes, and by sociodemographic traits?
- (2) In what specific ways does multitasking alter the utility of travel, and what types of people are associated with different ways? Does it reduce the disutility of a basically disliked activity? Enhance the utility of a basically liked activity? Reduce time pressure? Is it enjoyed for its own sake?

(3) How does the ability to multitask affect mode choice and the value of travel time?

The purpose of this report is to document the development and deployment of the survey instrument used to collect data for the study. Section 2 describes the survey design and production process, while Section 3 presents the sampling plan and Section 4 discusses the data collection process. The final section gives an indication of future steps.

2. SURVEY DESIGN AND PRODUCTION

In this section, we review various aspects of the survey design and production process. First, we provide an overview of the design effort, including our underlying goals and philosophy, and a timeline. Next, we briefly describe the contents of each section of the survey. Last, we relate the process of producing the survey.

2.1 Overview of the Survey Process, Goals, and Philosophy

Designing the survey was a systematic and extended process, as shown by the timeline in Figure 1. A vision of its contents in general terms guided the process: it was important for the survey to contain items measuring general attitudes, attitudes toward multitasking, personality traits and lifestyle orientations, commute characteristics and perceptions of the chosen and non-chosen primary commute modes (since developing a revealed preference model of commute mode choice incorporating multitasking is a key goal of the study), multitasking during the commute, and socioeconomic traits.

Given the broad set of variables we wanted to measure, it was clear that the survey would be long by conventional standards, but we consciously traded off the inevitable reductions in response and completion rates in favor of the greater richness of the resulting data. We set the goal of not exceeding 14 pages, based on the successful implementation the second author has previously experienced with several surveys of that length. This enabled the paper version of the survey to fill a 16-page booklet (four 11" x 17" sheets, folded into 8½" x 11" halves and center-stapled), where the first page contained the cover letter inviting individuals to take the survey and the last page only collected contact information (on a voluntary basis) and provided space for open-ended comments.

The outcome was 14 pages that were probably denser, on average, than those previous surveys, and even so we unavoidably made sacrifices and compromises to stay within that limit (plus, as explained below, the online version of the survey stretched that limit a little farther in some respects). Nevertheless, on the whole we are very satisfied with the outcome, and have far exceeded our goal of obtaining an extremely informative sample with 100 or more complete responses for each commute mode of primary interest. Indeed, after filtering out incomplete or frivolous responses (the process for which is the subject of a separate technical memorandum),

our current working sample (N = 2849) contains 1452 drivers (whether solo or accompanied), 230 carpoolers / vanpoolers / employer shuttle riders, 810 local transit (bus, light rail, and metro rail) riders, 233 commuter train riders, and 267 bicyclists (based on their reported primary commute mode).

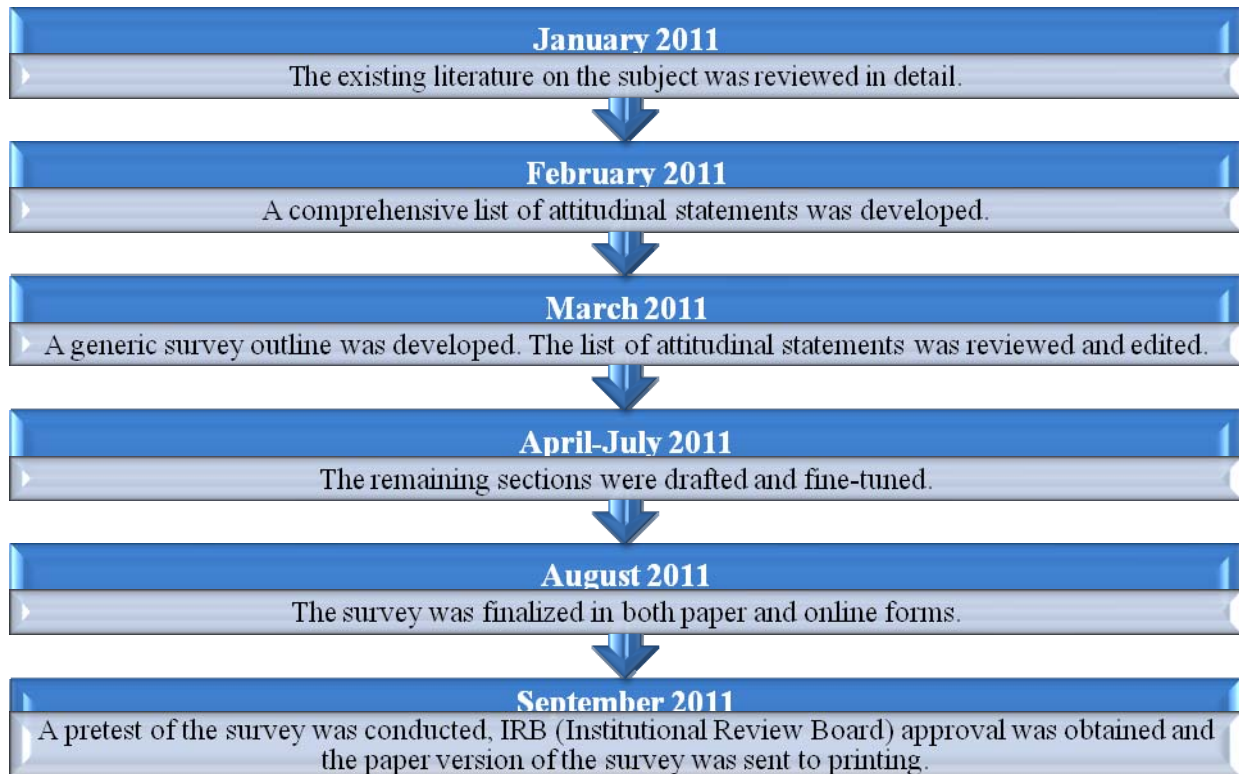


Figure 1. Survey design timeline

2.2 Contents of the Survey

The survey started with a screening question, intended to ensure that the respondent was a regular commuter: “Are you 18 or over and do you have a paying job outside the home to which you commute at least once a month?” Response options were “*No* (thank you for your willingness to participate!)” and “*Yes* (proceed to Part A below).”

Part A: Your views on various topics contained 39 statements with which respondents were able to agree or disagree on a five-point Likert-type scale (“strongly disagree”, “disagree”, “neutral”, “agree”, “strongly agree”). In the design stage, we identified many attitudinal dimensions of interest, based on a thorough review of the literature and our own judgment. Throughout development, the categories were combined and edited to form a final list of 12 categories for the first section. The 39 statements fall into these categories as follows:

➤ *Commute benefit*

- My commute is generally pleasant.
- My commute is stressful.
- My commute serves as a welcome transition between home and work.

➤ *High-density living*

- I like the idea of living somewhere with large yards and lots of space between homes.
- I like the idea of living in a neighborhood where I can walk to the grocery store.
- I prefer to live close to transit, even it means I'll have a smaller home and more people living nearby.
- Mixing different types of businesses (e.g., shops, restaurants, offices) with the homes in my neighborhood causes (or would cause) too much traffic or noise.

➤ *Mode preference*

- I like the idea of walking (or biking) as a means of travel for me.
- I'd rather drive than travel by any other means.
- I like the idea of transit as a means of travel for me.
- I prefer to walk or bike rather than drive whenever possible.
- I prefer to take transit rather than drive whenever possible.
- I like the idea of driving as a means of transportation.

➤ *Status/trend-setting*

- I often introduce new trends to my friends.
- To me, a car is mostly just a way to get from place to place.
- I (would) like to own a car that impresses other people.
- I like to be among the first to own new electronic products.

➤ *Subjective well-being*

- I am generally satisfied with my life.

