

How Often Do People Use Safety Belts in Your Community?

Survey and Guide
for Assessing Community
Safety Belts



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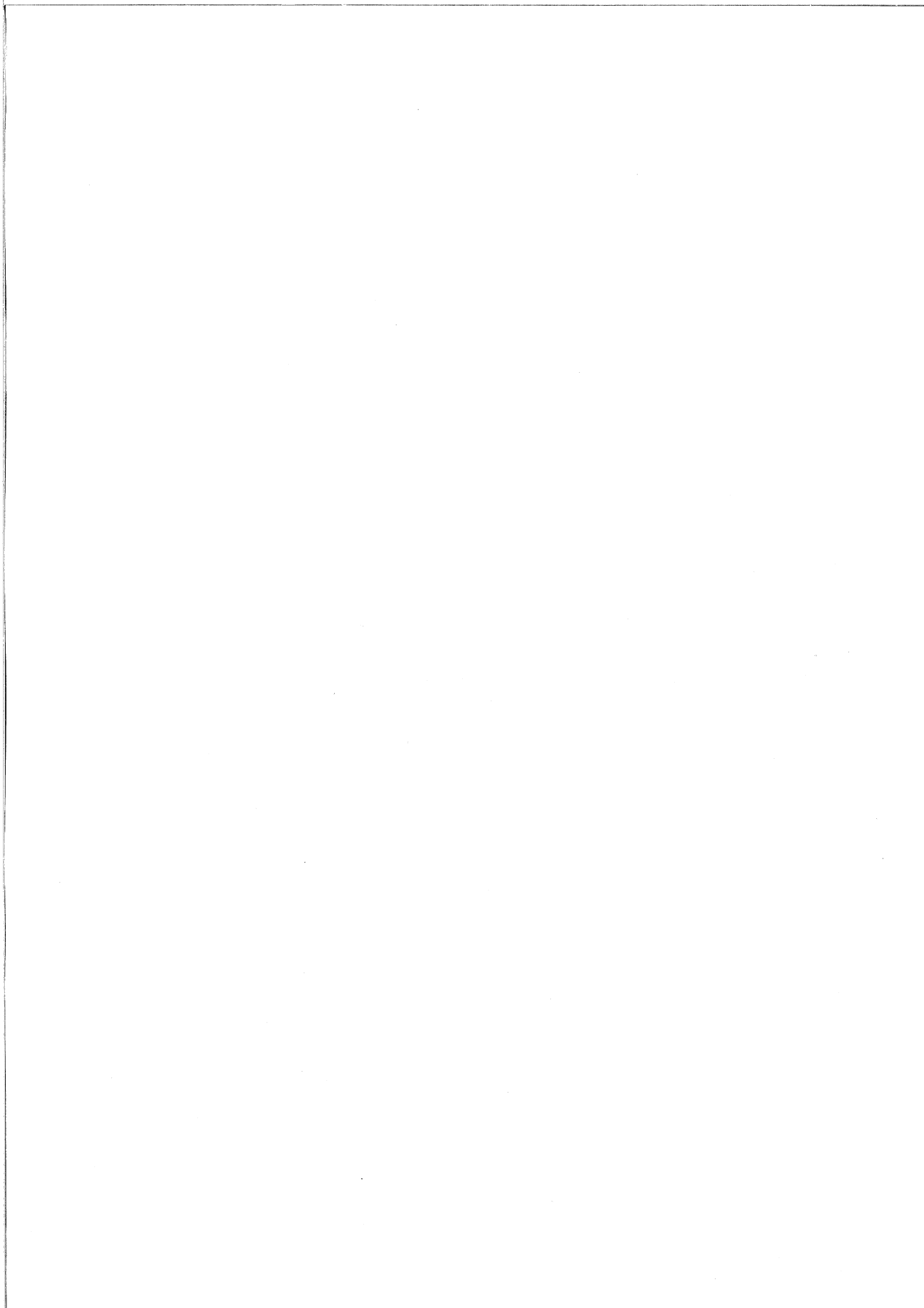


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Overview of Steps*

Step 1: Answer three questions.

- 1) Why do you want to know the safety belt use in your community?
- 2) What will be your survey area?
- 3) What vehicles will be include in the survey?

Step 2: Select the places where you will look for safety belt use.

- 1) Figure out the number of observation sites to include in your survey.
- 2) Get a good map that shows all the roads within the survey area.
- 3) Draw a grid pattern onto a transparent sheet of plastic.
- 4) Select the locations of the observation sites.
 - A) Choose a random grid square.
 - B) See if there is an intersection inside the grid square.
- 5) Determine where an observer should stand at each observation site.

Step 3: Schedule when to go out and look for safety belt use.

- 1) Figure out how groups of sites you will have in your survey.
- 2) Determine the number of sites to be observed within each group.
- 3) Group together the observation sites and number them.
- 4) Pick a random day for the group of sites to be observed.
- 5) Randomly pick the time of day for each site within the group to be observed.

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Step 4: Train the people who will be looking for safety belt use.

- 1) Gather together the materials needed for observing safety belt use.
- 2) Bring the observers to a classroom and discuss survey procedures.
- 3) Take observers to example intersections and practice data collection procedures.

Step 5: Go out and see who's using their safety belt.

- 1) Determine if the site can be surveyed.
- 2) Fill out the site form.
- 3) Find the proper standing location.
- 4) Count all target vehicles on all designated traffic lanes for 5 minutes.
- 5) Observe safety belt use for 50 minutes.
- 6) Count all target vehicles on all designated traffic lanes for 5 minutes.

Step 6: Estimate your community's safety belt use.

- 1) Count up the total number of target vehicle occupants using safety belts.
- 2) Count up the total number of vehicle occupants not using safety belts.
- 3) Record the pre-survey vehicle count.
- 4) Count up the total number of target vehicles observed during the 50-minute period.
- 5) record the post-survey vehicle count.

Step 7: Figure out what it all means.

Step 8: Tell everyone about your community's safety belt use.

*Steps that are written in italics can be completed using the *Belt Use Analyzer* software.

Introduction

The history of safety belts began well before the start of the "automobile age" in the early 1900s. Safety belts were first developed in the 1880s to prevent people from bouncing out of horse-drawn buggies. Although I have never come across a report of how often these safety belts were used, I can imagine that they were used quite frequently. It would be rather improper and undignified for a lady or gentleman to be tumbled out of a carriage after hitting a pothole on Main Street. The first safety belt patent was granted in 1885 to Edward Claghorn. By 1910, belts that you would probably recognize as "lap belts" had been developed. Perhaps because it was more difficult to get bounced out of a motor vehicle than a buggy, safety belts were only found infrequently in automobiles for several decades. They were most frequently found in airplanes.

All this began to change as motor vehicles became faster and the roads became more crowded. When motor vehicles crashed, the forces acting on vehicle occupants were causing greater and greater injury. After successful testing and development in Europe showing that safety belts could reduce injury in motor vehicle crashes, automobile manufacturers in the United States (US) began to offer safety belts in their vehicles in the 1950s. Despite the fact that the safety belt is probably the single most effective technology for reducing injury in motor vehicle crashes, very few people used them when they were first introduced on a widespread basis. As recently as 1979, for example, only about 11 percent of automobile drivers in the US used a safety belt.

In the 1980s, one hundred years after safety belts were first introduced, the US government began a program to promote safety belt use that included public information programs, state mandatory safety belt laws, and the phase-in of automatic restraint systems in motor vehicles. During this decade, 38 states and the District of Columbia passed laws that required safety belt use. By the end of the 1980s, 40 to 50 percent of people nationwide used safety belts, a surprisingly low percentage given the fact that when used properly, safety belts can reduce the risk of death or serious injury from a motor vehicle crash by 40 to 60 percent.

The 1990s was the decade of public information and enforcement programs. During this period, the rest of the states, except New Hampshire, passed safety belt use laws and just about every vehicle on the road had safety belts installed. The problem for the 90s was to convince people that safety belt use was both in their own and the public's best interest. Dozens of programs were started that were directed at getting people to use safety belts and by the end of the decade, nearly 70 percent of people in the US used safety belts.

The goal of the next decade will be to get the last 30 percent of people to use safety belts. These people, for whatever reason, have chosen to go without safety belts even though it is against the law and can save their life if they are in a crash. Knowing who these people are, and how to reach them, is more important now than ever before. The development and evaluation of effective safety belt programs will depend on well designed surveys of safety belt use.

This manual is designed to guide you through the design, implementation, analysis, and reporting of a safety belt use survey. Throughout the manual, I use the phrase "safety belt" rather than "seat belt." The term more accurately reflects what the technology is design to do. The manual is organized in a step-by-step fashion; all you have to do is follow the steps in order. The steps are:

- 1: Answer three questions.
- 2: Select the places where you will look for safety belt use.
- 3: Schedule when to go out and look for safety belt use.
- 4: Find and train the people who will look for safety belt use.
- 5: Go out and see who is using their safety belt.
- 6: Figure out your community's frequency of safety belt use.
- 7: Figure out what it all means.
- 8: Tell everyone about your community's safety belt use.

The most difficult part of the process, the analysis (step six), has been reduced to a computer program that only requires you to count up values and type them into the program following the instructions. Some familiarity with a computer is necessary for this step, but that is as bad as it gets. The software program can also be used to help you design the survey (steps two and three), by randomizing several things. The software is not necessary for these steps, but it will make your job easier.

Step 1: Answer three questions

At the start of most journeys, it is best to know where you are planning to end up. Conducting a safety belt survey is no different. In order to conduct a really good survey of safety belt use in your community you need to have a clear idea of what you want to learn from the survey. There are three questions that will help you figure this out.

Question 1: Why do you want to know the safety belt use in your community?

There are numerous reasons why someone might want to assess safety belt use in a community. You may have grown tired of reading about unbuckled young people dying in traffic crashes and you want to know the extent of the safety-belt-use problem in your community. You may be ready to begin a program to promote the use of safety belts in your community and you want to have a baseline for comparing how much belt use increases after the program. You may be designing a safety-belt-use enforcement or education program for your community and you need information about who is using safety belts and who is not, in order to target the program to the appropriate people. Or, your reason may be simply because someone told you to do it! Whatever your reason, defining your purpose is essential for a good survey. Go ahead and write down your purpose in the space below.



Question 2: What will be your survey area?

