

# **Targeting The Demographics Of The Outdoor Audience**

**An Examination  
Of The Actual Audiences Viewing Outdoor Advertising**

**Data Solutions  
800-988-DATA  
[info@data-solutions.biz](mailto:info@data-solutions.biz)  
January 2002**

## Table of Contents

<b>OVERVIEW .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>3</b>
<b>THE CONCEPT OF THE OUTDOOR DEMOTRACK® SYSTEM .....</b>	<b>4</b>
<b>STUDY METHODOLOGY .....</b>	<b>4</b>
<b>FIELD SURVEYS.....</b>	<b>5</b>
<b>SAN ANTONIO SURVEY RELATIONSHIPS.....</b>	<b>5</b>
OUT OF STATE VEHICLES .....	5
OUT OF MARKET VEHICLES.....	6
RELATIONSHIP TO ROAD TYPE.....	7
RELATIONSHIPS TO OTHER CHARACTERISTICS?.....	9
<b>USING THE RESULTS – A TYPICAL EXAMPLE BASED ON SAN ANTONIO DATA</b>	<b>10</b>
<b>ADDITIONAL INFORMATION PROVIDED BY ORIGIN STUDIES .....</b>	<b>15</b>
<b>WHAT DOES THIS MEAN FOR THE BUYER? .....</b>	<b>17</b>
<b>WHAT DOES THIS MEAN FOR THE SELLER? .....</b>	<b>17</b>
<b>IN SUMMARY .....</b>	<b>18</b>
<b>APPENDIX A – Q &amp; A .....</b>	<b>19</b>
CAN TRAVEL PATTERNS BE DETERMINED FROM SAMPLES OF TRAFFIC? .....	19
WHAT ABOUT THE VARIATIONS IN TRAFFIC FLOW?.....	19
WHY NOT USE CAMERAS TO RECORD LICENSE PLATES?.....	20
IS STATE LICENSE PLATE DATA ACCURATE AND UP TO DATE?.....	21
HAVE YOU HIRED INDEPENDENT CONSULTANTS TO REVIEW THE PROCEDURES? .....	22
<b>APPENDIX B – FOR MORE INFORMATION .....</b>	<b>23</b>

## Overview

For many years, outdoor companies have competed with TV, Radio and Print. These media, and others, all have the ability to provide the advertiser with a detailed demographic profile of the expected audience they would reach using specific media vehicles. Outdoor companies responded with market maps showing the distribution of their outdoor faces and the target audience profile of the zip codes in the market. The assumption being that if you buy an outdoor face in a zip code that exhibits the demographic characteristics you are trying to reach these would be the best faces to purchase for the campaign.

Given the mobile nature of the actual outdoor audience there has always been concern with buyers that they were buying outdoor based on static demographic data that did not reflect the true audience they were reaching (or not reaching). Data Solutions Inc. is pleased to present this review of the potential of using traffic engineering surveys and principles to determine the demographic profile of outdoor advertising audiences.

Think about the last few trips you took in a car, how many out-of-home advertising faces did you pass by? How many were in the zip code in which you live?

Market Information Services of America Inc. (MISA) has developed a software system when combined with original field survey information by Data Solutions can determine and report on the demographic profile of the people in the vehicles. Known as the Outdoor DemoTrack® System it can be used to buy & sell a targeted outdoor showing.

The Advertising Research Foundation (ARF) New York completed a detailed methodological review of the overall system. They found the system represented good research practice and “offers a promising method to estimate the demographic make-up of traffic that is exposed to outdoor advertising”.

Last year detailed field surveys were completed in San Antonio Texas. The results of these surveys have been analysed and relationships determined to various local market factors. A number of characteristics, graphs and maps are provided in this report to summarize the key results.

The key finding, confirmed by studies in other markets, was that the type of road has a direct bearing on the percentage of people passing an outdoor advertising location who live within that zip code.

In San Antonio we determined the following percentages:

Freeway	5% of the traffic originated in the zip code where the face is located
Major Arterial	13% of the traffic originated in the zip code where the face is located
Minor Arterial/Local	25% of the traffic originated in the zip code where the face is located

For the first time it is possible to understand the demographic composition of the outdoor audience to deliver a truly targeted audience for outdoor media buys. The San Antonio results clearly show that the traditional selection process using the demographic profile of the surrounding zip code can produce poor results. The surveys prove that the higher the level of road function (freeway vs. local streets) the greater the audience distribution from around the market.