➤ *Technology*

- I like to track the development of technology.
- Technology brings at least as many problems as it does solutions.
- The internet makes life more interesting.
- *Time pressure - preference*
 - I feel more productive when I am under pressure to complete work by a deadline.
 - I do my best work when I have plenty of time to complete it.
 - I feel like I need to make the most of every single minute.
- *Time pressure - reality*
 - I'm often in a hurry to be somewhere else.
 - I'm too busy to do many things I'd like to do.
- *Travel liking*
 - The act of traveling is boring.
 - Getting stuck in traffic doesn't bother me much.
 - I generally enjoy the act of traveling itself.
 - I sometimes travel more than I have to, because I want to. (*Travel liking/minimizing*)
- *Travel minimizing*
 - When I need to buy something, I usually prefer to get it at the closest store possible.
 - I would pay money to reduce the time I spend traveling.
 - I prefer to organize my errands so that I make as few trips as possible.
- *Travel utility*
 - Time spent traveling is generally wasted time.
 - The only good thing about traveling is arriving at your destination.
- *Work liking*
 - The main benefit of my job is that it pays for the things I really enjoy doing.
 - Occasionally, I'd be willing to give up a day's pay to get a day off work.

- I am generally satisfied with my job.
- I never get very far behind on things I'm trying to get done.

It is considered good survey design practice, yielding more robust factor measurement, to vary the directionality of attitudinal statements representing a given dimension (Baumgartner and Steenkamp 2001; Ellard and Rogers 1993). The purpose is to encourage respondents to read each item carefully and not fall into an automatic response pattern, as well as to approach the underlying latent construct from substantially different angles. Accordingly, within each category we made an effort to vary the directionality of the items. For example, someone who likes high-density living would tend to agree with the second and third items in that category, and disagree with the first and fourth. For some categories, it was difficult to find naturally-worded statements for both directionalities, in which cases we chose the principle of sounding natural and plausible over that of varying directionality.

For similar reasons of avoiding automatic response patterns, it is also good survey design practice to mix items across categories rather than to present them grouped by category (and especially not under *labeled* categories, which could influence the respondent to reply to all items in the category on the basis of how he feels about the label). Accordingly, we mixed the items above, on a trial-and-error basis in which we examined a trial sequence for possible order effects (e.g. too many negatively- or too many positively-oriented statements in a row, items from the same category too close together, or the respondent's interpretation of a given item otherwise potentially influenced by adjacent or nearby items), changed the sequence to address such effects, and repeated the process until satisfied.

The second section of *Part A* consisted of a list of 30 personality traits expected to be relevant to attitudes toward multitasking, such as “efficient” and “like a certain amount of chaos”. Respondents were asked how well each phrase described them, with the following five answer choices for each trait: “hardly at all,” “not very well,” “moderately well,” “very well,” and “almost completely.”

Part B: Your opinions about multitasking was constructed primarily from the Inventory of Polychronicity Values (Bluedorn et al. 1999) and the Polychronic Monochronic Tendency Model (Lindquist and Kaufman-Scarborough 2007). These “polychronicity” scales measure the respondent's “propensity toward multitasking”. We expected that polychronic individuals would be more likely to multitask while traveling. We were also interested to see how polychronicity relates to other variables of interest, such as chosen mode and socio-demographic traits. This section combined statements from both Bluedorn's IPV and the PMTS scales with some original items of our own, to measure the polychronic tendencies of each respondent. We also added a semantic differential section that was introduced with the proposal, “when doing multiple activities at a time, I feel...” Respondents were prompted to choose where their feelings lay on a

scale between two bipolar adjectives (e.g., “dissatisfied-satisfied”, “less productive-more productive”, etc.).

Part C: Some aspects of your daily life measures the extent to which the respondent feels she must do certain things, and then whether or not she actually likes to do these things. The answer options are in the form of a three point Likert-scale, including “generally no,” “sometimes,” and “generally yes.” The questions specifically focus on (1) being available to friends, family, and colleagues; (2) doing various activities while commuting, including working, recreational activities, socializing with other people, and “nothing”; and (3) on the job, working on multiple tasks during respective time spans of an hour, a day, and a week. The section ends by asking the respondent to rate the amount of time she spends on a range of activities, with answer options including “way too little,” “too little,” “about right,” “too much,” and “way too much.” Overall, this section aims to build a profile of the respondent with respect to broad categories of time use and certain activities considered relevant to multitasking in general and travel multitasking in particular.

Part D: Your opinions about waiting measures respondents’ attitudes toward waiting that is expected versus unexpected, and “equipped” (i.e. for which the individual is prepared with something to do) versus unequipped. Respondents were asked to indicate their level of agreement with each statement via a Likert-type scale (i.e. with responses ranging from “strongly disagree” to “strongly agree”). The items in this section were deliberately worded without reference to travel, with the intention of capturing a more general orientation to waiting. However, realizing that one’s attitude toward waiting *could* legitimately differ with the context, the instructions mentioned travel as the context of greatest interest.

Part E: Your perceptions of various transportation choices for commuting measures the respondent’s perceptions of various modes, including driving alone, carpooling, taking transit, biking, and/or walking. The respondent was asked to rate the following traits for four different modes of transportation: comfort, door-to-door travel time, reliability, safety, effect on the environment, cost, traveling in poor weather conditions, availability when needed/wanted, ability to run errands on the way to/from work, amount of physical activity involved, avoiding congestion, privacy, ability to carry things with me, and ability to do things I need/want while traveling. Every respondent was asked to rate the mode “driving alone.” For the remaining three modes, however, the respondent was presented with three sets of modes, and from each set was asked to choose the mode he used the most or the mode most realistic for his current commute circumstances. The first three of the following sets were on the paper survey, but on the online survey, the third set was replaced with the fourth set if the respondent’s commute was less than 10 miles:

(1) Carpooling, vanpooling, and employer-provided shuttle;

(2) Local bus, express bus, BART [Bay Area Rapid Transit, the heavy rail system of the San Francisco Bay Area], and light rail;

- (3) Amtrak, Caltrain, and other intercity train;
- (4) Biking and walking.

We expect the respondents' perceptions about each mode to influence their travel multitasking attitudes and behaviors, as well as their mode choices.

Part F: A recent commute trip was intended to gain information about a "recent typical commute trip" of the respondent (other than the one on which he completed the survey, if applicable). The information obtained from this section will complement the general behavioral information obtained in Part C, and will be associated with the specific travel mode(s) used by respondents. Question topics included the date of the trip, the primary mode used for the trip, and the activities conducted during the trip. The latter comprised a list of six general activities (such as eating/drinking, exercising, and daydreaming), and 18 activities that could each be conducted for work or for personal/leisure purposes, for a total of 42 activities. We reviewed the literature on travel multitasking (Bissel 2007; Ettema and Verschuren 2007; Iqbal, et al. 2010; Jain and Lyons 2008; Van der Waerden, et al. 2009; Watts and Urry 2008; Zhang and Timmermans 2010) in choosing/defining this set of activities. This section also asked the respondent to rate the value of the time spent on this recent commute, using a five-point scale with endpoints labeled "mostly wasted time" and "mostly useful time".

Part G: Internet access on-the-go was included to help evaluate the extent to which the availability of wireless internet access would encourage individuals to use public transportation more frequently. This section was of particular interest to the Capitol Corridor Joint Powers Authority (CCJPA), in view of its plans to add free wireless internet access on all trains (which was accomplished on November 28, 2011). Respondents were asked about the availability of wireless internet (Wi-Fi) access on their current commute, the availability of tools (smartphone, computer) for accessing the internet, their actual use of wireless internet on their commute trips, and questions about their attitudes and behavior under several hypothetical scenarios involving Wi-Fi.

