



Back to the Future: *A Best Practices Approach to Sampling and Data Collection*

Coverage and declining response rates has led many to question whether it is possible to achieve a reliable and representative sample of a community.

Combining the strengths of an address-based sample (ABS) with those of mixed mode (online and phone) data collection represents the best of all worlds and results in a final sample that can be reliably projected to the general population and is representative of all respondent groups, even those that are difficult to reach and are often under-represented.



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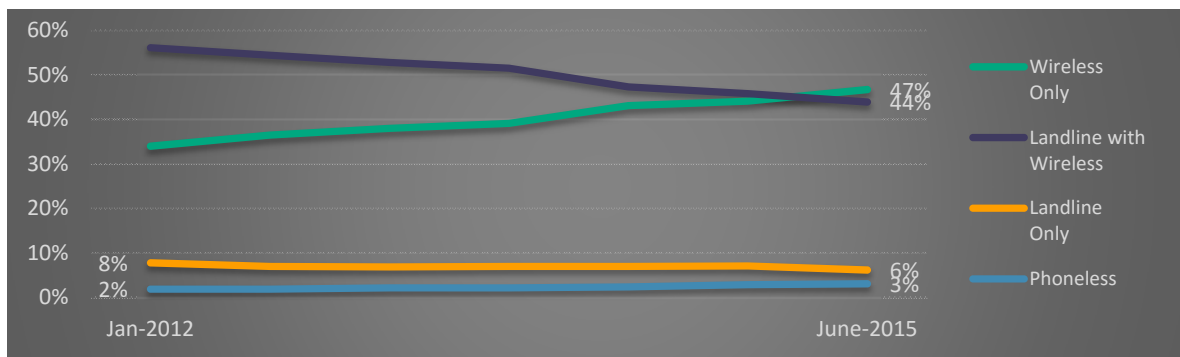


Probability Sampling & Surveys: Are They a Dinosaur?



There has been growing debate about how and whether it is even possible to achieve a probability sample—that is, a sample the results of which can be projected to the general population with statistical confidence.

From the 1950s to the 1990s telephone surveys based on randomly composing a phone number and dialing it represented the gold standard for true probability samples. But those days are long gone. The proliferation of cell phones as well as declining response rates has led many to rightfully question the representativeness of surveys using traditional random digit dial (RDD) samples. Today, the vast majority of American adults own a cell phone—**nearly half have chosen to cut the cord entirely**. There are many others—as many as 35%—who have both a landline and cell phone but rely primarily on their cell phones to make and receive calls and heavily screen the calls they accept on their landline.



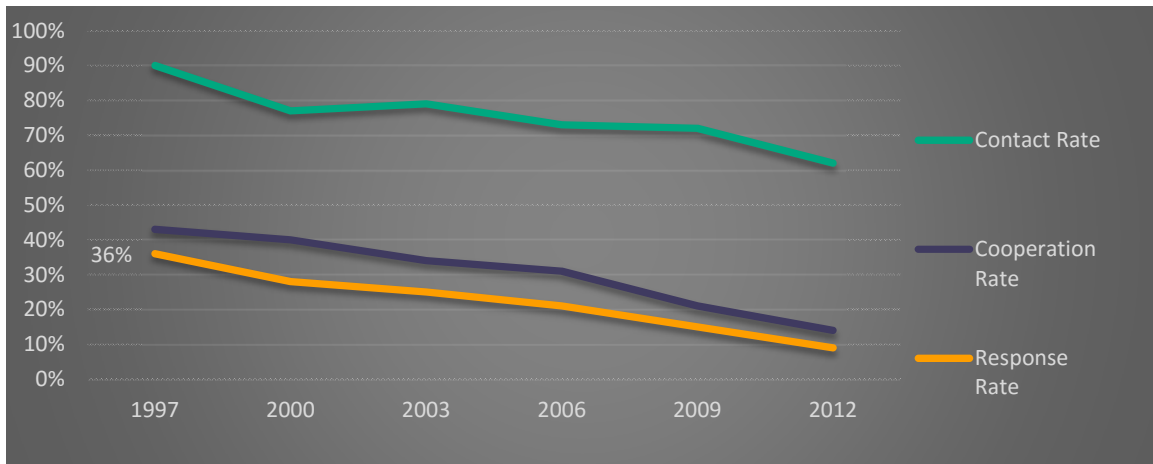
Source: *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, January–June 2015*

The increasing prevalence of wireless only / wireless primary households is aggravated by the clear demographic differences between **cord cutters** and traditional landline users. Of significant concern for those conducting general population surveys are the need to reach five increasingly difficult to reach segments.

Cord-Cutting Households



Finally, declining response rates are also of significant concern and greater effort and expense are required to achieve these diminished response rates.



Source: Pew Research Center Assessing the Representativeness of Public Opinion Surveys, May 15 2012

These challenges have led many to ask:

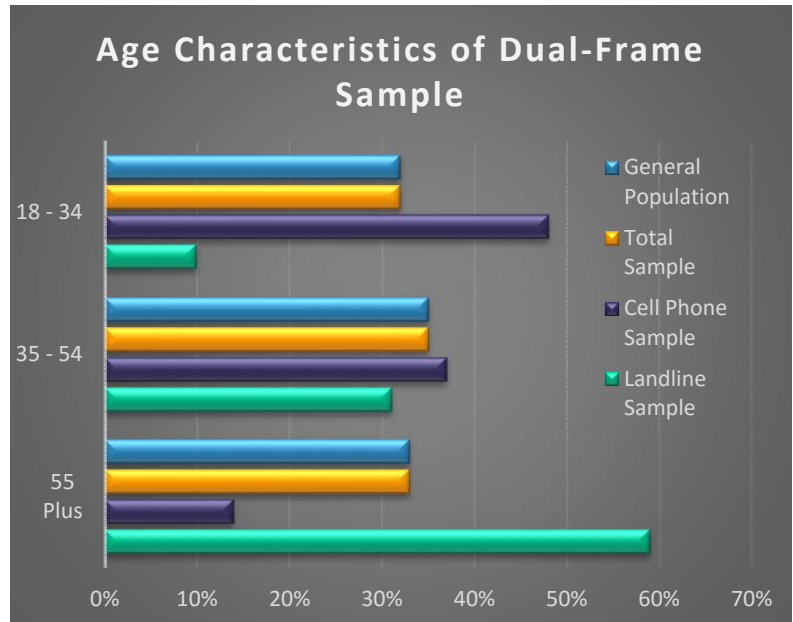
What sampling and data collection methodologies efficiently and reliably result in a representative sample of the general population that public agencies can rely on now and into the future?