The survey area is the exact boundaries of the community for which you want to know the rate of safety belt use. Example boundaries are your neighborhood, a school district, a zip code region, your city, or even your county. When thinking about your survey area, remember that this area is the only place for which the survey results will apply. For example, if you were to select your school district as the survey area, then the safety-belt-use rate you find for the school district cannot be used to talk about who uses safety belts in your larger city. If you want to talk about how frequently people use safety belts in your county, then the boundaries of your county should be defined as the survey area.

Generally, it is best to pick the smallest area that fits your needs. Smaller areas mean less traveling around to conduct the survey, which will make it cheaper to perform. Also, it is important to know exactly the boundaries of the survey area. You should be able to draw them on a map of the area so that for any street on your map you will know whether it is in the survey area or not. Because it is common to have streets defining community boundaries make sure to include in your survey area all streets that are *on* the boundary as well as those that are inside the boundary.

Question: What types of vehicles should I include?

As any driver knows, there are lots of different types of vehicles out on the roadways. Which ones should you include in your survey? A survey to assess the effects of a program to increase safety belt use for pickup truck occupants would include different vehicle types than a survey designed to assess citywide safety belt use. In other words, the vehicles you want to include in the survey should be based upon what the survey is trying to discover. Here are a few details that might help you decide:

- When making the decision about which types of vehicles to include, it is important to keep in mind that the results you get will only apply to the vehicle type or types included in the survey. If you only include people in your survey who are in pink Cadillacs, then you will not be able to use your survey results to talk about people who are in convertible Mustangs.
- You cannot assume that the use of safety belts is the same among different vehicle types. Seat belt use by vehicle occupants is different depending on the vehicle type. The biggest difference comes from pickup truck occupants who tend to use safety belts less frequently than occupants in other vehicle types. Therefore, it is best to include as many different vehicle types as you can in your survey.
- Basically, there are five kinds of motor vehicles on roadways: heavy vehicles (like 18-wheelers, dump trucks, and buses), light trucks (like pickups), sport-utility vehicles (like four-wheel drives and motor homes), vans/minivans (you know what these are), and passenger cars (just about everything else).
- Vehicles are also used for various purposes. Some vehicles are used for commercial purposes like moving vans, delivery trucks, or any other vehicle with a company's name on the side. Other vehicles are used for community services like police cars, ambulances, or postal carrier vehicles. Unless there is a compelling reason to include these commercial vehicles, it is best not to have them as part of the survey. Some companies and organizations have special requirements for safety belt use and in certain cases safety belt use is not required by law. As such, commercial vehicles may alter your results in ways that you do not intend.
- Unless you really need to include other vehicle types, I recommend that you only include passenger cars, pickup trucks, sport-utility vehicles, and vans/minivans in your survey. These vehicle types account for more than 90 percent of all traffic, are easily surveyed, and are the ones required by federal guidelines when states report statewide safety belt use.

Now that you have selected the vehicle types that are to be included in your survey, we'll call these vehicles the "target vehicles." They are called this because these are the vehicles that you will be looking into, or targeting, to see who is using safety belts and who is not.

Step 2: Select the places where you will look for safety belt use

Once you have clarified your thinking about the safety belt survey and know exactly where it will take place and which vehicles will be included, the next step is to select the intersections where someone will go and look for safety belt use. We call these places the "observation sites," because the people conducting your survey will literally be observing people in cars and writing down their safety belt use at these sites. There are five parts to complete this step.

1. Figure out the number of observation sites to include in your survey.

Believe it or not, some things in science are based upon guesses or "estimates." Estimates are necessary because they frequently allow us to be more efficient in how we go about doing things. The better our estimates, the more efficient we can be. You will need to make a best-estimate here.

In order to figure out the number of observation sites, you need a good estimate of what the safety belt use might be in the survey area you have chosen. "What?" you might ask. "If I knew what safety belt use was in my community, why would I want to conduct this survey?" This is a reasonable question. The answer is that enough research on safety belt use has been conducted that we know at least something about how frequently people use safety belts. This allows us to design safety-belt-use surveys that are far less expensive than if we knew nothing about safety belt use. You obviously don't know the *exact* belt use in your community (that's why you're wanting to figure it out), but you may know that it's something like 70 percent. It may be only 60 percent, but the estimate allows you to more accurately pick the number of observation sites that will be necessary for the survey to give you meaningful results.

Making this estimate is not as hard as it might seem. If your survey area is in a state in which a statewide belt use survey has been conducted, then information about your survey area (for example, your county) may be available from the organization that conducted the survey (usually the state police force or department of motor vehicles). If there is no information about your survey area, then choose the statewide belt use rate. For your convenience, several statewide and other area rates for 1998 are included in Table 1.

See Table 1 on next page.

Alabama	52%	Idaho	57%	Missouri	60%	Puerto Rico	78%
Alaska	57%	Illinois	65%	Montana	73%	Rhode Island	59%
Am. Samoa	81%	Indiana	62%	Nebraska	65%	South Carolina	65%
Arizona	62%	Iowa	77%	Nevada	76%	South Dakota	46%
Arkansas	53%	Kansas	59%	New Hampshire	56%	Tennessee	57%
California	89%	Kentucky	54%	New Jersey	63%	Texas	74%
Colorado	66%	Louisiana	66%	New Mexico	83%	Utah	67%
Connecticut	70%	Maine	61%	New York	75%	Vermont	63%
Delaware	62%	Mariana Islands	80%	North Carolina	77%	Virgin Islands	92%
Dist. of Colum	80%	Maryland	83%	North Dakota	40%	Virginia	74%
Florida	57%	Massachusetts	51%	Ohio	61%	Washington	79%
Georgia	74%	Michigan	70%	Oklahoma	56%	West Virginia	57%
Guam	94%	Minnesota	64%	Oregon	83%	Wisconsin	62%
Hawaii	81%	Mississippi	58%	Pennsylvania	68%	Wyoming	50%

The most current statewide rates can be found by contacting the National Highway Traffic Safety Administration (NHTSA). If you're an Internet-type, here's their web page address: <http://www.nhtsa.gov/people>. Write your estimate (guess) of safety belt use in the box below.

Before the number of observation sites for your survey can be figured out, you need to decide how accurate you want your survey to be. You do this by deciding upon an "error rate." To understand the error rate, it is important to note that your survey will not give you the "actual" belt use for your survey area. Instead, it will give you a wonderful "guess" of the frequency of belt use. This estimate happens to be a very good one because it will give you a range in which the "actual" belt use in your community must fall. For example, the survey might show you that the actual belt use in your community falls somewhere between 60 and 70 percent, a range of 10 percentage points. The width of this range is partially determined by the error rate you select. Smaller error rates lead to smaller safety-belt-use ranges, and the more precise the estimate of safety belt use, the more you can get from your survey.

Take a peek at Table 2. This table shows the approximate number of observation sites you will need to have in your survey based upon your estimate of safety belt use in the survey area and the error rate (or precision) you want in your survey results. As you can see, the number of observation sites varies greatly, with the number of observation sites increasing with low belt use areas and higher error rates. You can play around a bit here to figure out the number of sites you will need. I recommend that you pick the lowest error rate that yields the number of observation sites that you can survey given your budget. If after fiddling around with numbers in Table 2, you find that the number of observation sites you come up with exceeds the number of sites that you can economically survey, then the survey should not be conducted. The resulting belt use rate would probably have such a large range associated with it that it probably would not be useful to you or your organization.

Approximate Safety Belt Use Rate, Percent	Error Rate, Percent		
	2	5	7
90	68	11	N/A
80	113	19	N/A
70	174	28	15
60	257	42	21
50	380	61	32
40	579	93	48
30	N/A	152	78
20	N/A	290	148
10	N/A	N/A	449

Figure 1 shows a sample grid pattern that you can use to design your survey area. The grid is designed to be used on a map of the survey area.

Well, the map doesn't really have to show all of the roads, but it should show a large majority of them. It is important that the map include the entire survey area. If your survey area is quite large, then it may be difficult to find a single map that includes the entire area. This is okay; get more than one map and cut and paste them together until the whole area is covered. Make sure, however, that the maps are of the same scale.

This may sound a little odd at first, but trust me, it is an important step in designing and conducting a really good survey. A sample grid pattern is shown in Figure 1. A good way to create the grid is to duplicate Figure 1 onto transparency film using a Xerox machine. Transparency film refers to the plastic sheets used for overhead machines and is available at any office supply store. Another method for creating the grid is to draw it by hand onto a plastic sheet. If you use this method,