Part H: Your daily commute collects detailed information about the respondent's commute trip in general (in contrast to the information about a *specific* recent commute collected in Section F). The questions in this section include commute trip frequency, trip distance and time, the typical mode sequence to and from work, the cross streets of the work and home locations, commuting costs, items typically brought along on the commute, and advantages and disadvantages experienced from doing activities (travel multitasking) during the commute. This information could be used to analyze the choices the respondent makes about travel (specifically with or without travel multitasking).

Part I: General information asks sociodemographic questions. In addition to standard questions about age, gender, income, employment, household size, vehicle ownership, and so on, we included questions about potential mobility limitations, ethnic background, and length of time in the U.S. The information collected from this part of the survey will be used to help analyze the

different categories of travelers who multitask while traveling, and the specific way(s) in which multitasking eventually alters the travel behavior and the perceived utility of travel among these categories.

2.3 Survey Production Issues

2.3.1 Institutional Review Board approval

Before sending the survey to printing, it was necessary to obtain approval for our study from the Institutional Research Board (IRB). We applied for an “exempt” review in September, after survey design was essentially complete. The basis for exemption from detailed review was Category 2 of the relevant federal regulations (45 CFR 46.101(b), 45 CFR 46.201(b), 45 CFR 46.302(a), 45 CFR 46.401(b), and 21 CFR 56.104(d)), namely that “the only involvement of human subjects” was through “survey procedures” for which “any disclosure of the human subjects’ responses outside the research” would *not* “reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employment or reputation”. We will also not be disclosing any responses in such a way that an individual could be identified.

Upon review, we were asked to lessen the emphasis on the cash prizes by removing emphatic punctuation and bolding, and also by lowering the value of the cash prizes. Our initial offers were \$400, \$250, and \$150, which were lowered to \$300, \$200, and \$100. The rationale was that cash should not be the sole or primary motivation for respondents to complete the survey.

2.3.2 Printing costs

As previously discussed, both online and paper survey instruments were developed as part of the study. The paper survey instrument was developed primarily to facilitate the physical distribution of the survey on public transit vehicles. The 16-page survey booklet was accompanied by a colorful flyer (example shown in Figure 2) to serve as an “eye-catching” cover to the survey. The flyer, survey, and a business reply envelope (Figure 3) were bound in that order with a paper clip to form the packet that was distributed to passengers on Amtrak, Sacramento Regional Transit, Yolobus, and BART. An extra 300 flyers were printed to cover carpool spots in the University of California, Davis (UC Davis) parking lots. All printing jobs were ordered through UC Davis ReproGraphics. The total quantities ordered and total printing costs are presented in Table 1.

What do you like to do while commuting?

Some commuters view their travel time as an opportunity to work or do other activities, while others like to sit back and do nothing. The University of California, Davis is conducting a study on “travel multi-tasking,” or doing other activities while traveling, and we want your opinions, whether you multi-task or not!

You have two options:

1. Go to bart.questionpro.com or scan the QR code (in black below) to read more about the study and complete the online survey. Please note that the survey can be taken on a tablet, but may not work well on a cell phone.
2. Fill out a paper survey. If you did not receive one with this flyer, you may request a paper version of the survey by calling (toll-free) 1-888-765-1124, by e-mailing Ms. Amanda Neufeld at ajneufeld@ucdavis.edu, or by tri-folding this flyer and mailing it (no stamp required) to the business reply address printed on back. If you choose the latter option, please write the address to which you would like the survey (with a postage-paid return envelope) mailed:



Upon completion of the survey, you will be entered into a drawing for one of several prizes: \$300, \$200, or \$100 cash, or one of eight \$25 gift cards!! To ensure that you are entered in the drawing, please complete and return the survey by **November 30, 2011**.

If you have any questions, you are welcome to contact Ms. Amanda Neufeld at the phone number or e-mail address above, or Project Director Prof. Patricia Mokhtarian at plmokhtarian@ucdavis.edu.

Figure 2. Example of recruitment flyer

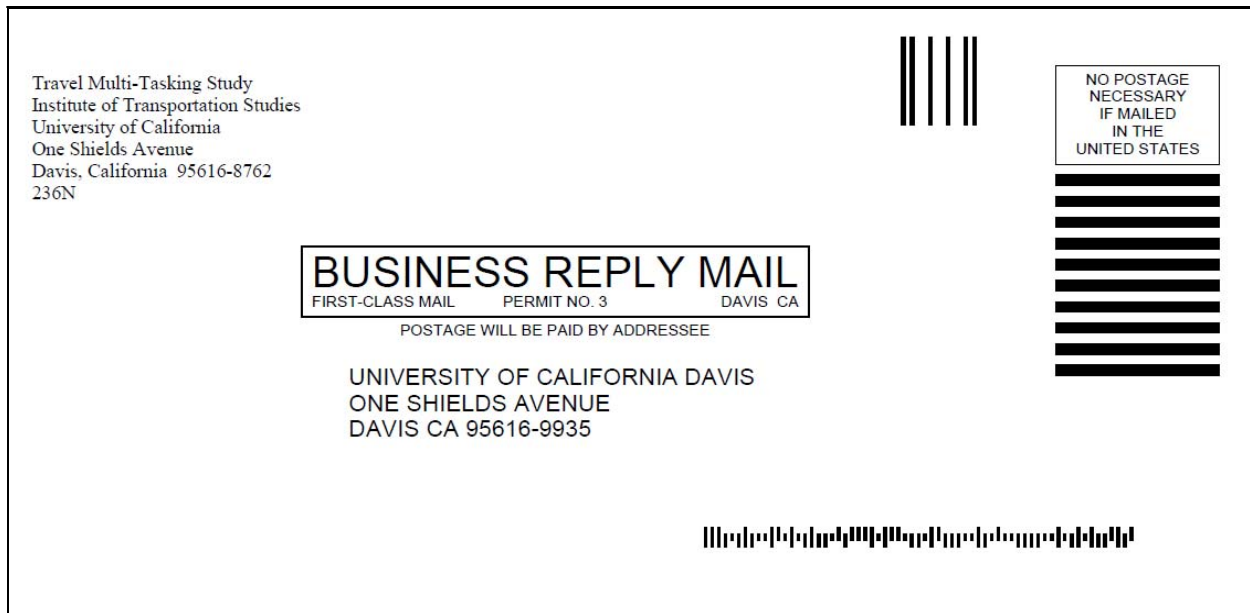


Figure 3. Business reply mail panel (printed on 9” x 12” envelopes)

Table 1: Printing costs		
Item	Quantity	Cost
BART flyers	2000	\$690.45
BART surveys	2000	\$1,333.94
Amtrak & Sac RT surveys (2000 each)	4000	\$2,454.40
Amtrak & Sac RT flyers (2000 each)	4000	\$966.83
Yolobus surveys	300	\$267.50
Yolobus flyers	300	\$199.06
UCD carpool flyers	300	\$199.06
Business reply envelopes	6350	\$634.87
TOTAL (6600 flyers; 6300 surveys; 6350 envelopes)		\$6,746.11

The paper surveys were differentiated by the link and the QR code included in the cover letter and on the flyer. A QR code can be scanned with most smartphones and tablets (e.g., iPad[®]) to direct the user to the survey link. QR codes were generated at <http://goqr.me/>. A separate online link was developed for each avenue through which respondents were recruited, enabling us to distinguish respondents on that basis. The chronological list of online and physical distribution efforts is included in Section 4, Table 2.