We believe the ARF said it best in their review of the system. "In summary, the Outdoor DemoTrack<sup>®</sup> System offers a promising way to estimate the demographic make-up of traffic that is exposed to outdoor advertising. The Outdoor DemoTrack<sup>®</sup> System could increase knowledge about the scope and reach of the outdoor medium and is therefore of potential value to the advertising industry."

Please take some time to review the following pages and examples from the San Antonio surveys. If you have any questions or would like more information please contact:

**Data Solutions**

**Phone:** 800 988-DATA (3282)

**e-mail:** [tomh@data-solutions.biz](mailto:tomh@data-solutions.biz)

**web site:** [www.data-solutions.biz](http://www.data-solutions.biz)

## Introduction

For years, outdoor companies have had to compete with the demographic data provided to media buyers by competing media such as TV, radio and print. These media provide the advertiser with a detailed demographic profile of the expected audience they would reach using specific media vehicles.

Outdoor companies have responded to their customer's requests for demographically targeted showings with market maps showing the distribution of their outdoor faces and specific demographic profiles of the zip codes in the market. The majority of outdoor companies combine inventory management software built by MISA and demographics from a number of syndicated services to produce these maps.

The maps provided by operators in North America clearly demonstrate to the advertiser the relationship between the location in the market of an advertising face and the demographics of the people living near that sign. Given the mobile nature of the actual outdoor audience there has always been concern with buyers that they were buying outdoor based on static demographic data that did not reflect the audience they were reaching (or not reaching) driving by their advertising on the street. For example it has been common for an advertiser who wanted to reach the Hispanic community in a market that they place their outdoor buy in areas identified as having a high Hispanic population.

MISA has developed some of the most comprehensive software sales tools in the outdoor industry including the Outdoor DemoTrack<sup>®</sup> System that targets the demographic profile of the actual outdoor audience passing outdoor advertising faces. This report is a summary review of the concept of the system, how the data is collected, presented and a look at specific results in the San Antonio test market.

The study and reporting tools shown are for traditional outdoor media such as posters, bulletins and bus shelters. They can equally be applied to other media where circulation is based on passing vehicular traffic or for pedestrian based media such as mall posters, office buildings, elevators or parking lots to name a few.

## The Concept Of the Outdoor DemoTrack® System

The Outdoor DemoTrack System® is based on principles that are fundamental to traffic engineering. One of the foundations of traffic theory is the knowledge, borne of several hundreds of thousands of studies, that traffic flow has well understood characteristics, which enable professionals to make consistent and reliable forecasts of behaviour. The study of traffic is *not* based on random theory (except in certain circumstances such as the arrival rate of vehicles at a rural intersection) but on the utilization and understanding of the consistent patterns of traffic flow; day in, day out; month in, month out. Of course there are variations in these patterns, but these have been studied in depth for years, and transportation planning and traffic engineering professionals take these into consideration when basing work on traffic flow theory.

This information is of vital importance when examining the theory behind the Outdoor DemoTrack® system, since the principles of traffic engineering also apply to Out-Of-Home street side advertising. For example, billboards are typically located in high traffic areas, vehicle occupancy is a necessary component of audience measurement and origins of traffic and routing are important for reach/frequency estimations. Traffic engineering professionals deal with all these components continually.

Data Solutions is an organization that has undertaken extensive field surveys required to calibrate the Outdoor DemoTrack® system. Their surveys completed in over 12 different markets, confirm that a significant percentage of the traffic which drives past a billboard does not originate in the zip code in which the billboard is located – more importantly, put another way, the vast majority of the traffic passing a billboard originates from other zip codes, zip codes which may contain large numbers of a specific target audience.

## Study Methodology

By observing vehicles passing posters, bulletins, bus shelters etc. and noting their license plates, Data Solutions can determine the home zip code of each vehicle's owner. This information is then loaded into MISA's proprietary Outdoor DemoTrack® software, which relates this to the demographic data supplied by independent third party syndicated data suppliers. The software merges the survey results and by mathematically weighting the survey data the user is provided a statistical audience profile for each and every face in the market surveyed. So now if an advertiser wants to reach people from a specific demographic profile, the survey data combined with the location of available faces can find all outdoor locations which best meet this target audience.