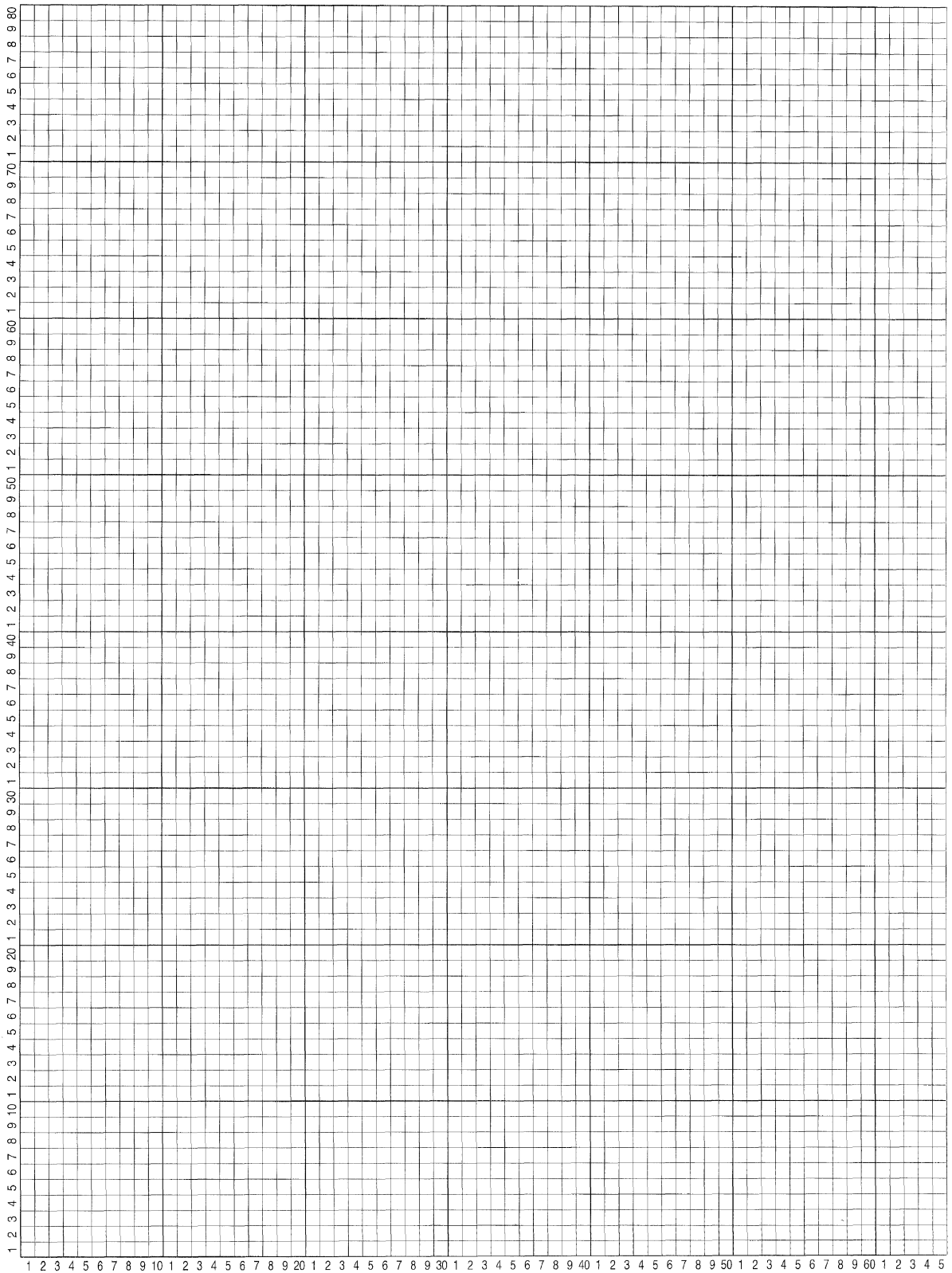


Figure 1: Example grid paper.

make sure that you use a fine-point marker, and it helps if it is permanent. For reasons that will be very clear later, the closer together you can draw the grid lines, the easier it will be for you to select observation sites.

If the mapped survey area is larger than a single plastic sheet, then two or more sheets will need to be cut and taped together carefully so that an even grid spacing is maintained. It is okay if the grid pattern is larger than the mapped survey area, but it cannot be smaller.

Once the grid is created, the columns and rows in the grid should be numbered. This has already been done in Figure 1. If multiple plastic sheets have been taped together, then make sure that the row and column numbers are written so that they are continuous. The reason you are numbering the columns and rows is because during the observation-site-selection process, you will be selecting grid squares to see if an intersection is contained within the square. By numbering the columns and rows, you are naming each grid square by giving it a first and last name. In our case, both names are numbers. For any square in the grid, the first name is the column number for that grid square and the last name is the row number. Figure 2 may help you understand this concept. In this figure, the column numbers are listed across the top and the row numbers are listed along the left side. The indicated grid square has the name "4, 7" because in the grid pattern it occupies the fourth column and the seventh row. You don't need to write anything in the grid squares, it is enough to "know" what each square is named by numbering each column and row in the grid.

Column Numbers (First Names)

	1	2	3	4	5
1	1,1	1,2	1,3	1,4	1,5
2	2,1	2,2	2,3	2,4	2,5
3	3,1	3,2	3,3	3,4	3,5
4	4,1	4,2	4,3	4,4	4,5
5	5,1	5,2	5,3	5,4	5,5
6	6,1	6,2	6,3	6,4	6,5
7	7,1	7,2	7,3	7,4	7,5
8	8,1	8,2	8,3	8,4	8,5

Row Numbers (Last Names)

Figure 2. A grid pattern with column numbers (1-5) and row numbers (1-8) assigned to each square. The grid square in the fourth column and seventh row is shaded to illustrate the naming convention.

After all of this labeling, there are a couple of other things that need to be done. First, look at your grid on the plastic sheet and find out how many columns and how many rows there are. You should be able to do this by looking at the column number you have assigned to the top rightmost corner of the grid to determine the number of columns, and by looking at the bottom leftmost row to find out the number of rows. Write these numbers in the boxes provided; you will need them in a minute for selecting the observation sites. Second, the map should then be securely attached to a

wall or to a desk. The plastic sheet should then be securely fastened over the map so that the survey area is covered by the grid and so that it will not move relative to the map once you begin to select observation sites.

C. Select the locations of the observation sites.

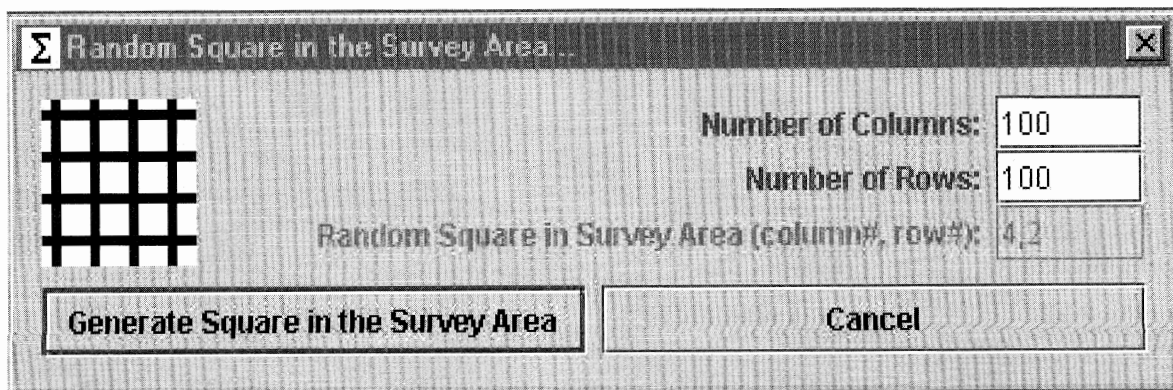
Now comes the longest, and definitely the most tedious, part of the entire process. I won't be offended if you go get a cup of coffee before starting this part.

Randomization is an important process in survey design. It is what allows the scientist to say things like "The majority of people of the United States won't eat Brussel sprouts," when he or she only talked with a few people in the US. Randomization is what will allow you to say things like "The majority of people in my survey area were using safety belts," without having to look at everyone riding in a car in your survey area. The reason why randomization is so powerful is that everyone, those who do use safety belts and those who do not, has an equal chance of being part of the survey. This means that those who are observed in the survey (they are typically called the sample), will use belts about as frequently as those who were not observed. Thus, you will be able to "generalize" your results from the sample to everyone who could have been observed in the survey. You just can't do that without randomization.

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As I have already mentioned, the way you will select observation sites is by choosing grid squares by their first and last names (that is, columns and row numbers) to see if there is a roadway intersection on the map you have placed under the grid. But how should you choose a grid square? Why randomly, of course! Here's how you go about selecting the intersections that will become the observation sites in your survey.

A. Choose a grid square by randomly picking a column and a row number (that is, a first and a last name). There are several ways you can randomly pick the grid square. First, go back to the boxes where you wrote the total number of columns and rows. In order to pick a random grid square, you will be picking a number between one and the total number of columns and the same thing for the rows. There are several ways to pick numbers randomly. Some pocket calculators will generate a random number, most statistics books have random number tables, or you could use the computer program, *Belt Use Analyzer*, on the disk that came with this manual. Take a look at Appendix A to find out how to load and run the software. Once you have the software running, go to the *Random* menu and select *Square in the Survey Area*. You should get a screen that looks like this:



The *Number of Columns* and *Number of Rows* for your own grid can be entered here by clicking on the number after each one and typing in the proper numbers. Then, each time you want to randomly pick a grid square, click on the *Generate Square in the Survey Area* button and a randomly selected row and column number (first and last name) indicating a single grid square will appear in the *Random Square in Survey Area* box.

B. Find the grid square and see if there is an intersection on the map inside the grid square. Most of the time the grid square will either fall outside of the survey area, there will be no intersection within the grid square, or the intersection will have already been selected as an observation site. In these cases, go back to the last step and randomly select another grid square. If there is a single intersection within the grid square, then that intersection becomes one of your observation sites. If there is more than one intersection within the grid square, then randomly pick one to be the observation site. The street names of the intersection should be carefully recorded. It is also a good idea, if you are able, to mark the intersection on your map. You'll have to do this later anyway. You should keep repeating these two steps until you have selected an intersection for each observation site in your study (I warned you that it would be tedious).

Deciding Where to Stand at an Intersection to Watch for Safety Belt Use

You have already selected all of the intersections that will make up the observation sites in the study. However, you still need to decide exactly where an observer should stand once he or she gets to the intersection to look for safety belt use. This is done by first looking at the intersections on your map (or if you are really ambitious, by visiting each intersection) to determine what type of intersection is at each observation site. By "type of intersection," I mean how the roadways intersect and what directions traffic is allowed to move on the roadways (either one-way or two-way).

Once you know what type of intersection is at an observation site, then you need to determine how many different places at the intersection a person could stand in order to watch for safety belt use. The number of standing locations is determined by the number of lanes where target vehicles can *enter* the intersection. This can be figured out by adding up the number of arrows entering the intersections. The circled numbers for each intersection in Figure 3 show where observers might stand for different types of intersections. Observers will always stand on the passenger side of the road. Notice that some intersections only have two places while others have four or more.

See Figure 3 on next page.