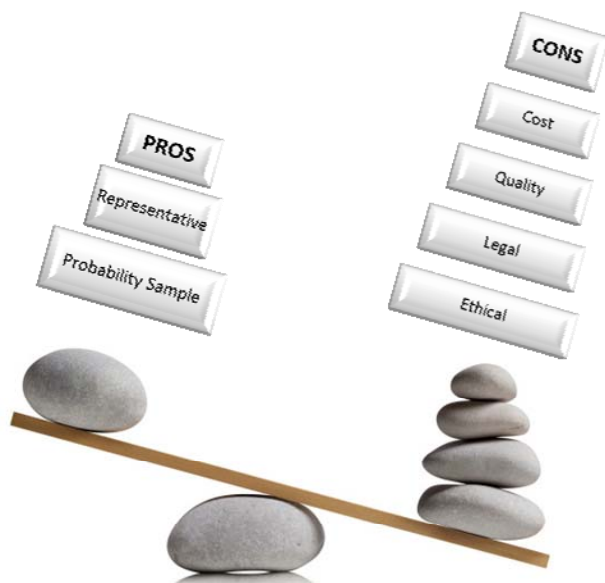
An Obvious Solution: Include Cell Phone Numbers

Dual frame samples—those including RDD landline and cell phone numbers—have become an obvious solution to the problem. And there is clear evidence that **dual frame samples work**.

In a recent statewide survey, NWRG achieved a final sample that mirrored the age distribution of the general population. To achieve this, more than half of all survey respondents came from cell phone sample. Eighty-three percent (83%) of respondents between the ages of 18 and 34 were reached via the cell phone sample.



However, conducting research with cell phone sample is like being between a rock and a hard place.



Cost—Contacting people on their cell phones typically costs 1.5 to 2 times as much as landline interviews and can be as much as three to four times costlier. Higher costs are due, in large part, to lower eligibility rates due to the age of the cell phone owner (under the age of 18) and the imprecision of targeting small geographic areas. Ineligibility due to the study area increases significantly as the study area becomes smaller. In a recent statewide survey, only 8 percent of those contacted in the cell phone sample were ineligible as they did not live in the state. In a study limited to a single county, this figure increased to 27 percent. In a study limited to a single community, 50 percent were not in the target area.

Data Quality—Data quality is affected due to lower response rates and interview quality. Call screening and Caller ID technology as well as voicemail are nearly universal on cell phones. As a result, there is greater screening of incoming calls and many people simply do not answer an unrecognized number. Moreover, respondents reached on their cell phone may be less willing to take the survey. Audio quality can also be a problem depending on the phone connection as well as the amount of background noise. Finally, cell phone respondents are potentially more distracted if they are walking or driving or sitting in a public place while talking and may try to rush through the interview.

Legal—Federal regulations and industry standards must also be considered. The Telephone Consumer Protection Act (TCPA) originally enacted in 1991 requires that landline and cell phone numbers be kept separately and treated differently. Notably, the TCPA prohibits automatic dialing to cell phones unless there is prior consent from respondents, which means cell phone numbers need to be hand-dialed and dispositioned, making it costlier and less efficient. In addition, there are various state level laws that need to be considered when making callbacks to cell phone respondents.



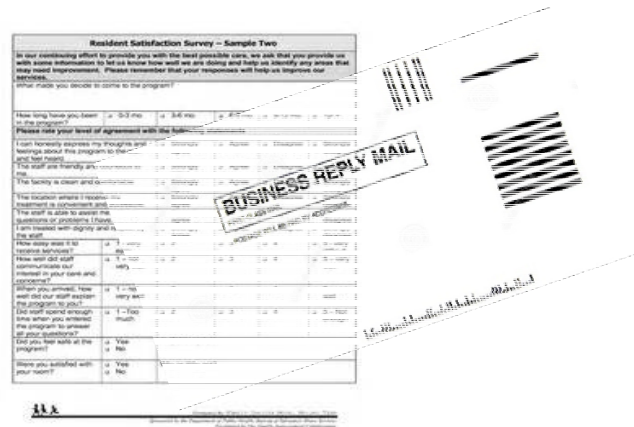
Ethical—Calling times, respondent safety, and privacy must all be considered. Research indicates that approximately one out of three people completing a survey while on their cell phone are not at home.ⁱ The very nature of a mobile telephone allows a potential respondent to be virtually anywhere when taking the call and to be engaged in many different types of activities. Of particular concern is reaching a respondent who is driving a motor vehicle during a research call, presenting a potential hazard to themselves and others. More recently, research has addressed the potential hazards of talking while walking.ⁱⁱ Privacy concerns must also be considered and taken into account when asking sensitive questions that respondents may be uncomfortable answering if they are in a public area or close to people with whom they don't want to share certain information.

Despite these negatives, we believe that when conducted properly and a dual-frame sample is used (with a significant cell phone component), telephone surveys continue to be the best methodology to achieve the closest thing we have to a probability sample.