## Field Surveys

Data Solutions Inc. is an experienced, independent organization that follows strict data collection rules and procedures when conducting field surveys. The Advertising Research Foundation (ARF) New York completed a detailed methodological review of the overall system. The purpose of the ARF examination was twofold: to review the system's objectives, design, methodology and reporting capabilities, and to render an opinion of the adequacy of the design, methodology and reporting to meet the stated objectives, both in theory and in practice. In summary, The ARF found the system represented good research practice and "offers a promising method to estimate the demographic make-up of traffic that is exposed to outdoor advertising". A copy of the complete review is available at <http://www.misa.com/products/mapping/arf.pdf>.

## San Antonio Survey Relationships

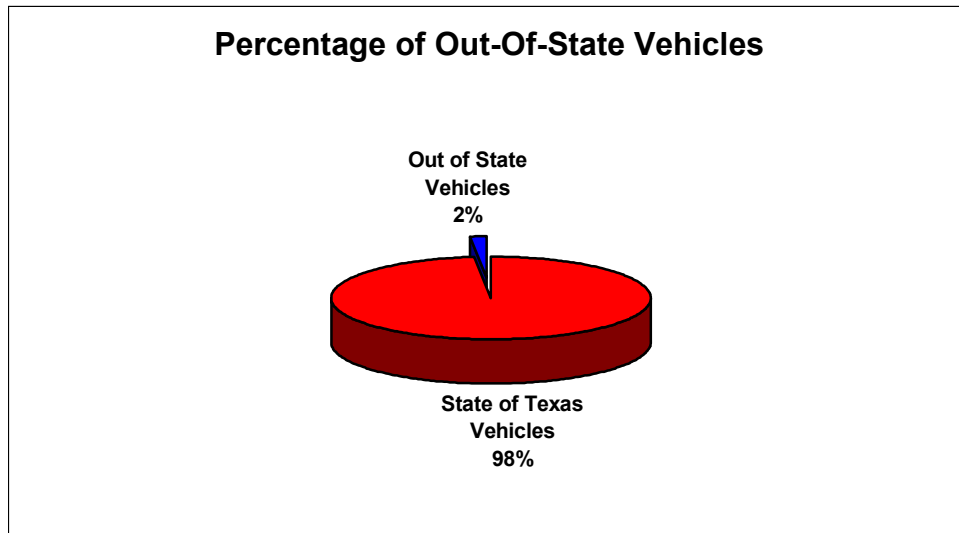
San Antonio, one of the fastest growing cities in the United States, is the eighth largest city in the country. It made for an ideal study market, as it is a self-contained urban area surrounded by rural areas. It has one of the most extensive inner city freeway systems in the United States, over 800 miles, with outdoor advertising opportunities on a significant portion of the system. San Antonio residents own more than one million registered vehicles making this a very mobile market!

Data Solutions' staff, under contract to Clear Channel Outdoor in San Antonio developed a research survey program that resulted in almost 100 detailed, individual surveys locations being identified. License plate data was obtained in 2001 following the ARF approved data collection methodology. The following are some of the interesting observations based on the results of these surveys.

### *Out of State Vehicles*

As part of the random survey procedure, observers must record the next vehicle license plate even if it is from out of state. The zip codes for these plates are not obtained from the vehicle licensing authority, as their numbers at each location are statistically insignificant in this market. In other markets that border one or more states, such as Memphis, these would be included in the sample of plates traced back to their owner's home zip code.

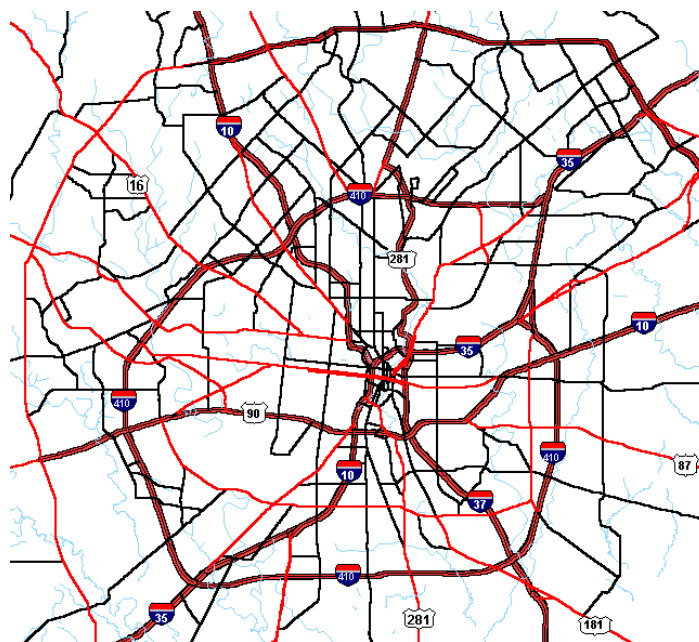
San Antonio has an extensive freeway system that includes both ring roads around the city and a number of east-west and north-south freeways passing through the market allowing for highway advertising to be exposed to both local and non-local traffic. The following pie chart illustrates the number of out-of-state plates observed.