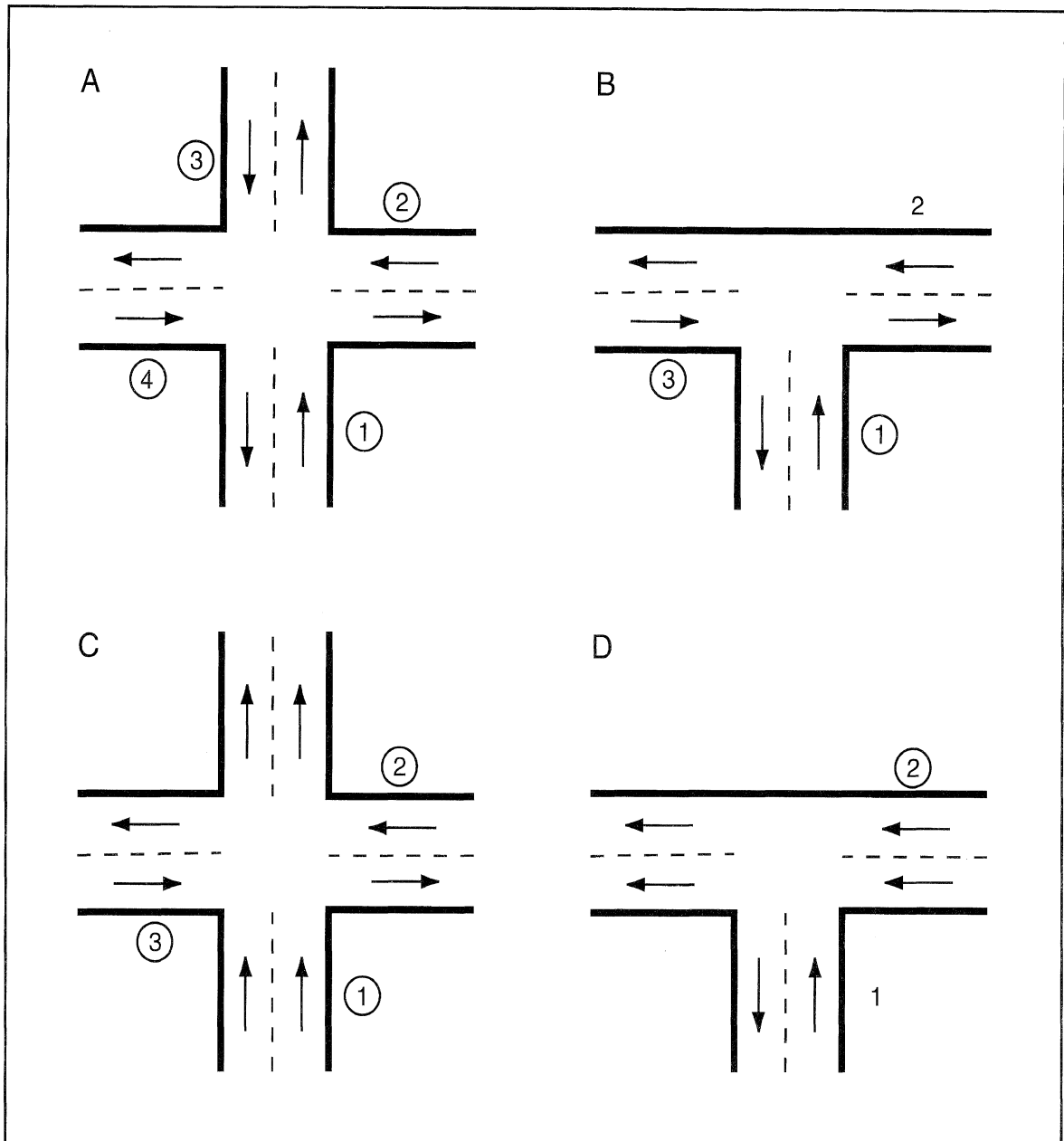
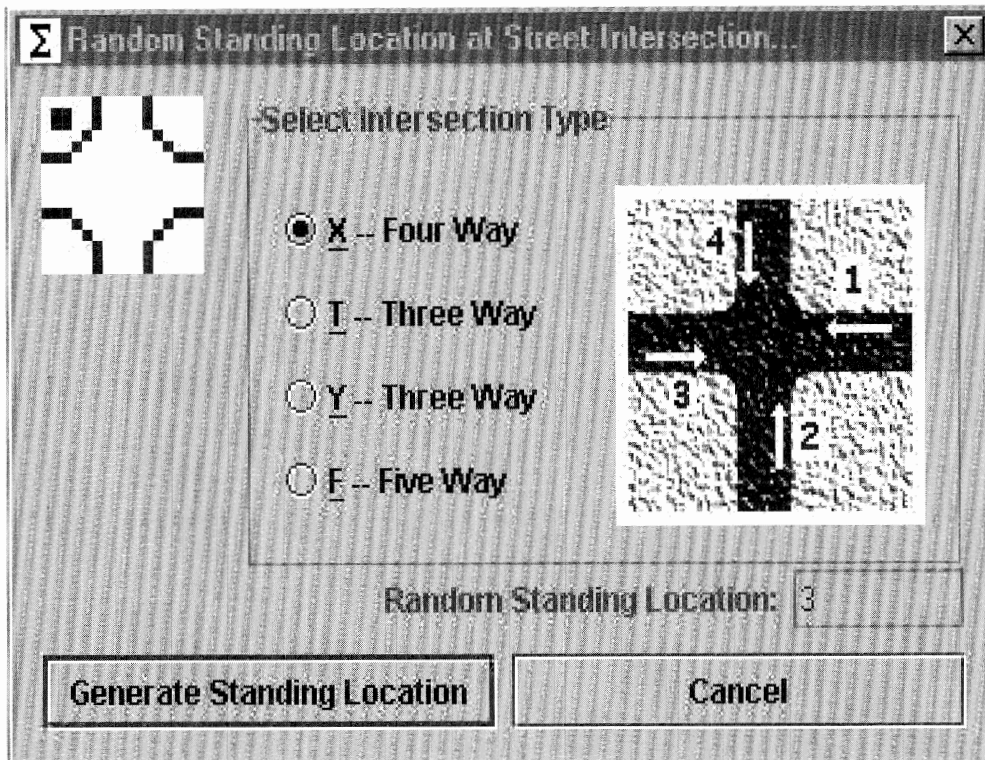


Figure 3: Example intersections with possible standing locations marked by circled numbers.

Your next task is to pick the one place, among the possible places at that intersection, where the person will stand to look for safety belt use. You'll do this for each observation site you have selected. Here's how. Once the number of standing locations at a specific observation site has been determined, the standing locations should be numbered (as in Figure 3) and one of them selected by randomly picking a number between 1 and the number of standing locations at that site. Again, a random number table can be used for generating the random numbers or, even better, the *Belt Use Analyzer* software with this manual can assist you with picking these numbers. While the software is running, go to the *Random* menu and select *Standing Location at Street Intersection*. You will see a screen that looks something like this:



For each observation site, click on the intersection (by clicking the circle) that best represents the site. I have included the four most common types of intersections. The arrows indicate the direction of traffic flow into the intersection and the numbers represent possible locations at which to stand and watch for safety belt use. Next, click on the *Generate Standing Location* button and a randomly selected standing location will be displayed in the *Random Standing Location* box. If the standing location is not possible at the intersection because of one-way roads, construction, etc., then keep clicking on the *Generate Standing Location* button until a standing location that is possible is selected.

The standing location for each observation site should be carefully recorded. The list of observation sites should look something like this:

Site Number	Description
1	Eastbound Second Ave. at Main St.
2	Southbound Maple St. at Oak Blvd.
3	Northwestbound Peach St. at Pineapple Rd.

And so on... You should also mark each site clearly on your map. Select and record the standing location for each observation site.

Step 3: Schedule when to go out and look for safety belt use

Scheduling involves planning in advance a day and time for each observation site at which someone will go out and stand at the intersections and observe safety belt use. It is best to have a schedule in place and then follow it as closely as you can. In order to schedule the sites, you will need to have the following things (and it sure doesn't hurt to have the last one):

- A good idea of how many people you have for observing safety belt use and how many hours these people will be able to devote to the survey.
- Your map with all of the observation sites clearly marked.
- A pocket calculator.
- Patience.

The procedure you will use for scheduling the safety belt observation sites is one that will keep the cost of doing the survey as low as possible. Since the biggest cost for conducting a safety belt use survey, in both time and money, is travel between observation sites, the scheduling procedure will allow an observer to go to sites that are near one another, one after the other, while still being able to maintain randomness in when the sites are observed. We want to keep things random because we know that safety belt use can vary by the day of week and the time of day. If you observed all of your sites on weekday mornings, then you would not be able to generalize your results to afternoons or weekends when safety belt use may be different.

The procedure we will use is called the "grouping procedure," because you will be putting together sites that happen to be close to each other. The sites in the group will then be observed by a single person on a single day according to a schedule you set up. Here's how it works.

1. Figure out how many groups of sites you will have in your survey.

You need just one thing to figure out how many groups of sites you will have in your survey: the number of person-days available for conducting the survey. Person-day simply means the work one person can do in a day. If one person works for one day or if two people work for one-half day, in both cases one person-day of work has been completed. The number of person-days for your survey is based upon how many people you will have helping you and how much time they have for the survey. If you have three people who can each work 4 days, then you would have a total of 12 person-days for observing safety belt use in your survey (i.e., 3 people times 4 days of work equals 12 person-days). The number of person-days defines the number of site groups in your survey. Write the number of person days (groups) in the proper box below.

2. Determine the number of sites to be observed within each group.

In order to figure out the number of sites that will be observed in each group, you will need the number of groups that you just determined (it should be written in the box below) and the total

number of observation sites in the survey. You should have figured out the total number of observation sites in step two. Write this number in the proper box below. Now get out your pocket calculator and divide the number of sites by the number of groups in the study. The resulting number is roughly the number of sites within each group. Write this number in the rightmost box. Most likely the number will be something like 5.778. Those numbers to the right of the decimal point mean that the number of sites within each group will be slightly different. In this case, some will have just five sites and some will need to have six. This will give you some flexibility when you group your observation sites, which, by the way, is the next thing to do.