That said, telephone surveys are inefficient and thus costly when targeting small geographic areas such as an individual city.

Are Mail Surveys an Alternative?

Prior to telephone surveys, mail surveys were the primary methodology used. As nearly all (~97%) households have an address, many argue that simply mailing a survey questionnaire to a sample of households in the area addresses the coverage issues experienced with telephone samples. In addition, mail surveys are easy to administer and despite increases in mailing costs they may be less costly than the telephone alternative.



However, as with any survey mode, there are some inherent problems with mail surveys. The most significant is that response rates are typically low. Even when response rates are acceptable, the quality of the data is often questionable. Consider the following analysis of the results of four resident surveys conducted completely by mail. In every instance. . .

- Women are over-represented, despite efforts to randomly select the household member to survey.
- The youngest age group are significantly under-represented. while the oldest residents are consistently over-represented.
- Renters are under-represented, despite efforts to oversample this segment of the population.
- The non-white population is under-represented.

	CITY #1 MIDWEST (n = 800) (rr = 30%)		CITY #2 SOUTHEAST (n = 349) (rr = 26%)		CITY #3 WEST (n = 321) (rr = 25%)		CITY #4 EAST (n = 785) (rr = 27%)	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample
Gender								
Male	48%	43%	46%	42%	53%	47%	49%	41%
Female	52%	57%	54%	58%	47%	53%	51%	59%
Age								
18 – 34	35%	18%	35%	16%	32%	8%	49%	21%
35 – 54	36%	28%	31%	21%	38%	32%	26%	28%
55 +	29%	54%	34%	62%	29%	60%	24%	51%
Race								
White	90%	94%	66%	73%	83%	96%	74%	81%
Not White	10%	6%	34%	27%	17%	4%	26%	19%
Housing								
Rent	38%	29%	47%	33%	38%	19%	55%	32%
Own	62%	71%	53%	67%	62%	81%	45%	68%

Definitions: n = Sample Size; rr = Response Rates; Population = Distributions from Census; Sample = Unweighted Sample Distributions
 Source: Selection of resident surveys conducted in 2015; data publicly available on the web

While weighting can be used to ensure that the final results represent the city’s population, large weights are not desirable. In the case of City #3, the 26 respondents surveyed between the ages of 18 and 34 (8% of 321) were given a weight of four in order to represent the general population. That is, one respondent “spoke” for three others.

There are other problems as well. High response rates can only be achieved through multiple contacts—the standard is typically three. This is neither economical nor particularly sustainable. Consider the dollar and environmental costs of sending letters, a multiple (4-6) page survey questionnaire, and a postage-paid return envelope to 2,000 households up to three times with the goal of achieving 500 completed surveys (assuming a response rate of 25%). Assuming that each packet consists of a minimum of four pieces of paper this means that between 20,000 and 25,000 pieces of paper are making their way to the landfill.

A second major limitation to mail surveys is related to the design and administration of the survey itself. Most resident surveys ask respondents to rate their community on a wide range of issues. It is not uncommon to see examples where a single page of the printed survey is comprised of a list of city services—in the example shown to the right, more than 35 items. Imagine the extent of a respondent’s fatigue as they read through this list; response order bias is likely to be significant as respondents spend less time with each item and there is a tendency to begin to straight line (give the same response to) every item. Unlike with phone or online surveys, there is no way to prevent this from occurring unless multiple versions are created adding significantly to the time, effort and cost of the project. There is considerable evidence to suggest that lengthy self-administered questionnaires can be off-putting to would-be respondents. ⁱⁱⁱ

Please rate the quality of each of the following services in [redacted]

	Excellent	Good	Fair	Poor	Don't know
Police services	1	2	3	4	5
Fire services	1	2	3	4	5
Ambulance or emergency medical services	1	2	3	4	5
Crime prevention	1	2	3	4	5
Fire prevention and education	1	2	3	4	5
Traffic enforcement	1	2	3	4	5
Street repair	1	2	3	4	5
Street cleaning	1	2	3	4	5
Street lighting	1	2	3	4	5
Snow removal	1	2	3	4	5
Sidewalk maintenance	1	2	3	4	5
Traffic signal timing	1	2	3	4	5
Bus or transit services	1	2	3	4	5
Garbage collection	1	2	3	4	5
Recycling	1	2	3	4	5
Yard waste pick-up	1	2	3	4	5
Storm drainage	1	2	3	4	5
Drinking water	1	2	3	4	5
Sewer services	1	2	3	4	5
Power (electric and/or gas) utility	1	2	3	4	5
Utility billing	1	2	3	4	5
City parks	1	2	3	4	5
Recreation programs or classes	1	2	3	4	5
Community centers or facilities	1	2	3	4	5
Land use, planning and zoning	1	2	3	4	5
Code enforcement (weeds, abandoned buildings, etc.)	1	2	3	4	5
Animal control	1	2	3	4	5
Economic development	1	2	3	4	5
Health services	1	2	3	4	5
Public library services	1	2	3	4	5
Public information services	1	2	3	4	5
Cable television	1	2	3	4	5
Emergency preparedness (services that prepare the community for natural disasters or other emergency situations)	1	2	3	4	5
Preservation of natural areas such as open space, farmlands and greenbelts	1	2	3	4	5
Stouffville open space	1	2	3	4	5
City-sponsored special events	1	2	3	4	5
Overall customer service [redacted] employees (police, receptionists, planners, etc.)	1	2	3	4	5

Additionally, mail surveys are unable to take advantage of the technical capabilities of telephone and online methods which use software that allows for the administration of complex surveys with skip patterns based on responses to previous questions (e.g., why ask people to rate the library if they never visit the library) or piping in responses from previous questions making the survey more customized and interesting.