2.3.3 Design and implementation of the online version of the survey

The online survey was developed after the paper survey was essentially finalized. We used the online survey design program QuestionPro (www.questionpro.com) to create and distribute our survey. Some of the advantages and disadvantages we experienced while using this program include the following:

➤ *Advantages*

- Data-entry is done automatically;
- Data can easily be downloaded;
- Relatively low cost;
- Unique URLs can be developed;
- A “thermometer” showing percent of survey completed was automatically available;
- Entire surveys and/or single questions could be copied and/or saved to a library for later use;
- Branching can be used to automatically direct respondents to appropriate questions based on previous responses;
- Validation can be used to ensure that respondents answer important questions.

➤ *Disadvantages*

- The types of questions that can be asked are limited by the options made available by QuestionPro®;
- The software does not permit the respondent to save a partially-completed survey and automatically return to the same point at the next log-in;
- Hitting the “back” button on one’s web browser and changing one’s response on a previous screen did not always overwrite the previous response, and sometimes could cancel the survey altogether;
- The font size and style can be changed using html tags, but not on a global level (i.e. each statement/question/instruction required its own html tag);
- QuestionPro customer service was not very helpful with problems with their software, which, as with all software, did have bugs;
- The survey is administered on a QuestionPro-hosted website, which made a few respondents concerned about the legitimacy of our relationship with UC Davis.

The online survey was formatted very similarly to the paper survey. However, there were a number of differences which the internet platform made either necessary or desirable. Firstly, the opening question was split into separate parts. We first asked if the respondent was over 18. A “no” answer would terminate the survey. A “yes” led the respondent to the question, “Do you live, work, or go to school in Northern California?” Similar to the previous question, a “no” terminated the survey and a “yes” opened the next question, which read “Do you have a paying job outside the home to which you commute at least once a month?” To distinguish students from regular workers, a “yes” to this question directed the respondent to the beginning of the survey, whereas a “no” directed him to the question, “Are you a student who travels to school at least once a month?” We were interested in respondents that regularly commuted, whether students or employees. We did, however, want to make a distinction between students and full-time employed individuals since the two groups will differ from each other in several important ways (income, regularity of schedule, familiarity with and usage of information/communication technologies, and so on).

The next usage of survey logic (not including validation) did not occur again until *Part E: Your perceptions of various transportation choices for commuting*. In this section, the respondent was first asked if her commute was longer or shorter than 10 miles, which was not asked on the paper survey. If the commute was longer than 10 miles, the four original sets of mode choices in the paper survey were presented in the same order on the online survey (see Section 2.2). If the commute length was less than 10 miles, however, the intercity train choice set (including “Amtrak, Caltrain, and other intercity train”) was replaced with the choices “biking” and “walking.” We especially wanted to include these options on the online survey since we were inviting members of the UC Davis community and a bicycle/pedestrian listserv to take the survey online. We could have included the same branching logic on the paper survey, but it would have made the survey appear even longer and more complicated than it already did, so we chose not to do so in that instance.

In this same section, for each mode choice question, the respondent was first asked, “Which of the following means of transportation do you *actually use the most*? Or, which one is the *most realistic for your current commute circumstances*?” Using show/hide logic, the following page would ask the respondent to rate the list of qualities only on the mode that she chose.

Similar logic was used in *Part H: Your daily commute*. In the question addressing commute costs, the respondent was first asked which costs he incurs on his daily commute other than fuel costs (“parking, tolls, transit fares, carpool/vanpool costs, other, or none”), and then show/hide logic presented only the cost categories he had previously identified, and asked for the specific dollar values paid, and at what frequency (e.g. per day, per month). This same logic was used at the end of the survey when asking for contact information. The respondent was first asked “How would you prefer to be contacted? Check all that apply.” and was then asked to only enter the information he had previously checked. We believe this helped minimize frustration on the respondent’s end by minimizing the number of irrelevant questions presented.

Simple branching was also used at various points throughout the online survey. For instance, in *Part G: Internet access on-the-go*, if the respondent reported that she did not have access to internet on-the-go, or was unsure, she was not asked what devices she uses to access internet on-the-go and how frequently she does so. In *Part I: General information*, branching was also used for respondents that were unemployed (essentially meaning non-working students, since all respondents to the survey should regularly commute to work or school), to move them past questions about the nature of their jobs. A question was included in this section that was not included on the paper survey simply because we ran out of space. The question read, “To what extent does your job involve the following things?” and included a variety of tasks such as “coordinating with a team”, “sitting at a desk”, “working at multiple sites”, and “international travel”. This set of questions will provide valuable information that can be used to additionally classify respondents based on the nature of their jobs, a factor which we expect to be important to their multitasking as well as travel behavior.

Another question added to the online survey that was not included in the paper survey for lack of space asked about costs of Wi-Fi service on public transit. We were interested in how much money people would be willing to pay for Wi-Fi on transit, assuming a monthly fee were in place. The options included \$10, \$20, and \$30 per month.

A further significant difference between the paper and online survey was in *Part H: Your daily commute*. In this section, respondents were asked for their typical mode sequence to and from work. On the paper survey, the respondent was asked in two separate questions to mark each mode with a number indicating the order in which he used those transportation modes on his commute from home to work, and from work to home. Although space limitations motivated us to present these questions as compactly as possible on the paper survey, we realized that they were cognitively demanding, so for the online survey we opted for a presentation that was more straightforward. Despite the fact that the latter version of the questions was longer, the added length was transparent to the respondents, whose experience of the questions was in any case simpler than for the paper survey. We were also able to include a greater variety of modes in these questions. The respondent was asked one-by-one what his first, second, third, etc. means of transportation was on his commute from home to work. At any point, the respondent could mark “end of sequence” indicating that this was the last mode he used. After completing the “from home to work” sequence, the respondent had the option to indicate that his commute from work to home was the exact reverse of his morning commute. If so, branching logic allowed him to skip to the next question. If not, he was presented with the same format of question he was offered for his “from home to work” sequence.

Other differences between the online and paper survey included an added question in *Part H: Your daily commute* that asked respondents to report whether they chose their job and their home locations simultaneously, or if one were based on the other. In *Part F: A recent commute trip*, respondents were asked to identify activities conducted for leisure and for work during a recent commute trip on both the paper and online survey. On the paper survey, “Navigated trip (used

map/GPS to find route)” was presented as one option to save room, but for the online survey it was split into the following two options: “Navigated trip (used paper map to find route)” and “Navigated trip (used GPS to find route).”

Finally, when we decided to augment our initial sample with as many as 500 responses drawn from an online panel maintained by Survey Analytics (see Section 3), we included two test questions in the online version of the survey seen by those individuals, designed to indicate the care with which those respondents were reading the questions and answers. The test questions were included in Parts A and H. The first question, included in Part A among the attitudinal statements, read, “This is an intentionally blank question; please do not click an answer.” The second question, included in Part H, was a question with five choices ranging from “not at all” to “completely”. The question read, “To confirm the survey is functioning properly, for this question please click the button under ‘completely’.”

Eventually, Survey Analytics agreed to use the Part A test question as a screener, immediately terminating respondents who failed it. We used the Part H test question, however, as one of a number of possible “soft fails”. We decided that this question was not sufficient by itself to exclude a respondent, since many *legitimate* respondents may not be reading each question carefully at Part H of a lengthy survey, but that it was useful for distinguishing which respondents retained in the sample are more trustworthy versus less trustworthy. We have identified a number of other ways in which a respondent can “softly fail”, such as taking a suspiciously short amount of time to complete the online version of the survey. No single one of these ways might be egregious enough to justify dropping the case, but we are keeping a running count of the number of soft fails we find for each respondent, and those who accumulate “enough” of them can be screened out at any point.