Total Number of Observation Sites	Number of Person-Days (Groups)	Number of Sites Within Each Group
--	---	--

Step 4: Grouping the Sites into Person-Days

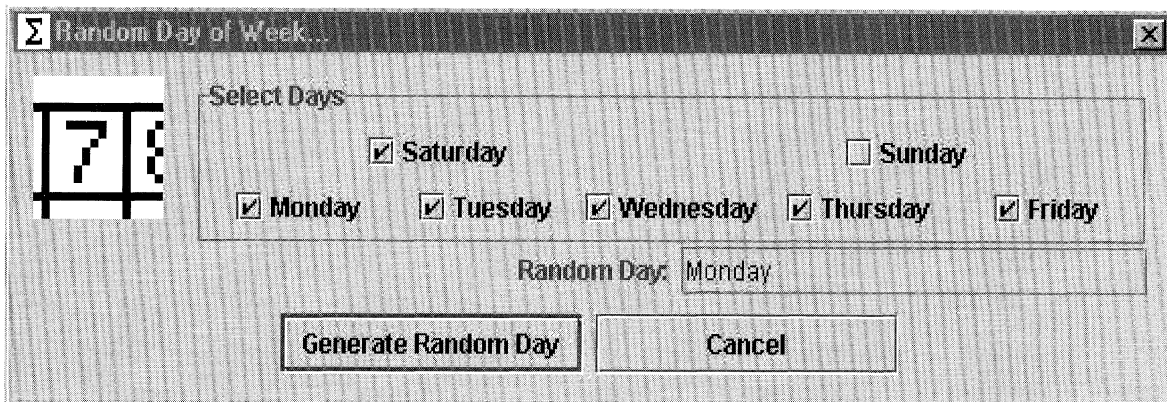
Take a look at Figure 4. This figure shows an example map of a city with 30 randomly selected observation sites marked with Xs. If you have not already done this, you should mark all your sites on a map so that they are clearly visible. In the last part, you just figured out the number of groups and how many sites are to be within each group. Now, all you do is place circles around sites that are close together. The number of circles should be the same as the number of groups and the number of sites within each circle should be what you figured out for the number of sites per group. Let's say that you determined that your survey should have nine groups and that there should be three or four sites within each group. You might group the 30 sites like I have done in Figure 4. Notice that there are nine circles, each circle has three or four sites within it, and that there are numerous ways to group the sites. Now it's your turn. Go ahead and draw the circles right on the map. When you've finished drawing the circles, number each one. It doesn't matter which group gets which number as long as each group has a different number.



Step 5: Drawing the Circles Around the Sites

4. Pick a random day for the group of sites to be observed.

Since safety belt use in your community might be different depending upon the day of the week, you will want to observe safety belt use on randomly picked days of the week. Therefore, for each group of sites, you need to pick a day of the week when someone will go to the sites in the group and observe safety belt use at each of them. You can do this in a couple of ways. One way is to get seven small pieces of paper (or however many days of week the sites can be observed) and write the name of a different day of the week on each one. Put the slips of paper in a box and then for each site pick a slip of paper out of the box. Another way is to use the computer program *Belt Use Analyzer*. Start up the software, go to the *Random* menu and select *Day of Week*. You should see a screen that looks something like this:



Click on each day of the week that the survey can be conducted. When a day of week is selected, there will be a check mark in the box next to the day. In the example shown here, only Sunday has been excluded. When you're ready, click the *Generate Random Day* button and a randomly selected day of week will be shown in the *Random Day* box.

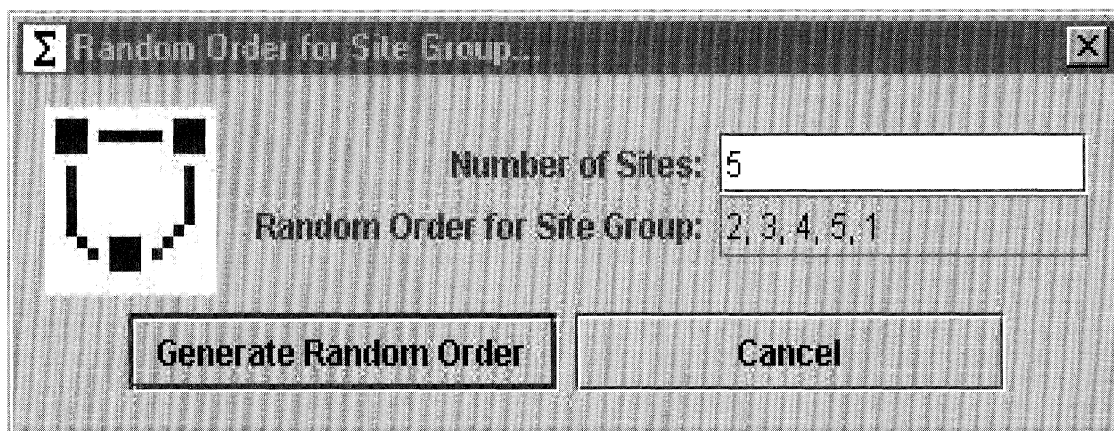
The day of the week that is selected becomes the day of the week that that group of sites is observed. It is possible, but not very likely, that your selection of days of the week ends up with all sites being observed on just a couple of days. This is totally acceptable scientifically. However, if other scheduling demands, such as a lack of available personnel, make it impossible to observe several sites on the same day, then pick another day of the week randomly. As you pick days of the week for your groups of sites, write all of the information down.

5. Pick the time of day for each site within a group to be observed.

We're to the last part of the scheduling process. The next thing you have to do is connect each site in a group with arrows. I have done this for one group in Figure 4. The arrows indicate the order in which the sites will be observed on the day selected for the group. Notice in the figure that I have connected each site with arrows so that the sites make a complete circuit. The reasons for this will become clear soon. Do this for each group.

The next thing to do is number each site consecutively along the path of arrows. It doesn't matter where along the path you start numbering, as long as you follow the arrows when numbering the sites. Again, I have done this for one group of sites in Figure 4. You should do this for each group of sites, starting with the number one for each group.

Next, we're going to determine the order in which the sites within each group will be observed. We do this by, you guessed it, randomly picking one of the sites in the group to be the first site of the group to be observed on the day the group of sites are scheduled for observation. You can use the slips-of-paper-in-a-box method. If there are four sites in a group, then put four slips of paper in the box, each with a different number from one to four. Once you know which site is the first one of the days, then the rest of the sites are observed in order, based upon how you drew your arrows. For example, let's say that you have four sites in a group and you randomly select, "two" as the first site of the day. In this case, the sites for this group would be observed in the following order on the day of the week you selected for this group of sites: 2, 3, 4, 1. You can also use the *Belt Use Analyzer* software to determine the order in which sites in a group are observed for safety belt use. Start up the software, go to the *Random* menu and select *Order for Site Group*. You should see a screen that looks something like this:



For each group of sites, change the *Number of Sites* to equal the number in your group by clicking on the number and then typing in the proper value. Then, click on the *Generate Random Order* button and a set of numbers will appear in the *Random Order for Site Group* box. These numbers indicate the order in which sites in the group should be observed. In our example, five sites were in the group. The randomly selected order for conducting the observations showed that site two should be observed first, followed by sites three, four, five, and one. You need to select an order of sites for each group of sites in your survey. Write them all down.

You now should have for each group of sites, a day of the week for observation and the order in which the sites will be observed on that day. The final thing to do for scheduling is to pick a starting time for the first site of the day to be surveyed. Again, since safety belt use may be different depending upon the time of day (e.g., safety belt use may be higher during rush hour), you will want to randomly pick when safety belt use is observed. This part requires a little bit of planning for each group of sites and some knowledge about how long it will take someone to drive between each site. The main thing we want to avoid here is accidentally scheduling a site after the sun has set or before it has risen. To avoid this you need to know two things: 1) The number of hours of daylight during the time you want to survey each site and 2) the amount of time it will take to observe all the sites within a group (i.e., a day of observations).

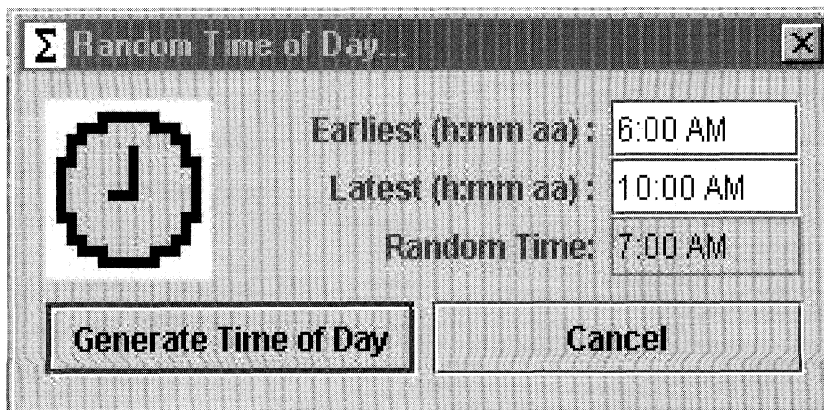
The first item is easily obtained. Get a local newspaper and turn to the weather section. Most local papers include the exact time of sunrise and sunset. Round the sunrise time *up* to the nearest hour (e.g., 7:32 AM becomes 8:00 AM) and the round the sunset time down to the nearest

hour (e.g., 6:47 PM becomes 6:00 PM). Count up the number of hours between these two times. Determining how long it will take to observe a group of sites is a little more difficult. It is easiest to consider each group of sites and fill out the following:

How many sites are there in the group?	_____	x 1.5 hours =	_____
How much time should be allowed for breaks during the day?			_____
How much time should be allowed for meals during the day?			_____
		Total time to complete day:	_____

I have suggested that it will take 1.5 hours to survey each site in the group. This amount of time allows for one hour of observation for a site and 30 minutes to travel between sites. If it will take longer than 30 minutes to drive between sites, then add whatever you think it will take to the total you have already determined. Hopefully, the time required to complete the day of safety belt observations for each group is less than the number of daylight hours. Otherwise, the later sites will have to be rescheduled.

The last thing you do for scheduling is to randomly pick when the first site of each group will be observed. The trick here is ensure that you start the day early enough so that you can complete the entire day during daylight hours, while still keeping the starting time for each group as random as possible. Here's how you do that. For each group, subtract the number of hours required to complete the day from the number of hours of daylight. This will give you the number of hours you have from sunrise in which to begin the day of observation and still finish before dark. You then simply pick one of these hours randomly for the start-time of the first site. For example, let's say that it will take seven hours to survey all of the sites in a certain group of sites and that sunrise is at 8:00 AM and sunset is at 6:00 PM. The number of hours of daylight would be 10 hours. By subtraction, we find that there are three hours in the morning in which we could begin the day of observations (10 hours minus 7 hours equals 3 hours). This means that the first site for the day can either start at 8:00 (sunrise), 9:00, or 10:00 AM. Randomly pick one of these using the slip-of-paper-in-the-box method as I have already described or the *Belt Use Analyzer* software. Go to the *Random* menu and select *Time of Day*. You should see a screen that looks something like this:



Type in the earliest hour that the first site can be observed in the *Earliest* box and the last hour that the first site can be observed in the *Latest* box. Click on the *Generate Time of Day* button and a randomly selected starting time for the first site of the day will be shown in the *Random Time* box.

Once you have done this for each group of sites and have written them all down, you are finished with the scheduling! Give yourself a pat on the back-- you deserve it.