A final problem with mail surveys is the long data collection period that is required due to the time required to send out multiple reminders and to wait for the surveys to be returned; additional time is also needed for data entry and processing.

We believe that the premise of using addresses as the sampling frame for community surveys represents the best sample frame to ensure representation of all households. But we also believe that the problems inherent in a mail survey—significant non-response and measurement bias, time, and sustainability—are significant.

Best Practice Alternative: Address-Based Sampling and Mixed Modes of Data Collection

We believe a better option is to combine the strengths of an address-based sample (ABS) with those of mixed mode (online and phone) data collection. This approach combines the best of all worlds resulting in a final sample that can be reliably projected to the general population and is representative of all respondent groups, even those that are difficult to reach and are often under-represented.

Use the Best Sample Frame: Address-Based Sampling

We begin with the same premise as mail surveys—nearly all households have an address—and that addresses represent the most efficient means to identify households within a specified geographic area.^{iv} Our sample frame is the U.S. Postal Service (USPS) Computerized Delivery Sequence File (CDSF) and is provided by an approved third-party vendor. This sample frame is often better than frames provided by our clients as we are confident that all households are included in the USPS CDSF while client provided frames often rely on utility billing or other records and under-represent multi-family housing where individual units may not receive a utility bill.

In addition, the USPS CDSF database is continuously updated, making it safe to assume that if an address cannot be matched against the CDSF it is most likely an undeliverable address.

A second major advantage of the ABS methodology is that it can be used to select probability-based samples of addresses in finely defined areas—each address is geo-coded to a unique Census block. In addition, ancillary data available from the Census and other commercial sources can be appended, including detailed geodemographic information or name and telephone number.



Provide Choices: Mixed Mode Data Collation

“Mixed mode surveys for a single survey project. . . are occurring with increasing frequency. A second, or in some cases even a third, method to collect data. . . is being used throughout the world. . . Indeed, mixed mode is becoming the survey buzz words of the late 20th century.”

Dillman & Tarnai (1988) ^{vii}

“In general, data collection systems do not consist of one mode only, since mixed mode surveys are the norm these days.”

Biemer & Lyberg (2003) ^{ix}

“An alternative approach is to play to the strengths of both methods [CATI / CAWI]. . .An emerging new breed of survey software is starting to make this possible.”

Macer (2004) ^x

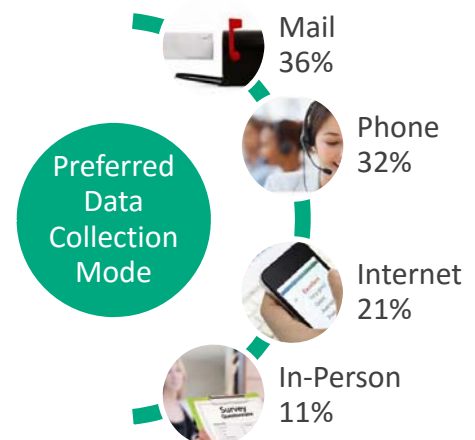
“Mixed-Mode: The only fitness regime.”

Blyth (2008) ^{xi}

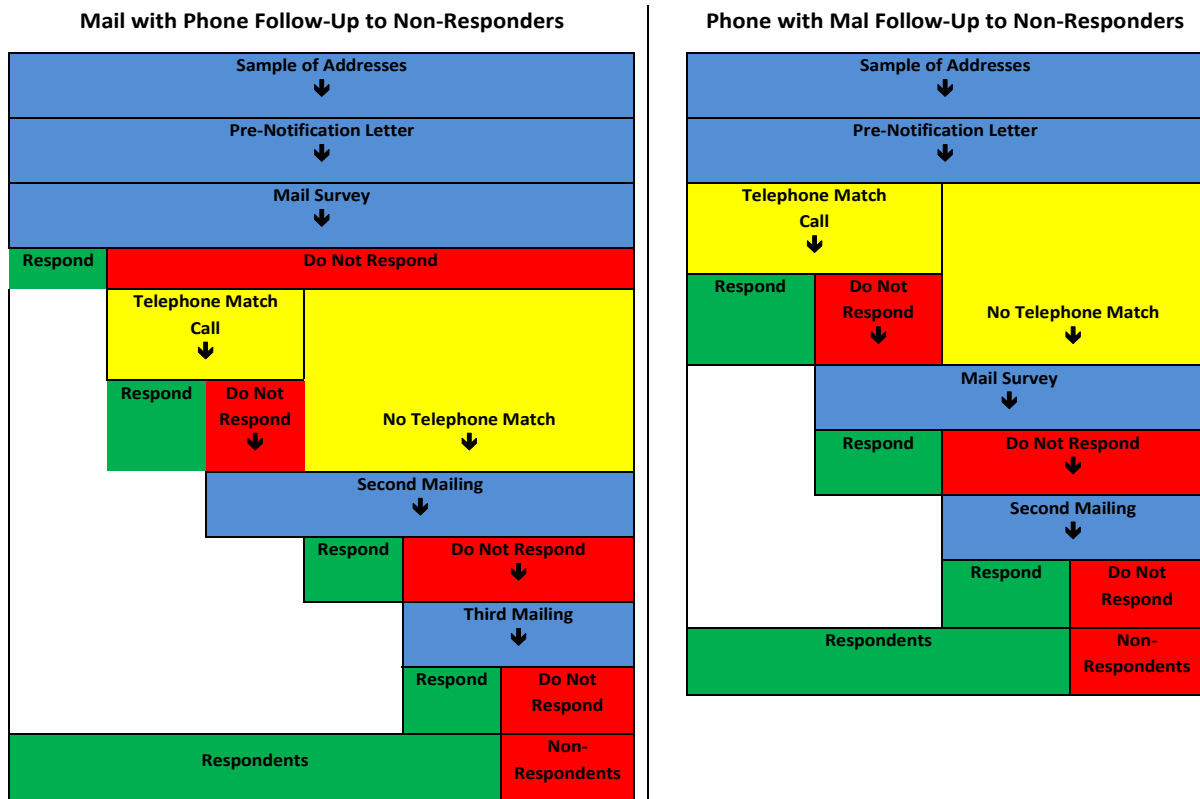
Address-based sampling is a sampling methodology. It is not a research design. Therefore, once the decision is made to use an address-based sample frame, several other key decisions must be made. Perhaps the most important is what mode(s) of data collection to use. Multi-mode methods (CATI, self-administered via web, IVR, mail, or even in-person) for data collection are gaining popularity. The conclusion of many studies suggests that different research modalities can be combined to boost response rates.^v Other studies suggest that mixed mode surveys can be less costly due to increased coverage of wireless only households^{vi}, the establishment of credibility and trust with the respondent, and an improvement in the degree of privacy offered to the respondent. ^{xiii}