As for the test questions in Parts A and H, if we had thought of them earlier in the survey design process, we would have included them for every version of the survey. We will certainly do so in any future survey administration, whether online or paper: depending on the sampling method there may be more concern about the validity of responses obtained via one method (often online) than via the other, but even conventionally-recruited participants may be so careless that their responses should be disregarded. By including such questions on both versions of the same survey, we could investigate differences in fail rates between online and paper survey respondents, and within subsegments of each group.

3. SAMPLING

As mentioned in the introduction, given the centrality of commuting to congestion and to transportation planning and policy, and in view of the heterogeneity of non-commute travel behavior, the survey focused on commute trips. To gain ample information about multitasking behavior across transportation modes, it was integral to the success of the study to obtain responses from users of a variety of commute modes including various public transit options, car as driver, car/vanpool as passenger, bicycle, and walk. Therefore, the sample was chosen with this goal in mind.

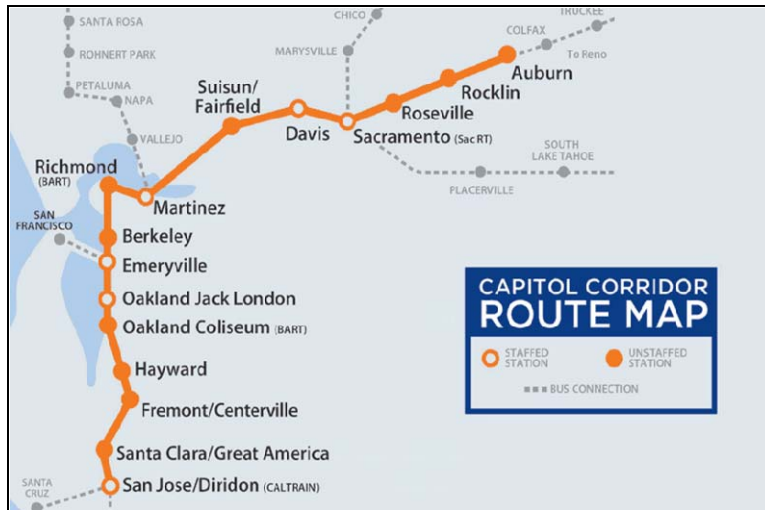
The main purpose of this study was to understand the relevant relationships among certain variables of interest (e.g. the role of multitasking in commuters' travel behavior), conditional on other variables (notably, conditional on commute mode). We did not aim to determine raw population characteristics, such as what percent of all commuters possess a certain trait. Therefore, for our purpose (in contrast to the latter), it was not critical for the sample to be representative of the population as a whole, but rather it was vital to have sizable numbers of users of each mode in the sample, and diversity across the other characteristics of interest.

The region in which the sample was focused was Northern California – not only for logistical convenience, but also out of interest in gaining responses from individuals who have the option of using Capitol Corridor as a commute mode. The Capitol Corridor Joint Powers Authority provided some funding to the study to obtain information that may help improve their service and attract more riders. Therefore, it was important for us to gain responses both from riders of the Capitol Corridor and from commuters for whom the service is a plausible alternative but who primarily use a different commute mode. The Capitol Corridor route is shown in Figure 4 and the consequential geographic area of greatest (but not exclusive) interest is outlined in Figure 5.

A number of avenues for recruiting participants were initially explored:

- Firstly, several *transit agencies* were contacted in attempts to gain permissions to distribute surveys on board public transportation lines (or at their stops or stations) during peak commuting hours. While many agencies were contacted, we were only successful in obtaining such permissions from BART, Amtrak (Capitol Corridor), Sacramento Regional Transit, and YoloBus.
- *Large businesses and other corporations* in the region of interest were also approached to see if they would allow us to invite their employees to take the survey. We especially contacted employers who operated commuter shuttle services for their employees (see SFCTA 2011), since this was a segment of particular interest (the shuttles often have Wi-Fi available, and commutes can be longer-than-average), as well as major employment centers along the Capitol Corridor route. A significant portion of the transit agencies, businesses, and other corporations that were contacted, however, declined to participate. Typically, the individuals we contacted simply did not reply to our requests, while others cited the length of the survey

or company policies as reasons for not participating in the study. The companies and organizations that did allow us to invite their employees to take the survey included, but were not limited to, UC Davis (students and staff), Google, and Sacramento Regional Transit.



Source: http://www.capitolcorridor.org/route_and_schedules/, accessed July 31, 2012

Figure 4. Capitol Corridor route

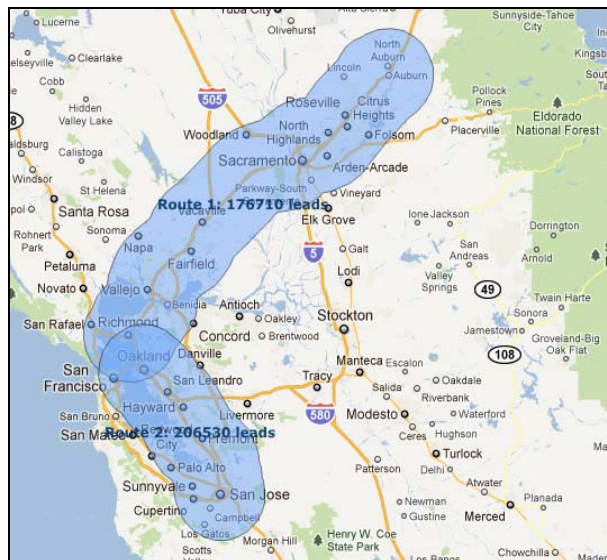


Figure 5. Geographic area of interest based on Capitol Corridor route

- Several *transportation organizations* did allow us to invite their constituents to participate via sending a recruitment message through their *listservs*. These included, but were not limited to, carpoolworld.com (a website whose members can find commuters with similar routes and contact each other to carpool), Sacramento Commuter Club (a registry of commuters in the six-county Sacramento Region, predominantly attracting those who are interested in alterna-

tives to solo driving), and the Sacramento Area Council of Governments (SACOG, the metropolitan planning organization for the Sacramento region).

- Several agencies posted a description of the survey, and a link to the corresponding online version, to their *websites*. The participating websites included yolobus.com, 511contracosta.org, and sta.ca.gov (Solano Transportation Authority).
- The UC Davis Transportation and Parking Services (TAPS) office kindly enlisted its parking enforcement officers, for the single weekday of October 21, 2011, to distribute flyers for us on windshields of *vehicles parked in carpool-designated spots* on campus as well as on vehicles with *carpool permits*.

The physical distribution of the survey was focused on transit. Therefore, almost all of the returned completed paper surveys were from regular public transportation users. We aimed to focus the online survey distribution on users of a variety of modes, but as our efforts expanded, it became evident that the most enthusiastic partners were companies and organizations focused on sustainable transportation. Therefore, after these initial distribution efforts, the majority of responses we had were from commuters who primarily used modes of transportation *other than* driving alone. As a result, we were, surprisingly, substantially underrepresenting the most typical commuter, the driver of a personal vehicle. We were concerned not just about the behavioral differences between our sample and the population as a whole, but also the attitudinal differences. Accordingly, further steps were taken to diversify the sample:

- First, we purchased approximately *30,000 e-mail addresses* from the marketing corporation Infogroup (<http://www.infousa.com/>). We requested that all of these addresses be within the geographic area of interest shown in Figure 5, excluding the city of Davis (since Davis residents would already be heavily represented in the sample through our invitations to sizable fractions of students and staff). We did not make any further specifications on the sample – since InfoGroup was not able to identify commuters and limit the sample to them, we simply ordered a random sample from the entirety of e-mails available in the specified geographic area. The e-mail lists that Infogroup produces comprise data gathered from real estate and tax assessments, voter registration files, retailers and other sources.
- After the main physical distribution effort, approximately *2,500 paper surveys* remained. To use these remaining surveys, a *sufficient number (3,000) of mailing addresses* was purchased from the corporation ListGiant (<http://www.listgiant.com/>). ListGiant starts with a list of all valid addresses in an area and filters the list down to the customer's specification. We requested addresses of *commuters* living in the following cities: Auburn, Rocklin, Roseville, Fairfield, Martinez, Richmond, Berkeley, Emeryville, Oakland, Hayward, Fremont, Santa Clara, and San Jose. No other qualifications were placed on this list. We realized that to the extent the commuters on this list were representative of the population at large, most of them would

use driving alone as their commute mode. This was acceptable because, as previously described, our initial data collection efforts underrepresented this group.