You've finished the most difficult part of your survey. Now you need to collect your safety belt information, figure out what it means, and tell everyone about it. But before you can collect the data, you need to make sure that you have people (we'll call them observers from now on) who know the proper way to look into cars and write down safety belt use. It is tempting to give observers some brief instructions and then send them on their way. I urge you to avoid this. If one observer looks only at cars that are easy to see and another looks at all cars, then the two observers will be collecting different information and your survey will not be useful. A few hours of training will ensure that observers are all doing the same thing and, hopefully, doing the right thing.

Here's how you should conduct your training session:

These materials should be given to each observer at the training session so that he or she will have a chance to get familiar with them. Here's a list of the things you will probably need to collect for each observer.

- Plenty of site and data forms needed for the study (to be discussed in the next step)
- A clipboard for filling out forms
- A pencil and pencil sharpener for filling out forms
- A watch or stopwatch for timing the survey intervals
- A stapler for keeping forms together
- A complete map of the survey area, with all observation sites clearly marked
- A written list of the addresses of all observation sites
- An orange safety vest or similar safety clothing to make the observer more visible to traffic
- Weather gear such as a raincoat, umbrella, or a sunhat.

I have found that it is worthwhile to purchase a large box for each observer so that they can put their stuff in it and easily carry it around. Other items that you might want to consider giving observers but aren't necessary for the study include: a cellular phone, a compass, a hand-counter, a stopwatch, and a first-aid kit.

This is the best way to train your people; everyone will get to hear the same explanations and questions. I would plan at least two hours for the training session to go over the procedures to be followed during the survey and the proper way to fill out the various forms. Spending two hours here will save much more time later. The procedures and forms are discussed in the next step.

3. Take observers to at least two intersections and practice finding the proper standing location, observing safety belt use, and filling out the forms.

These intersection should not be included in the intersections for your survey. This step should be continued until all observers are comfortable with the entire procedure.

Remember all those headaches you had when you were selecting and scheduling the observation sites? Well, here's where all that blood, sweat, and tears pays off. At this point each observer should have a list of sites and a schedule for when they are to be visited. In order to conduct the safety belt survey, each observer will go to the observation site at the scheduled day and time and survey the site. Here's how each site should be surveyed.

Occasionally, an observation site cannot be surveyed. There are only two situations when this might happen. The first is that no traffic is traveling on the lane of traffic the observer was scheduled to survey. This can happen if the lane is under construction, there is a crash, or the lane has been closed because of a special event. The second situation is when there is a risk to the safety of the observer; for example, if there was no shoulder for the observer to safely stand or suspicious individuals are loitering at the observation site. If the site cannot be surveyed, then the observer should go onto the next site in their schedule. A new intersection should then be selected to replace the one that could not be surveyed by following the selection and scheduling procedures discussed in steps two and three.

A sample site form is shown in Figure 5. At the very minimum, a site form should contain places for indicating the site number and location, the day and time of observation, who observed the site, two vehicle counts, and comments. Figure 4 also includes a place for the observer to sketch the intersection and show where he or she stood, the type of traffic control present, and any unique features of the site. Feel free to photocopy this form or create your own.

Recall that the traffic lane and the direction of traffic flow to be observed was determined during site selection (Step 2). I have found that observers sometimes have difficulty with this part. It should, therefore, be practiced during the training session.

Site Form

SITE # _____ SITE LOCATION _____

SITE TYPE

- Intersection
- Freeway

TRAFFIC CONTROL

- Traffic Light
- Stop Sign

DATE (month/day/year) ____/____/____

OBSERVER NAME _____

DAY OF WEEK

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

WEATHER

- Mostly Sunny
- Mostly Cloudy
- Rain
- Snow

Total Belted Occupants:
Total Unbelted Occupants:
Pre-Survey Vehicle Count:
Survey Vehicle Count:
Post-Survey Vehicle Count:

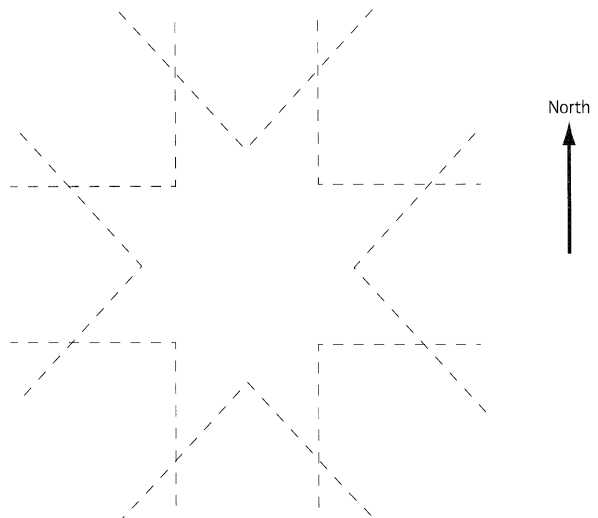
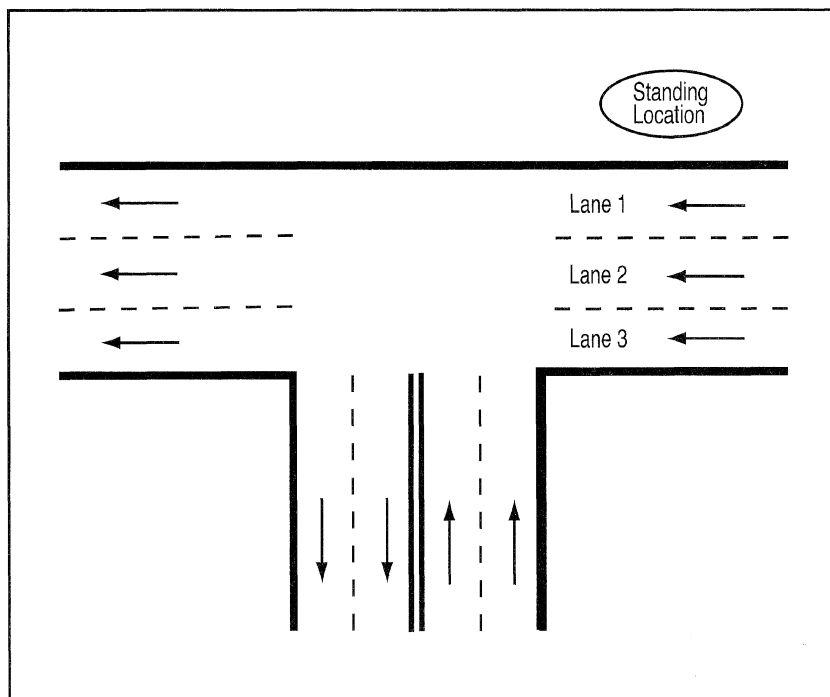


Figure 3: Site Form

Pre-Survey Vehicle Count

I call this count the "pre-survey vehicle count." As I discussed earlier, the *target vehicles* are those vehicles you have decided to include in your survey. The *designated traffic lanes* are those lanes in which cars are traveling into the intersection next to where the observer is standing. Some observation sites will be intersections that have more than one lane of traffic entering the intersection from the appropriate direction. For these sites, include in your count all target vehicles on all traffic lanes entering the intersection from the direction that is being surveyed. An example of this type of intersection is shown in Figure 6. In this example, the observer has been scheduled to survey target vehicles entering the intersection from the right side of the figure. The three lanes of traffic that enter the intersection from this direction are labeled 1 through 3. During the pre-survey vehicle count, the observer should count all target vehicles on all three lanes. The total number would then be entered on the site form as the pre-survey vehicle count. Remember, you count vehicles for only 5 minutes. It is important to be as accurate on the timing as possible. A stopwatch might be helpful.

The pre-survey vehicle count, as well as the post-survey vehicle count discussed later, is used to assess the volume of traffic at the observation site when safety belt information was being collected. The *Belt Use Analyzer* program uses the traffic volume information to make sites with high volumes count more in determining safety belt use than sites with lower volumes.



5. Observe safety belt use for 50 minutes.

Safety belt use is observed by looking at whether or not the driver and, if present, the passenger in the front seat next to the window, are using a shoulder belt. (We will not worry about use of lap belts.) If they are using a shoulder belt, then they are marked as "Belted" on the data form. If the shoulder belt is behind their back or tucked under their arm, I recommend that you mark this type of misuse as "Belted." If they are not using a shoulder belt, then they are marked as "Not Belted" on this same form. An example data form for recording belt use is provided in Figure 7. On the data form shown, each line is a single target vehicle. For each target vehicle, the observer makes two check marks on the form. The first check mark indicates whether or not the driver was belted, and the second check mark indicates either that there was no passenger or that the passenger was belted or not belted. It is important to mark "None" if there was no passenger present.

During this 50-minute safety-belt-observation period, *the observer should be surveying only a single lane of traffic*, regardless of the number of traffic lanes that are present. Thus, it is possible that there will be sites in which the observer will perform the pre-survey vehicle count on more lanes than the actual safety belt observations. The observer should always survey target vehicles in the traffic lane closest to where he or she is standing. For example, the observation site shown in Figure 6 has three lanes of traffic entering the intersection from the direction that has been scheduled for observation. For this intersection, the 50-minute survey of belt use should be conducted on *only* target vehicles traveling in lane 1.

The observer should attempt to record information from all target vehicles in the proper lane of traffic. If, because of high traffic volumes, the observer cannot survey every target vehicle, then he or she should survey the *next* target vehicle they see after looking up from marking the data sheet for the last vehicle.

In many rural or residential sites, the traffic volumes will be quite low. It would not be unusual for only four or five target vehicles to pass an observer during the 50-minute interval for these sites. While, somewhat tedious to survey, these low volumes are accounted for in the survey design, and should be observed for the entire 50-minute interval. On occasion, there will be sites in which *zero* target vehicles pass the observer during the 50-minute survey interval. If this happens, then the observer should immediately proceed to the alternate site and begin the survey procedure over at step 1. If the alternate site also yields no target vehicles, then record zero for all values at this site number.

6. Count all target vehicles on all traffic lanes for 5 minutes and record this number on the site form as was done in part 4 above.

I have called this value the "post-survey target vehicle count." The count should be done in exactly the same way as the first count. The number should be recorded on the site form in the appropriate spot.

Step 6: Estimate your community's safety belt use

Before you begin analyzing the survey, you will need to figure out the following information *for each observation site* from the completed data and site forms.