Mixed mode surveys also improve the attractiveness of the survey to the respondent. The Market Research Association conducted a study in 2006 in which adult Americans indicated which mode of data collection they would select first if they were given the choice. The results clearly indicate that the public has varied preferences for different modes of survey data collection. ^{viii}

It is probably safe to assume that these preferences vary significantly by respondent demographics. It is also likely that with the passage of nearly 10 years of increased technology use that the preference for Internet surveys may have increased at the expense of the other modes.



Combining ABS sample with different data collection modes provides for many options for survey administration—two are illustrated below that use a combination of mail and phone surveys.



The Evolution of Our Approach

Northwest Research Group has been a leader in using address-based samples combined with mixed modes of data collection.

OUR GOAL

To use a sample frame that provides coverage in the target geographic area and uses the best data collection methodologies to maximize response rates and increase the representativeness of our samples while maintaining the basic principles of probability samples.

We conducted our first resident survey using this approach in 2009 and have been an advocate ever since. In addition, our approach to sampling and data collection has evolved as additional enhancements to the ABS frame were added.



The Results

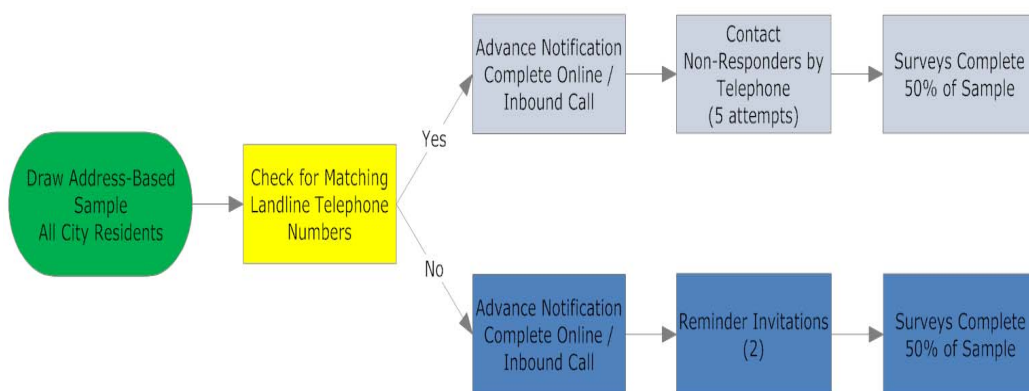
We have had the opportunity to conduct tracking studies for a number of cities for several years. This has provided data with which to test and evaluate the effectiveness of this approach. Following are three case studies illustrating some key findings from our evaluation.

City 1: Boise, ID

The City of Boise was one of our first clients to use our approach. Prior to 2010, the City’s Community Survey was conducted by phone using Random Digit Dial sample; however, calls were limited to landline phones. To ensure that the sample was representative of the general population, some quotas were set for gender and age, adding to the cost of the research. In 2009, we explored the possibility of including cell phone sample but the increased cost was prohibitive. In addition, response rates decreased in 2009, raising additional concerns.

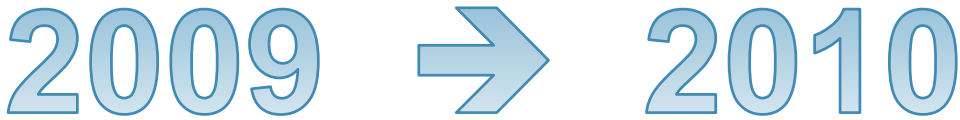
Recognizing that continuing to do the study by phone without addressing these issues would call into question the validity of this important study. In 2010, the city agreed to test address-based sampling. Pre-notification letters were sent to all sampled addresses and surveys were completed online or through telephone follow-up.

Our goal was a minimum of 500 completed surveys—50 percent would be completed online and 50 percent would require a telephone follow-up.



The results were excellent. **Response rates to both the online and phone surveys were high** and we exceeded our goal for total number of completed survey—251 interviews were completed by phone and 299 online for a total of 550.

While some of the costs for data collection shifted from telephone to printing and mailing, the actual costs for data collection in 2009 and 2010 were virtually identical. This meant that Boise got significantly more **bang for the buck** in 2010 as the cost per respondent decreased from \$30.45 in 2009 to \$28.45 in 2010.



Even better—we achieved better representation of several demographic groups (males and renters) due to the inclusion of the web component.

However, while well represented in the online response, younger residents and those living in multi-family housing were still under-represented.