- Observing a disappointingly small response (79 completed surveys) from the InfoGroup “blasts” to 30,000 prospective participants (a 0.26% response rate), with some hesitation we engaged Survey Analytics to obtain an additional sample, several months after data collection had otherwise ceased, but while data entry of the paper surveys was still underway. The appeal of Survey Analytics was that the agreement was to produce a certain number of responses, rather than to deliver a certain number of invitations (as with InfoGroup). Accordingly, we *purchased a total of 500 completed online survey responses* from them. Because Survey Analytics owns QuestionPro, the service we used to produce and host the online survey, we received a discount on the price we paid for those completed surveys. Survey Analytics maintains a panel of hundreds of thousands of individuals nation- and world-wide, who voluntarily complete surveys in return for cash or reward points that can be redeemed in a variety of ways. A great deal of descriptive information is on record for each panel member, so that the company is able to target recruitment appeals relatively precisely (in our case, to adult commuters in the same cities as listed in the paragraph above). The appeal is broadcast to the eligible participants, and remains open until the agreed-upon number of complete responses is reached. Because of our concerns about the legitimacy of responses received via this avenue (even though we were assured that incomplete and “speeder” responses would be screened out), this distribution was implemented in two phases. In Phase One, we purchased only 100 complete responses in order to conduct several checks on the responses. After reviewing these initial responses and being relatively satisfied with their apparent quality, we decided to purchase another 400 responses in Phase Two.

In sum, our final sample comprises a number of subsamples drawn from a variety of sources. Although each subsample taken individually is more homogeneous than the population at large, we believe that the diversity of sources invests the overall sample with ample heterogeneity in terms of attitudes, behavior, and socioeconomic characteristics. To be sure, the final sample still overrepresents commute modes other than driving alone, but that is by design. The overall distribution schedule of both paper and online survey forms is further discussed in Section 4.

4. DATA COLLECTION

Surveys, flyers, and envelopes were printed by UC Davis Repro Graphics at the beginning of October 2011. Around this same time, approximately ten undergraduate students were interviewed and hired to assist with the physical distribution of the surveys. Several volunteers also assisted us in our distribution efforts.

Physical distribution of surveys on transit took place on board Sacramento Regional Transit, YoloBus, and Amtrak lines. Due to BART’s policies, we could not board their trains to distribute

surveys. We could, however, offer them to commuters passing through the “free” areas in BART stations on their way to board. We did so during peak hours of afternoon/evening commuting. The final addition to the physical distribution was facilitated by UC Davis TAPS employees, who placed flyers advertising the survey on windshields of vehicles parked in carpool-designated spots on campus. The advantages and disadvantages of the physical distribution below refer only to the distribution conducted by our team of UC Davis students directly involved with the project. During these distribution events, all involved students were wearing the bright “attention-getting” shirts in Figure 6.

➤ *Advantages / things that went well*

- Direct contact with respondents;
- Ability to “pitch” the survey verbally;
- Passengers were more likely to take a survey if they believed it could improve the transit experience;
- Passengers on a longer or more spacious trip (e.g., Amtrak) were more likely to pleasantly take the survey and hand it back completed at the end of their journey;
- The ability to mail the survey back postage-paid helped convince passengers to take the survey;
- Coordinating shirts made our team easy to recognize by passengers and operators.

➤ *Disadvantages / problems*

- It was often difficult to get permissions from transit operators to distribute surveys on board transit lines, so the number of services we were able to survey was limited;
- The logistics behind obtaining permissions, scheduling volunteers, and scheduling and compensating hired undergraduate students were very involved;
- Sacramento Regional Transit operators complained that passengers were littering stations with our surveys, which we could not control as we were passing them out on board transit lines and not disembarking at each stop;
- It was difficult to convince individuals to take such a long survey, especially since many people who are commuting are already busy with work while they are traveling and/or are just focused on getting home efficiently; and
- We had to rely on undergraduate students to show up on time, which was especially difficult during early morning distribution events.



Figure 6. T-shirts for physical distribution team (customink.com)

Physical distribution began with Sacramento Regional Transit on October 18, 2011. Online survey distribution began about a week prior to this on October 9, 2011. The cost breakdown of survey distribution is presented in Table 2. The overall schedule is presented in Table 3, and the approximate response rate (where it can be computed), together with the cost per complete usable response, for each mode of survey distribution is presented in Table 4.

Table 2. Costs per survey administration mode

Distribution on public transit	
Printing costs*	\$4,069.08
Mailback postage	\$578.70
Person-hours	\$1,015.00
Driving costs	\$455.00
Other supplies	\$529.27
<i>Total:</i>	<i>\$6,647.05</i>
Distribution online	
QuestionPro subscription	\$899.91
InfoGroup e-mails	\$2,000.00
Survey Analytics	\$5,500.00
<i>Total:</i>	<i>\$8,399.91</i>
Mailed-out surveys	
Printing costs*	\$2677.03
Stickers, ink, etc.	\$50.00
Mailback postage	\$150.00
3000 addresses	\$360.00
Bulk mail processing	\$5,313.55
<i>Total:</i>	<i>\$8,551.03</i>
TOTAL	\$23,597.99

* Total paper survey printing costs of \$6746.11 are pro-rated between the approximately 3800 distributed on public transit, and the approximately 2500 mailed out.

Table 3. Overall schedule of survey distribution						
	Online Survey Distribution			Paper Survey/Flyer Distribution		
COLOR KEY:	<i>A survey invitation was sent to employees.</i>	<i>A survey invitation was e-mailed to members.</i>	<i>Survey information was posted on the given website.</i>	<i>Survey invitations were distributed via e-mail by hired company.</i>	<i>Surveys/flyers distributed to transit riders or carpoolers.</i>	<i>Surveys were sent in the mail.</i>
2011						
9-Oct	Jelly Belly employees					
10-Oct	Sacramento Regional Transit (Sac RT) employees					
12-Oct	Solano Transit Authority (STA) employees					
14-Oct	SACOG listserv					
18-Oct	Carpoolworld.com (Auburn-Sacramento)			Sac RT: Blue Line to Meadowview		
19-Oct	Carpoolworld.com (Oakland to Berkeley)			Sac RT: Blue Line to Watt/I-80		
20-Oct	Carpoolworld.com (Fairfield to San Francisco)			Sac RT: Gold Line to Folsom		
20-Oct	Yolobus.com					
21-Oct				TAPS staff placed flyers on windshields of vehicles parked in UC Davis carpool spots, or displaying a carpool parking permit.		
24-Oct	SACOG Transit Coordinating Committee (TCC)					
25-Oct	UC Davis staff			Yolobus 230		
26-Oct	Bicyclists/Pedestrians			Yolobus 42A, 42B, 43		
27-Oct	UC Davis students			Amtrak (eastbound from Suisun/Fairfield)		
2-Nov				Amtrak (westbound to Richmond)		
3-Nov	Google employees			BART (Embarcadero, Montgomery, Civic Center, 16th St.)		
3-Nov	McClellan Business Park employees					
9-Nov	Carpoolworld.com (Fairfield to Sacramento, Richmond to Berkeley)					
14-Nov	511contracosta.org					
15-Nov	Commuter Club					
15-Nov	UC Davis reminders sent to students and staff					
17-Nov				BART (Embarcadero, Montgomery)		
18-Nov	STA.ca.gov					
29-Nov				Leftover surveys sent out via Bulk Mail		
30-Nov	First Infogroup e-mail blast					
6-Dec	Infogroup reblast					
2012						
2-Feb	Phase 1 of Survey Analytics launch					
22-Feb	Phase 2 of Survey Analytics launch					