1. Count up the total number of target vehicle occupants using safety belts (Belted).

This is done by counting each driver and passenger that were observed at the observation site using a safety belt. Write this number on the site form.

2. Count up the total number of vehicle occupants not using safety belts (Not Belted).

You do this by counting each driver and passenger that were observed not using a safety belt at the observation site. Write this number on the site form.

3. Record the pre-survey vehicle count

This is the number of vehicles counted for the first five minutes at the observation site. This number should already be recorded on the site form. If the observer forgets to record this number, then use zero.

4. Count up the total number of target vehicles observed during the 30-minute safety belt observation period.

This is done by counting the number of lines that were filled in on all data sheets for an observation site. Remember that each line is a separate target vehicle. Write this number on the site form.

5. Record the post-survey vehicle count.

This is the number of vehicles counted for the last five minutes at the observation site. This number should already be recorded on the site form. If the observer forgets to record this number, then use zero.

Unless you are comfortable designing statistical software programs using the equations shown in Step 7, you will need to use the *Belt Use Analyzer* software included with this manual. Consult Appendix A to see how you get the software running. Once you get the software running, you should see a screen that looks something like this:

See example on next page

Belt Use Analyzer

File Site Belt Random Help

Commands: [Add] [Edit] [Remove]

Number:

First Last

Occupant Counts

Belted:

Not Belted:

Vehicle Counts

Pre-survey:

Survey:

Post-survey:

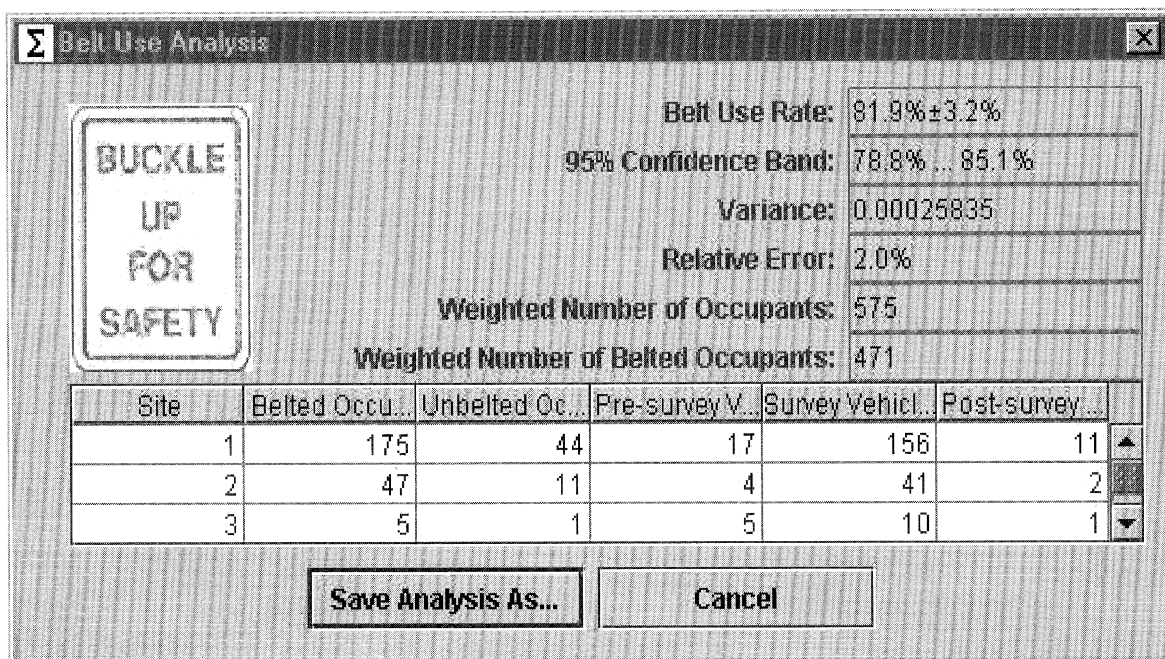
Edit this site?

This is the screen where you will enter the five numbers we just talked about for each site. There are three sections to this screen: *Site*, *Occupant Counts*, and *Vehicle Counts*. The *Site* section shows you which site you are working on (site number 2 in our example) and icons for adding, editing, and removing sites. To begin entering information for a site, go to the *Site* menu and select *Add*. The *Occupant Counts* section is where you can type in the number of belted and not belted occupants by clicking on the box next to each and typing in the proper number for the current site. The *Vehicle Counts* section is where you can type in the pre- and post-survey counts as well as the number of vehicles in the survey during the safety belt observations by clicking on the boxes and typing in the correct values. Once you have entered the values for a certain site, you can click the OK button. Continue to enter the data for each site by selecting *Add* from the *Site* menu or by simply clicking on the *Add a New Site* icon. If you find a mistake, go to the *Site* menu and select *Edit* or click directly on the *Edit an Existing Site* icon. Type in the proper values. Remember, once the information for the site has been entered, click OK. If for some reason you want to remove a site (maybe you entered a site twice accidentally), you should scroll to that site using the slider bar, select *Remove* from the *Site* menu, and the site will be deleted. Once you have entered all of your sites, you should probably save the information. Click on the *File* menu and select *Save*.

Step 7: Figure out what it all means

You can analyze the data anytime you want, even if you have not finished entering all of the data. You do this by selecting *Belt* from the menu and then clicking on *Analyze*. *Belt Use Analyzer* computes and reports several numbers. Each of these values are important and you should probably include them all when you discuss the results of your survey. I will discuss what each of these numbers mean and present the equation that the program uses to calculate them. Don't worry about the equations, they are just there in case someone asks about them.

Here is an example screen showing what your safety belt results might look like:



Belt Use Rate and 95% Confidence Band. The belt use rate is the estimated percentage of occupants in target vehicles that were using a safety belt in the survey area during the duration of the survey. This number is the rate relative to the traffic volume in the survey area. This is the number that you wanted when you began thinking about conducting a safety belt survey. The number is computed by dividing the weighted number of belted occupants by the weighted total number of occupants. You will notice that the belt use rate also includes a "±" value. This value is called the *95% confidence band* and defines a range or band of percentages centered around the belt use rate. This band is a statistical measure that means we can be 95% sure that the actual belt use for the survey area lies somewhere within the band of percentages. Remember that the survey only allows us to *estimate* belt use, meaning that there will always be some uncertainty in the belt use rate derived from the study. The 95% confidence band is computed using the formula:

$$\mathbf{95\%ConfidenceBand = BeltUseRate \pm 1.96 \times \sqrt{Variance}}$$

Variance. The variance measure shows how similar the belt use rates were between each of the observation sites. The larger the variance the more dissimilar the observation sites and the more error we have in our ability to estimate the belt use rate. The variance is computed using the formula:

$$\text{Variance} \approx \frac{n}{n-1} \sum_i \left(\frac{g_i}{g_{all}} \right)^2 (r_i - r_{all})^2$$

where n is the number of observation sites, g_i is the weighted number of target vehicle occupants at observation site i , g_{all} is the total weighted number of target vehicle occupants summed over all observation sites, r_i is the belt use rate at each observation site, and r_{all} is the overall belt use rate for the survey area.

Relative error. The relative error value is quite similar to the variance in that it is a measure of how much variability there is in the survey. This number, however, is scaled based upon the estimated belt use rate and shows the precision of the estimate. Federal guidelines strongly encourage a relative error of 5 percent or less. The higher this value, the less meaningful your belt use rate. Relative error is computed by the formula:

$$\text{RelativeError} = \frac{\sqrt{\text{Variance}}}{\text{BeltUseRate}}$$

If the computed relative error is greater than 15%, then it is best to increase your number of observation sites. This can be done by going back to step 2 and selecting additional sites to survey following the procedures as you did before. For the analysis, the additional sites should be analyzed along with the previous sites and a new belt use rate computed.

Weighted Occupant Counts. If you divide the smaller number (belted occupants) by the larger number (total occupants) and then multiply this result by 100 you should get the same number as shown for the belt use rate. Both of these values are related to the number of occupants, number of belted occupants, and the pre- and post-survey vehicle counts that were entered into the computer program for each observation site. The intent of the survey design was to obtain a belt use rate that was scaled or weighted by the different traffic volumes at each observation site. That is, sites that have a high traffic volume count more toward the belt use rate than do those sites with a low traffic volume. Because it is impossible to survey belt use on all target vehicles in all lanes at each observation site, the two 5-minute target vehicle counts are used as a way to assess the traffic volume at each intersection. The target vehicle counts are used to scale the actual number of occupants and belted occupants that were observed at each observation site.

For each observation site, the weighting was accomplished by adding the pre- and post-survey vehicle counts and then multiplying this sum by five. This gives a weighted count that

reflects the total number of target vehicles that should have passed by the observer during the 50-minute survey period. If the weighted count is less than the number of target vehicles surveyed, then no weighting is done. If the weighted count is greater than the actual number of target vehicles surveyed for a certain observation site, then a weighting factor is computed by dividing the weighted count by the number of target vehicles surveyed. For each observation site the computed weighting factor is multiplied by the number of observed occupants and by the number of occupants observed using a safety belt to get the weighted values for each of these counts for that observation site. If no weighting factor is computed for a certain observation site, because the weighted count is less than the surveyed target vehicle count, then a weighting factor of one is used. The weighted total number of belted occupants is the sum of the weighted number of belted occupants over all of the observation sites. The weighted total number of occupants is the sum of the weighted occupants for each observation site.

Step 8: Tell everyone about your community's safety belt use

Congratulations on your survey of safety belt use. You should be proud of your work and eager to tell people about it. How you report your results depends largely on your audience. Different audiences require different levels of detail and will find different things interesting. In most cases there are three audiences: sponsors (or your boss), reporters, and community members. Here are some hints on how to tell each of these groups about the results of your study.