	2009 Phone	2010 Address-Based Sample		
	Total (n = 511)	Total (n = 550)	LL Phone (n = 251)	Web (n = 299)
Gender				
Male	45%	49%	38%	58%
Female	55%	51%	62%	42%
Age				
18 – 34	24%	19%	11%	25%
35 – 54	42%	49%	50%	48%
55 plus	33%	33%	39%	27%
Housing				
Single Family	86%	87%	91%	84%
Multi-Family	14%	13%	9%	16%
Own	91%	81%	88%	76%
Rent	9%	19%	12%	24%

We used a similar approach in 2013 but decided to try oversampling multi-family dwellings in an attempt to target younger residents.

Response rates, notably on the web, were even higher than those in 2010—229 surveys were completed by phone and 377 were completed online and costs were further reduced in 2013 (to \$21.15) by further shifting the costs from online to web data collection.

The **large web response had a significant positive impact on the overall representativeness of the final sample**. Notably, those between the ages of 18 and 34 were represented in line with the population in the city (28%)—nearly all of whom completed the survey online. Moreover, we achieved greater representation of renters and those living in multi-family dwelling types.

2010 → 2013

Address-Based Sample						
	2010			2013		
	Total (n = 550)	LL Phone (n = 251)	Web (n = 299)	Total (n = 606)	LL Phone (n = 229)	Web (n = 377)
Gender						
Male	49%	38%	58%	45%	43%	46%
Female	51%	62%	42%	55%	57%	54%
Age						
18 – 34	19%	11%	25%	28%	3%	43%
35 – 54	49%	50%	48%	30%	28%	31%
55 plus	33%	39%	27%	42%	69%	26%
Housing						
Single Family	87%	91%	84%	82%	90%	78%
Multi-Family	13%	9%	16%	18%	10%	23%
Own	81%	88%	76%	75%	86%	69%
Rent	19%	12%	24%	24%	14%	31%

City 2: Bellevue, WA

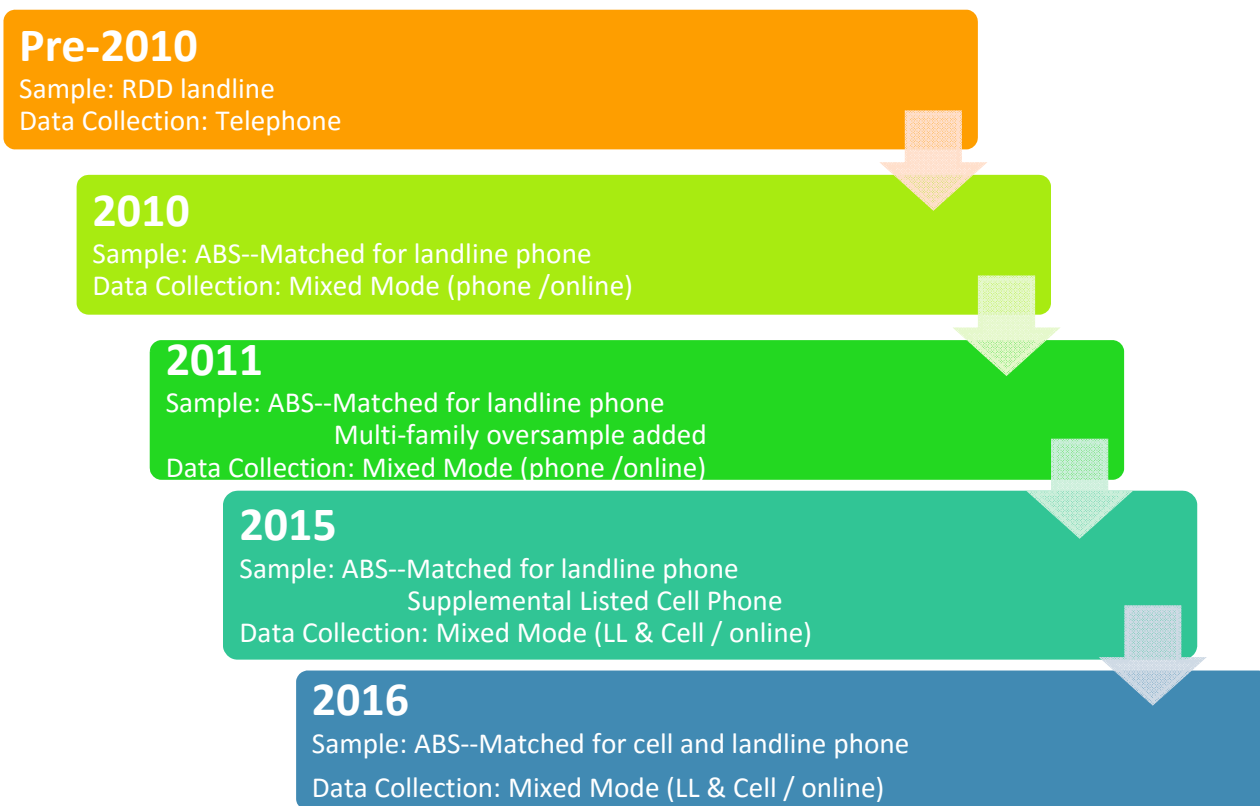
NWRG conducts several tracking studies for the City of Bellevue, including an Annual Performance Measures Survey and a Biennial Budget Survey.

Between 2009 and 2016, Bellevue grew rapidly—nearly 10 percent. Demographics and housing characteristics were changing rapidly as well. Nearly half of all housing stock in Bellevue is multi-family. And more than out of four Bellevue residents are Asian. The City was very interested in ensuring representation of this changing population.

Like Boise, prior to 2010 studies were conducted using RDD landline telephone. Quotas were used to ensure representation of hard-to-reach segments—notably those living in multi-family housing. However, this added significantly to the cost of the research.

Bellevue transitioned to an ABS Sample in 2010. Between 2010 and 2014, the studies were conducted using a similar sampling and data collection methodology as described above for Boise—that is, mail with an invitation to a web survey and calls to those with phone numbers available.