Recruitment avenue	Approximate number of surveys/invitations distributed	Number of usable completed surveys*	Approximate usable response rate	Cost per completed survey**
Public transit	3,700	672	18.2%	\$9.89
InfoGroup	30,000	69	0.23%	\$29.42
Survey Analytics	1,758***	565	32.1%****	\$10.16
UCD staff e-mails	5,545	527	9.5%	\$0.43
UCD student e-mails	5,357	294	5.5%	\$0.43
Other online	cannot be determined	620		\$0.43
Mailed-out (ListGiant)	2,500	102	4.1%	\$83.83
OVERALL		2849		\$8.28

* Using our initial quality criteria to produce our master working dataset of 2849 responses.

** The \$899.91 Question Pro subscription cost was pro-rated across the 2075 online responses (all but the public transit and the ListGiant sources), for a per-unit cost of 43 cents. For the UCD and “other online” surveys, there were no other direct costs (we are not including the cost of survey development and programming). For the InfoGroup and Survey Analytics sources, this 43 cents was added to the per-unit cost obtained from the total costs shown in Table 2. Some public transit recipients of the paper survey completed the survey online; those cases are counted under “Public transit”.

*** This is an approximate number – recruitment was terminated after a specific quota of responses (that passed our test question in Part A) was obtained.

**** This is actually the percent of people who passed the test question, not necessarily a “response rate.”

Naturally per-unit costs are lowest where we were able to recruit online respondents at no additional cost. Interestingly, the per-unit costs associated with physically distributing the survey to transit riders (\$9.89) were not very different from those associated with purchasing a certain number of online responses from Survey Analytics (\$10.16). The large per-unit cost associated with the ListGiant physical mailing was primarily due to the cost of first-class mail for each survey packet ($\$1.48 \times 2500 = \3700), and secondarily due to our engagement of UC Davis’ bulk mail services to stuff, label, and seal the envelopes. We did, however, use undergraduate and graduate students to place stickers on each survey (obscuring the URL associated with a transit agency that had originally been printed on the survey, replacing it with a URL customized to that mailing, and announcing a new survey return deadline).

We offered a standard “blurb” to both the web page designers and the e-mail list controllers that invited viewers to take the survey online. The invitation varied slightly between avenues, and contained a customized URL for each avenue, but, for the most part, was fairly consistent with what InfoGroup distributed to their list, as seen in Figure 7.

UC DAVIS UNIVERSITY OF CALIFORNIA

ITS UC DAVIS
INSTITUTE OF TRANSPORTATION STUDIES

What do YOU like to do while commuting?

Some commuters view their travel time as an opportunity to work or do other activities, while others like to sit back and do nothing. The University of California, Davis is conducting a study of "**travel multi-tasking**", or doing other activities while traveling, and they are interested in your preferences and choices, whether you multi-task or not. They are surveying Northern California commuters and would like to hear from users of any means of travel, whether driving, ridesharing, riding transit, walking, biking, or any combination!

There are two ways to complete the survey:

1. Go to norcal.questionpro.com to read more about the study and complete the survey online.

OR

2. Fill out a paper survey. You may request a paper version of the survey by calling (toll free) 1-888-765-1124 or sending an e-mail, with "Paper survey request" as the subject, to Amanda Neufeld at ajneufeld@ucdavis.edu.

Upon completion of the survey, you will be **entered into a drawing for one of several prizes: \$300, \$200, or \$100 cash, or one of eight \$25 gift cards.** To ensure that you are entered in the drawing, you'll want to complete and return the survey by ****December 12, 2011****. Individual responses will be seen only by the UC Davis research team -- results will be made public only in aggregated form.

If you have any questions, you are welcome to contact Ms. Amanda Neufeld at 1-888-765-1124 or ajneufeld@ucdavis.edu, or Project Director Prof. Patricia Mokhtarian (<http://www.its.ucdavis.edu/telecom/>) at plmokhtarian@ucdavis.edu. Thank you!!

Figure 7. E-mail "blurb" inviting participants to take online survey

The webpage designers of yolobus.com, 511contracosta.org, and sta.ca.gov were provided a similar blurb, but presented it on their webpage in their own format. The presentations are shown in the order they were posted, in Figures 8, 9, and 10 below.

This is the home page.

Powered by Google

Rider Alerts

Route 215 Detour: Tuesday/Wednesday 10/25-10/26/11 10.24.11 9:16 am

City of Woodland will close westbound Main Street between East and 6th. Route 215 westbound will detour, right on East, left on Court, left on Cleveland, right on Main to regular route. Bus stop on Main at 6th will be closed. Temporary route 215 bus stops will be located on Court Street. A detour is not expected for route 215 eastbound.

Welcome to Yolo County Transportation District

Recent News

What do you like to do while commuting? 10.20.11 12:17 pm

Some commuters view their travel time as an opportunity to do work or other activities, while others like to sit back and do nothing. The University of California, Davis is conducting a study on "travel multi-tasking," or doing other activities w

Read more...

Home Rider Tickets & Passes News & Events About YCTD Bus Routes

En Español (coming soon) Navigation Off a+ A- A=

What do you like to do while commuting? 10.20.11 12:17 pm

Some commuters view their travel time as an opportunity to do work or other activities, while others like to sit back and relax. The University of California, Davis is conducting a study on "travel multi-tasking," or doing other activities while traveling, and we want your opinions, whether you multi-task or not!

You have two options:

1. Go to yolob.questionpro.com to read more about the study and complete the online survey.
2. Fill out a paper survey. You may request a paper version of the survey by calling 1-888-765-1124 or sending an e-mail titled "Paper survey request" to Amanda Neufeld at ajneufeld@ucdavis.edu.

Upon completion of the survey, you will be entered into a drawing for one of several prizes: \$300, \$200, or \$100 cash, or one of eight \$25 gift cards!! To ensure that you are entered in the drawing, please complete the survey by **November 30, 2011**.

If you have any questions, you are welcome to contact Ms. Amanda Neufeld at 1-888-765-1124 or ajneufeld@ucdavis.edu.

Subscribe To Alert Feed

Select Language

Powered by Google Translate

This page appears when the story is clicked.