Based on the survey results in San Antonio the number of out-of-state vehicles was deemed to represent an insignificant number.

### *Out Of Market Vehicles*

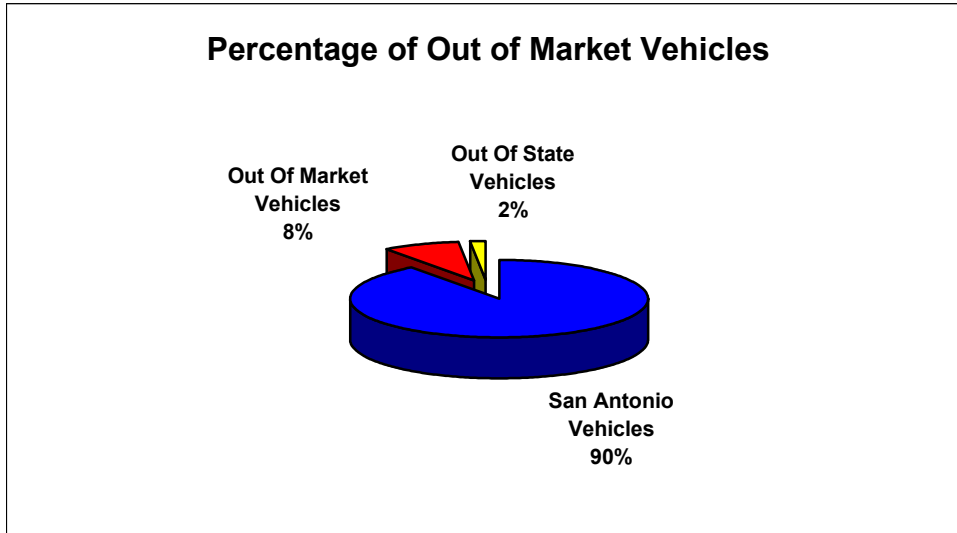
The data collection procedures cannot differentiate between vehicles originating in the market and vehicles from other markets in Texas. In our examination we have defined the San Antonio market as the Bexar county area, which comprises all of the urban area in the San Antonio market area as shown below.





All Texas vehicle plates recorded were traced back to their home zip code to determine if they were from the San Antonio market or elsewhere in Texas. The results show that 90% of the vehicles traveling in the San Antonio market are from this market. This fits in very well with results from other markets surveyed.

The following pie chart illustrates these results.



### *Relationship to Road Type*

There are numerous ways to describe or define the operational function of different types of roadways in a market. For purposes of analysis of the data obtained in the San Antonio license plate surveys we have defined three basic road types as follows:

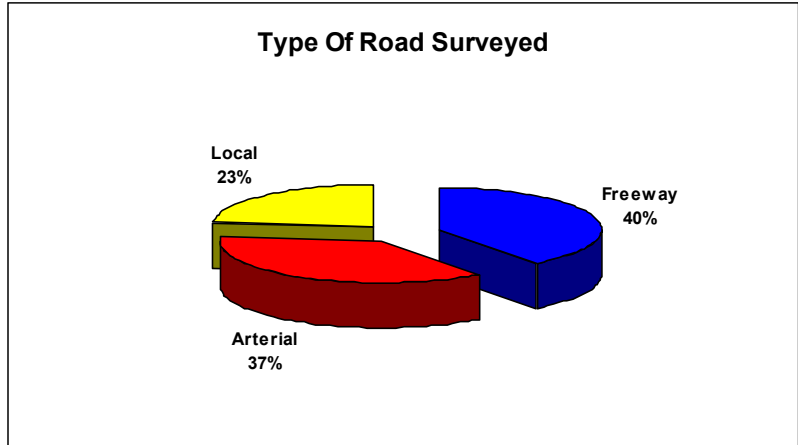
1. Freeway
2. Major arterial roadway
3. Minor arterial and local roadway

A freeway is defined as a free flowing, controlled access facility with no at grade intersections. Typically used for longer distance trips to reach more distant areas in the market, used by vehicles passing through the market, or residents to reach areas outside the market.