In 2015, we supplemented the ABS sample with listed cell phone sample and in 2016 we were able to match cell phone numbers to the ABS sample.



Our first year with the ABS methodology had mixed results. **Response rates**—notably to the web survey—**were excellent**. We were able to achieve a 60 percent increase in the number of completed surveys for the same cost.

We saw a somewhat **better representation of age**—notably among 35 to 54-year-olds—a significantly **higher representation of Asian residents**. Many of these residents responded online.

However, **without a specific quota for multi-family**, this segment was **under-represented**. To address this problem, in 2011 we over-sampled census blocks with higher-than-average concentrations of multi-family housing units. While online response rates were lower, we did achieve a sample that better represented all household types. In addition, we saw a greater representation of younger and Asian residents. The majority of these hard-to-reach segments completed the survey online.

	Phone	Address-Based Sample					
	2009	2010			2011		
	Total (n = 550)	Total (n = 550)	LL Phone (n = 251)	Web (n = 299)	Total (n = 606)	LL Phone (n = 229)	Web (n = 377)
Age							
18 – 34	14%	13%	10%	15%	17%	6%	33%
35 – 54	37%	43%	32%	50%	42%	43%	40%
55 plus	49%	44%	58%	35%	41%	51%	27%
Housing							
Single Family	51%	70%	62%	74%	55%	68%	35%
Multi-Family	49%	30%	38%	26%	45%	32%	65%
Race							
White Alone	81%	81%	83%	80%	70%	81%	55%
Asian	7%	17%	10%	20%	20%	12%	31%
All Others	12%	2%	7%	0%	10%	7%	14%

Over the years as a more of the population shifted away from landline toward cellular phones, we noticed that the **percentage of addresses that had a matching landline phone steadily decreased**—from a match rate of 58 percent in 2010 to 43 percent in 2014. In addition, we found that it was increasingly difficult to ensure representation of 18 to 34-year-old residents as well as other key segments.

To address this issue, for Bellevue’s 2015 study, we **supplemented the ABS sample with listed cell phone sample**. The additional cost of dialing cell phone sample was offset by eliminating the advance letter to those in the ABS sample with phone numbers. This also eliminated the potential for response bias resulting from giving those with phone numbers a higher likelihood of responding.

Adding the supplemental cell phone sample accomplished several things but most importantly, we nearly doubled the representation of those elusive 18 to 34-year-old residents. While most of these respondents completed the survey online, we were also able to boost their representation via the cell phone sample.

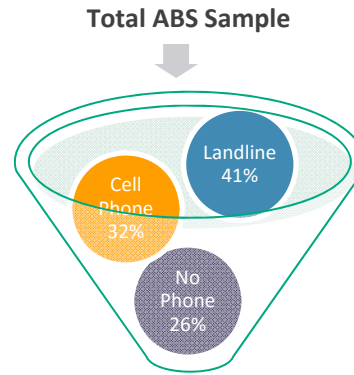
We were able to gain better representation of multi-family residents. However, this was accomplished largely online. The landline and listed cell phone samples largely reached residents of single-family homes.

We continued to under-represent Asian residents. Again, the landline and listed cell phone samples largely reached Caucasians while Asians tended to prefer online.

	Address-Based Sample						
	2014			2015			
	Total (n = 515)	LL Phone (n = 304)	Web (n = 299)	Total (n = 516)	LL Phone (n = 158)	Web (n = 202)	Cell Phone (n = 156)
Age							
18 – 34	10%	2%	18%	18%	2%	17%	32%
35 – 54	39%	30%	48%	38%	29%	39%	46%
55 plus	51%	68%	34%	44%	69%	44%	22%
Housing							
Single Family	61%	58%	64%	55%	68%	31%	73%
Multi-Family	39%	41%	36%	45%	33%	69%	27%
Race							
White Alone	76%	83%	65%	76%	85%	66%	80%
Asian	18%	13%	27%	18%	11%	27%	14%
All Others	6%	4%	8%	6%	3%	7%	6%

A new enhancement was recently added to ABS sample—the **ability to match cell phone numbers to address-based sample**. This enabled us to use a single ABS frame for the 2016 study.

Telephone numbers were matched to nearly three out of four ABS sample elements—44 percent of those numbers were cell phone numbers.



While the overall results for 2015 and 2016 are similar, it is clear that the different sample frames / modes reach distinct resident segments.

The cell phone and web components are essential for reaching 18 to 34-year-old residents, males, and Asians. And the web component is absolutely critical for reaching those living in multi-family housing.

In addition, with the exception of dwelling type, the cell phone sample associated with the ABS sample has a similar reach as the web sample.

	2015 ABS + Supplemental Cell Phone				2016 Address-Based Sample			
	Total (n = 516)	LL Phone (n = 158)	Cell Phone (n = 156)	Web (n = 202)	Total (n = 511)	LL Phone (n = 142)	Cell Phone (n = 100)	Web (n = 269)
Gender								
Male	53%	38%	56%	62%	54%	45%	58%	57%
Female	47%	62%	44%	38%	46%	55%	42%	43%
Age								
18 – 34	18%	2%	17%	32%	20%	4%	25%	26%
35 – 54	38%	29%	39%	46%	39%	21%	52%	44%
55 +	44%	69%	44%	22%	41%	75%	23%	30%
Housing								
Single Family	55%	67%	72%	31%	56%	76%	74%	39%
Multi-Family	45%	33%	28%	69%	44%	24%	26%	61%
Race								
White Alone	76%	85%	80%	66%	66%	87%	59%	58%
Asian	18%	11%	14%	27%	26%	7%	34%	33%
All Others	6%	3%	6%	7%	8%	6%	7%	9%

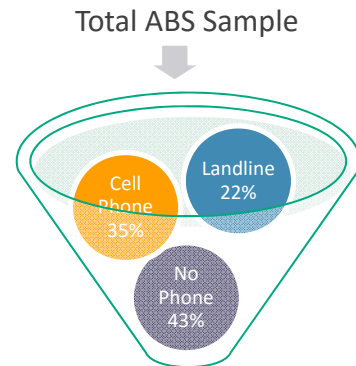
Another indicator that we have been tracking is the extent to which we are reaching wireless only households. While a significant percentage of those reached online in 2014 were wireless only, the total percentage of wireless only households (20%) was significantly lower than the countywide estimates (46%). The addition of cell phone sample in 2015 and 2016 brought this figure more in line with the population.