Figure 8. Yolobus.com survey advertisement

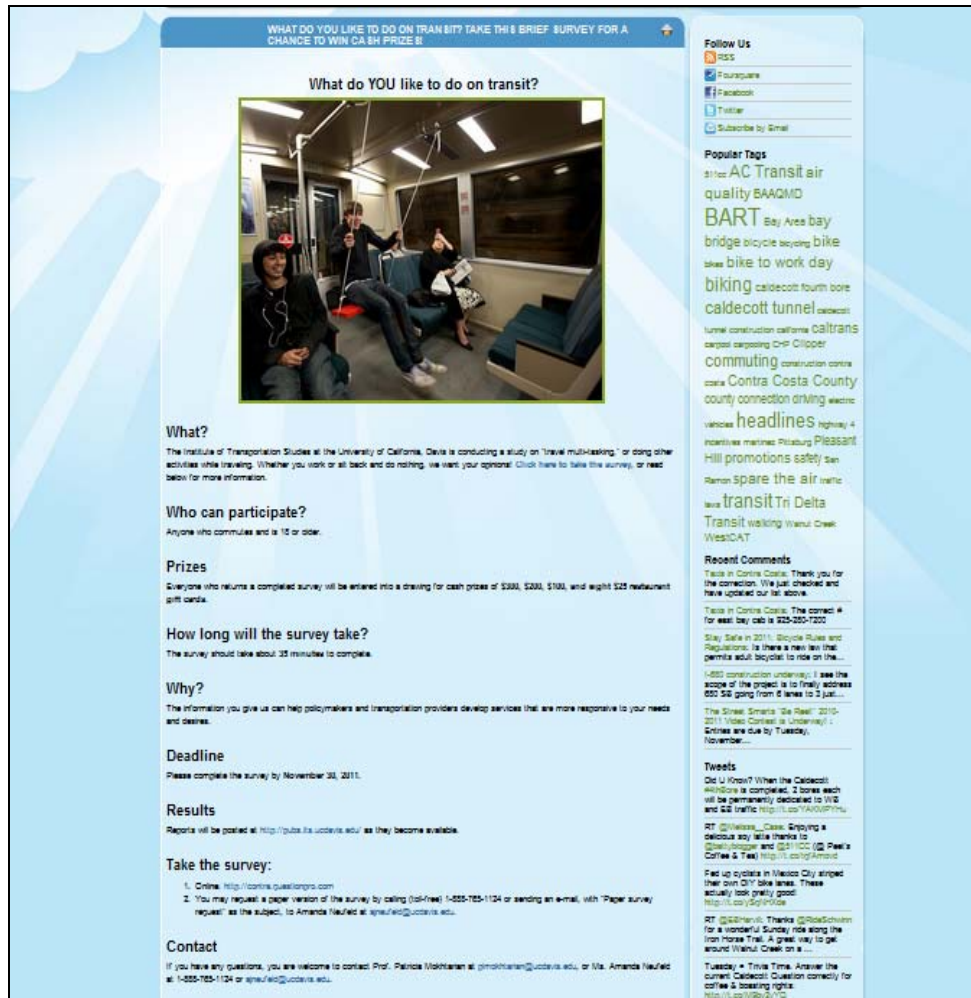


Figure 9. Second page of 511contracosta.org publicity

Similar to the Yolobus website advertisement, a quick ad was listed on the 511contracosta.org homepage. When that link was clicked, this page appeared. The image was their own addition.

The positive impact of reminders on the response rate is well-established in the survey design/administration literature. Although reminders could not practically be used with the on-board transit distributions, sometimes seeing the brightly-clad survey staff on a second occasion served as a reminder. Ideally, we wanted to send reminders to each individual who received an invitation to take the survey online. However, many of the avenues through which we recruited respondents were listservs or companies who were not willing to burden their participants or employees with such a message more than once. The lists that did receive reminders were UC Davis staff, UC Davis students, and the Infogroup e-mail list. The increase in response following the reminders was startlingly constant across lists, as shown in Table 5: in every case the reminder

increased the response by another 61-62%, where the initial response (coincidentally) constituted 62% of the eventual total.

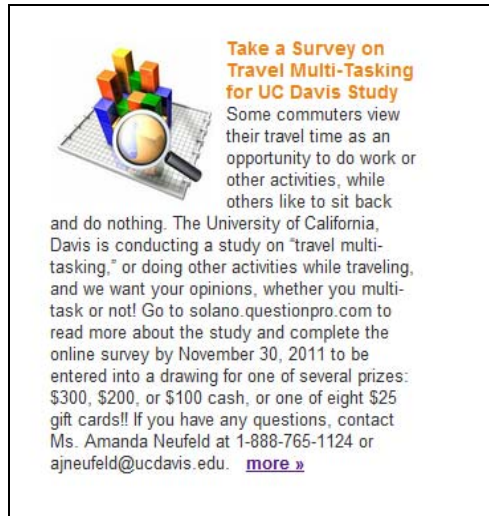


Figure 10. "Blurb" presented on sta.ca.gov

Table 5. Increase in responses due to reminder messages				
	E-mail list	Date distributed	Completed surveys*	Percent of total
First message	UC Davis staff	10/25/2011	356	62%
Reminder	UC Davis staff	11/15/2011	221	38%
TOTAL	UC Davis staff	total surveys:	577	100%
First message	UC Davis students	10/27/2011	202	62%
Reminder	UC Davis students	11/15/2011	123	38%
TOTAL	UC Davis students	total surveys:	325	100%
First message	Infogroup	11/30/2011	49	62%
Reminder	Infogroup	12/6/2011	30	38%
TOTAL	Infogroup	total surveys:	79	100%

* Represents the numbers completed after the first message but before the reminder, and after the reminder, respectively. These are totals before screening for usability.

5. SUMMARY

Entry of the paper survey data began in December 2011 and was completed in March 2012, assisted by many of the same undergraduate students that helped with data collection. Overall, our combined data collection efforts gave us approximately 5028 initial responses (including many who began the survey online but abandoned it before completion), and 2849 cases after filtering out incomplete and frivolous responses. Analysis of this rich dataset is currently underway.

6. REFERENCES

- Baumgartner, Hans and Jan-Benedict E. M. Steenkamp (2001) Response styles in marketing research: A cross-national investigation. *Journal of Marketing Research* **38**(May) 143-156.
- Bissell, D. (2007) Animating suspension – Waiting for mobilities. *Mobilities* **2**(2), 277-298.
- Bluedorn, A. C., Kalliath, T. J., Strube, M. J. and G. D. Martin (1999) Polychronicity and the Inventory of Polychronic Values (IPV). *Journal of Managerial Psychology* **14**(3/4), 205-230.
- Ellard, John H. and T. B. Rogers (1993) Teaching questionnaire construction effectively: The Ten Commandments of question writing. *Contemporary Social Psychology* **17**(1) (March), 17-20.
- Ettema, D. and L. Verschuren (2007) Multitasking and value of travel time savings. *Transportation Research Record* **2010**, 19-25.
- Iqbal, S. T., Y. C. Ju, and E. Horvitz (2010) Cars, calls, and cognition – Investigating driving and divided attention. Proceedings, CHI 2010 (the 28th Association for Computing Machinery Conference on Human Factors in Computing Systems), Atlanta, GA, April, 1281-1290.
- Jain, J. and G. Lyons (2008) The gift of travel time. *Journal of Transport Geography* **16**, 81-89.
- Lindquist, J. D. and C. Kaufman-Scarborough (2007) The Polychronic-Monochronic Tendency model – PMTS scale development and validation. *Time & Society* **16**(2-3), 253-285.
- San Francisco County Transportation Authority (SFCTA) (2011) The Role of Shuttle Services in San Francisco's Transportation System. Strategic Analysis Report, Final SAR 08/09-2, June. Available at http://www.sfcta.org/images/stories/Planning/Shuttles/Final_SAR_08-09_2_Shuttles_062811.pdf, accessed December 19, 2012.
- Van der Waerder, P., H. Timmermans, and R. van Neerven (2009) Extent, nature, and covariates of multitasking of rail passengers in an urban corridor. *Transportation Research Record* **2110**, 106-111.
- Watts, L. and J. Urry (2008) Moving methods, travelling times. *Environment and Planning D: Society and Space* **26**(5), 860-874.
- Zhang, J. and H. Timmermans (2010) Scobit-based panel analysis of multitasking behavior of public transport users. *Transportation Research Record* **2157**, 46-53.