Sponsors and Bosses

Sponsors and bosses want to know about the study so that they can figure out how their money or time was spent. They generally want to know about most, if not all, of the details. Whether you tell your boss or sponsor about your study through an oral presentation or a written report you should, at least briefly, discuss each of the following points in order:

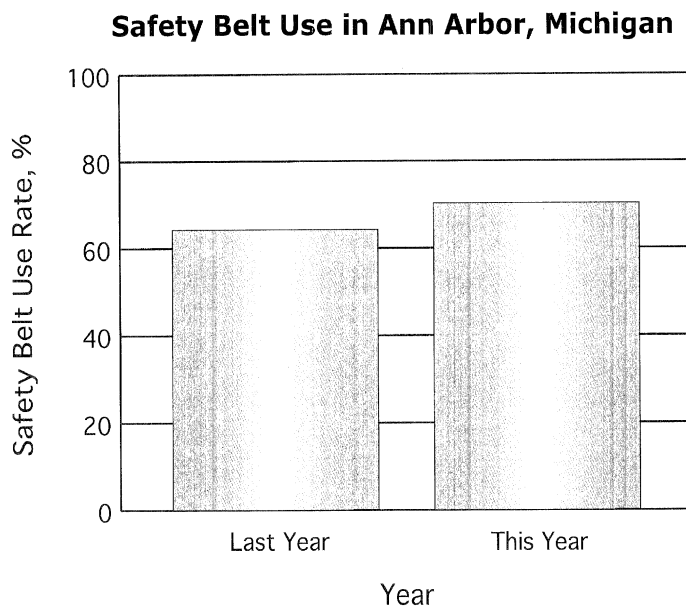
- **Introduction.** In this section you should tell your audience why you are interested in safety belt use and why you conducted the study. The introduction should also include at least one specific goal of the project. An example goal might be written as: "The primary goal of this study was to determine safety belt use in passenger cars for the City of Ann Arbor in order to compare it to last year's rate" You might have noticed how this goal included information from all three questions in Step 1: Why do we want to know safety belt use? (to determine any changes from last year); What is the survey area? (City of Ann Arbor); and What vehicles will be included in the survey? (passenger cars).
- **Methods.** In this section you should describe how you designed and conducted the study. This section should be easy to write since you used the manual as an outline. The methods section should include a discussion of what you did in step two through step six.
- **Results.** The results section is where you would include those numbers that came from the *Belt Use Analyzer* software. There are several ways to present your results.

1. You can just write them out, for example, "The estimated belt use rate for passenger cars in the city of Ann Arbor this year was $70.3\% \pm 4.2\%$ as compared to last year's rate of $64.3\% \pm 3.9\%$ "

2. You can put it all into a table like the following:

Year	Safety Belt Use Rate, %	Relative Error, %	Total Weighted Occupants
This Year	70.3 ± 4.2	3.8	1,099
Last Year	64.3 ± 3.9	3.2	1,217

3. You can make up an attractive graph.



Each method has advantages and disadvantages. Writing the results out in words allows you to include all of the important findings in a way that is easy for people to understand. It is difficult, however, to quickly find the results or compare them with other study findings. Using a table to display results allows you to have all of the important results in a easy to read, well organized format. On the other hand, it can be difficult to see how the numbers are related to each other, especially if you have lots of results in a single table. Using a graph is the best method for showing how results are related. A reader can quickly see that, for example, belt use this year is higher than belt use last year. Unfortunately, it is difficult to determine the exact numbers when looking at a graphic. Therefore, pick the method for showing your results that best suits what your audience wants to know.

- **Discussion.** The discussion section is where you get to interpret what the findings of your survey mean. If belt use is higher this year than it was last year, why might this have happened? What does this mean for developing safety belt promotion programs for the city of Ann Arbor? You should remind people of the survey's scope. If you did not include sport-utility vehicles in your survey for some reason, then you cannot say anything about the belt use in those vehicles. If you had a problem with the study that may have affected your results, such as a holiday that occurred during data collection, you should mention that in this section and discuss what it might mean for the survey results. Finally, you should revisit your specific goal and discuss whether it was met, and, if not, why?

Following this four-section outline for presenting results to your sponsor or boss will take a lot of work. However, taking the time to cover each of these sections will really help people understand what you did and you may even get a compliment or two for your work.

The Media (Reporters)

Public health and safety research, such as safety belt use, is an interesting topic for news reports. As such, you may be able to convince a reporter to write a story (or a reporter may try to convince you to give them your story). Use of the media for telling people about your survey results

can be a great benefit or it can be a disappointing drawback. Understanding how to talk with the media can help make the experience a positive one.

There are three points to remember when talking with the media:

- **Keep it short!** Whether they are on television, on radio, or in the newspaper, most news stories are short. Only give the reporter the most important facts about the study. If you give them the same level of detail that you would give a boss or sponsor, they will boil it down themselves to what they think is the most important part. What the reporter thinks is important may not be what you think is important!
- **Keep it simple!** It may be tempting to discuss sample design, data collection issues, or 95 percent confidence intervals with reporters since these are integral parts of what you did. Reporters, however, do not want to know this kind of detail. They want to know as clearly and as simply as possible, why you conducted the study, how you conducted the study, what you found, and why this information is relevant to their readers. Avoid statements that include caveats or shades-of-grey. When the article is written, the caveats will be forgotten and the shades of grey often miraculously become either black or white! You may feel like you are oversimplifying your results, but if you don't simplify, the media very likely will. You might want to think about and write down a few catchy phrases that capture the essence of your study.
- **Be careful!** It is a good idea to find out the name of the reporter and who they are working for before you begin your discussion. You should also find out what type of article they are writing or producing. This information will help you answer questions in a way that is appropriate for the reporter's audience. Be aware that anything you say to the reporter (even so-called "off the record" comments) could end up in the article.

Community Involvement

When it comes to a safety belt use survey, members of the community in which the survey was conducted are usually interested in hearing about the results. Besides letting community members hear about the study on the radio or reading about it in the newspaper, you may want to present your study to interested members of the community directly. The best way to do this is to set up a 30 to 40 minute presentation that is tailored specifically to the interests of the audience. The presentation should include the same four sections as a presentation to sponsors or bosses, but the emphasis should be on a visual presentation of the results. In other words, provide a little of the important detail and show a lot of pictures and graphs. During oral presentations, people like to see things! You might include pictures taken during data collection to show how observers looked into cars to determine safety belt use or you might show a picture of a properly restrained vehicle occupant. You should definitely use graphs and figures to convey the results of the survey. Remember to tailor your presentation to the interests of your audience. For example, if the group you are speaking to includes educators, be sure to let them know what these results mean to them and how they can help to increase safety belt use among their students.

Final Words

You've reached the conclusion of your safety belt survey, and I sincerely hope that you found the survey worthwhile. I also hope that the manual helped to make the process easier and more enjoyable. I welcome feedback on the manual. You can mail it to me at *eby@umich.edu* (e-mail) or UMTRI-SBA, 2901 Baxter Rd., Ann Arbor, MI 48109-2150 (regular mail).

Appendix A: Installing and Running the Software

Belt Use Analyzer is a JAVA™ based program. This means that in order to run the program you will need to have the JAVA™ 1.2.2 runtime environment installed on your computer. If your computer has been used for searching about on the *World Wide Web*, then this runtime environment may already be on your computer. There is a different environment for each type of machine. The software can be downloaded for free from the JAVA™ website.: [HTTP://java.sun.com/products/](http://java.sun.com/products/).

I have included the runtime package for Windows-based machines right on the *Belt Use Analyzer* CD. To date, *Sun Microcomputers*, who provides JAVA™, has not finished the runtime package for Macintosh computers. Therefore, *Belt Use Analyzer* will not run on a Macintosh-based computer until this environment is available.

Windows-Based Machines

1. Save and close out all of the things you are working on, such as word processors and spreadsheets. You will be restarting your computer during the software installation process and unsaved information could be lost.

2. Place the *Belt Use Analyzer* CD in your CD drive.

3. From the Windows *Start* menu, select and run the file *Windows\jre1_2_2-001-win.exe*. You will find this file on the CD in the *Windows* folder. This file will guide you through the loading of the JAVA™ software.

- The installation program will go through several screens. When it shows you the license agreement you should read it. If you agree to the terms, select *next* to continue with installation. If you do not agree, you cannot run the *Belt Use Analyzer* software.
- The next screen will ask you to choose a destination location. Select *next* to install JAVA™ in the default location. Otherwise type in a new location and select *next*.
- After several files have been installed, the program will ask you restart your computer. You should do this now by making sure the *restart the computer now option* is selected and then clicking on the *finish* button. At this point you will have the proper JAVA™ environment installed on your Windows-based computer.

4. Once your computer has restarted, the next step is to install *Belt Use Analyzer*. You do this by selecting the file *Windows/setup* on the CD using the Windows *Start* menu. Run the setup program.

- When you are asked about JAVA™ virtual machines, select the one called JAVA.EXE. It will have a path that looks something like: `javasoft\JRE\1.2\Bin\java.exe`. Click on the *next*

button to continue installation.

- The next thing you will be shown is the README file. You may read the README file if you are interested. When you are done, click on the *next* button.
- You will then be asked to enter a destination. Click on *yes* to load the software in the default location, or type in a new location and click on *yes*.
- After the files are installed, click on *finish*.

5. When software installation is finished, *Belt Use Analyzer* will appear in your *Program* menu and there will be an shortcut for the program placed on your desktop. Click on either of these to start the program. For further information, consult the *README* file on the CD.

UNIX and other Machines

For those with machines that are not Windows-based, you will need to go the proper directory on the *Belt Use Analyzer* CD and look at the *README* file. This file will tell you how to locate and download from the *World Wide Web* the proper JAVA™ software needed to run *Belt Use Analyzer* on your machine. If you already have the JAVA™ environment installed on your computer, then run the *setup* program from the proper CD directory (either UNIX or Others) and follow the on-screen directions.

Meet the Author



Dr. David W. Eby is an Associate Research Scientist in the Social and Behavioral Analysis Division at the University of Michigan Transportation Research Institute (UMTRI) where he has been working since 1993. Dr. Eby earned a Ph.D. in Experimental Psychology from the University of California, Santa Barbara. He completed his training with a postdoctoral position in the Department of Cognitive Sciences at the University of California, Irvine. While at UMTRI, Dr. Eby has designed, conducted, and directed more than 15 statewide surveys of safety belt and child safety seat use and has served as a consult on many others. He has also directed several other traffic-safety related projects. He has written more than 80 articles on his research and has presented research results around the world. Recent safety belt publications include a statewide survey of child safety seat use and misuse in Michigan, an analysis of safety belt use in Michigan since 1984, use of safety belts by older child occupants, and a comparison of methods for measuring safety belt use. Dr. Eby holds memberships in the American Psychological Society, the Human Factors and Ergonomics Society, the Michigan Safety Belt Coalition, the University of Michigan Substance Abuse Center, the Society for Research in Child Development, and the Association for the Advancement of Automotive Medicine.