	2014 Address-Based Sample			2015 ABS + Supplemental Cell Phone				2016 Address-Based Sample			
	Total	LL	Web	Total	LL	Cell	Web	Total	LL	Cell	Web
Wireless Only	20%	1%	39%	38%	2%	45%	60%	47%	3%	59%	65%
Wireless Primarily	20%	17%	22%	22%	18%	28%	21%	18%	18%	24%	15%
Equally LL & Wireless	33%	42%	24%	27%	48%	25%	11%	24%	49%	16%	14%
Primarily Landline	22%	30%	14%	11%	24%	2%	6%	8%	20%	1%	4%
Landline Only	6%	10%	2%	3%	8%	0%	2%	4%	11%	0%	2%

City 2: Renton, WA

Northwest Research Group conducted Renton’s resident survey in late 2015. Their previous resident survey was conducted in 2011 and used a dual-frame (landline and cell phone) sample. Unfortunately, the cell phone sample proved to be very inefficient and the high cost of reaching residents on their cell phone resulted in fewer than the anticipated number of surveys.

NWRG introduced Renton to the concept of an ABS sample frame and mixed modes of data collection. In Renton, we were able to match phone numbers to 57 percent of the ABS sample elements. More than three out of five numbers were cell phone number.



A comparison of the 2011 and 2016 surveys indicated that both samples had nearly equivalent results for gender, age, and race. However, the total sample in 2016 was 33 percent larger due to higher response rates. Response rates by phone were nearly double those in 2011.

A couple of other findings are noteworthy:

- The ABS sample reached a significantly higher percentage of wireless-only households than achieved through the 2011 dual frame sample (despite screening for only and primarily wireless when contacting the cell phone sample in 2011).
- Renton is a very diverse community. While still somewhat under-represented (relative to the general population), the cell phone component of the ABS sample was very successful in reaching non-white residents. This segment’s heavy reliance on cell phones may mean that they are less likely to use a computer or the Internet at home.

	2011 Dual Frame Sample			2016 Address-Based Sample			
	Total (n = 263)	LL (n = 263)	Cell (n = 116)	Total (n = 503)	LL (n = 186)	Cell (n = 122)	Web (n = 195)
Gender							
Male	47%	45%	53%	52%	45%	58%	52%
Female	53%	55%	47%	48%	55%	42%	48%
Age							
18 – 34	17%	10%	34%	20%	7%	32%	28%
35 – 54	42%	39%	50%	37%	34%	46%	43%
55 +	41%	51%	16%	43%	59%	21%	29%
Race							
White Alone (non-Hispanic)	62%	62%	60%	65%	71%	43%	73%
Not White Alone (includes Hispanic)	38%	38%	40%	35%	29%	57%	27%
Phone Coverage							
Cell Only	4%		14%	40%		58%	66%
Primarily Cell Phone	26%		86%	17%	14%	28%	13%
Both Equally	29%	42%		28%	54%	13%	13%
Primarily Landline	28%	40%		10%	22%	2%	4%
Only Landline	12%	18%		5%	10%		4%

In Conclusion

Probability samples and citizen surveys are not dinosaurs. Rather, the opportunities to obtain a reliable and representative sample of residents in a targeted geographic area are greater than ever.



Address-based samples (ABS) offer significant potential for the **best sample coverage of small geographic areas** and excellent ability to **target small areas and/or residents with distinct socioeconomic characteristics**—younger residents, those living in multi-family dwelling types, and low-income. And address-based samples continue to improve. The recent ability to **match both cell phone and landline numbers to addresses** increases the ability to proactively reach, reducing problems with non-response.

Mixed mode surveys are to the current decade what mail surveys and telephone surveys were to the past. This is not to suggest there is no place for mail or telephone surveys. In fact, we oppose the tendency to reject a survey mode because we know of specific situations in which a mode will not work. Rather, we strongly believe that for most community surveys which target small geographic areas, coupling address-based sampling with mixed mode data collection improves the survey experience thus further improving response rates, data quality, and improved coverage of all residents.

The other thing that becomes clearly apparent from this analysis is that the world of survey research continues to evolve and we must evolve with it. Ignoring or failing to respond to these changes means falling behind. Best practices in survey research requires staying on top of what is changing and how it impacts what we are doing. It requires getting out of the box and considering new methodologies and technologies and incorporating them into what we do. We close with a quote from Don Dillman, an expert in research design, which we believe summarizes best practices in survey research.

“Survey organizations are going to have to change dramatically in some ways in order to do effective surveys as we bring new technologies online and still use our other technologies where they work.”

Don Dillman (2000)

References

To learn more about the sources used to support the theory and best practices behind this effort:

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In addition to the 5-Star Rating, NWRG's CityMarks™ comprehensive Community Equity Assessment program includes a set of core questions that allow a city to see where it excels, as well as opportunities for improvements as compared to peer cities and those exhibiting clear “best practices.”

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Contacts!

To learn more about NWRG's CityMarks™ Community Equity Assessment Program

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