A major arterial roadway is typically used to travel to other areas within the market. Usually 2 or more lanes in each direction with traffic signals controlling movements when crossing other arterial roads.

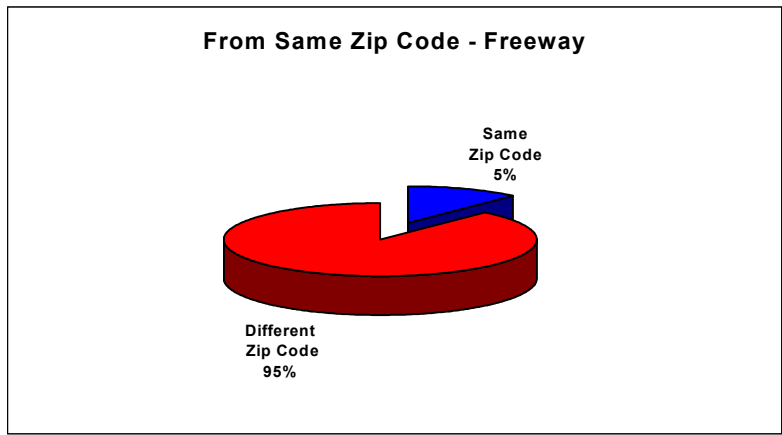
The minor arterial and local roadways are the lower volume streets residents would use to move around their local neighborhood or to get to an arterial roadway. These roads would be 1 to 2 lanes in each direction

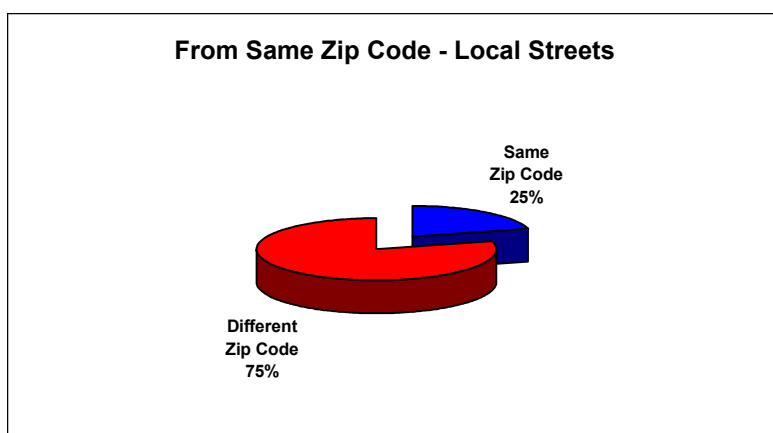
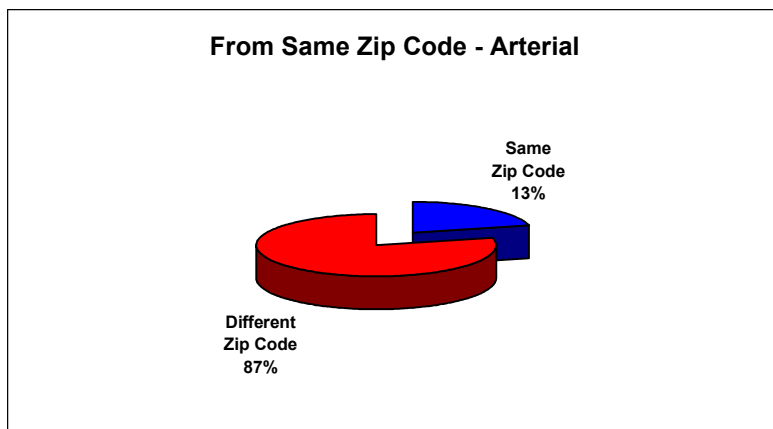
The following summarizes the number of each type of roadway surveyed.



This pattern follows the distribution of advertising faces in this market.

We examined the relationship of road type to the percentage of traffic passing survey locations that originated in the zip code where the survey was completed. The following pie charts illustrates the results by road type:





From the above examples it can be seen that there is a clear relationship between type of road and the percentage of vehicles that originate in the zip code where the survey was taken. Similar relationships have been observed in each of the markets where Data Solutions has completed research data.

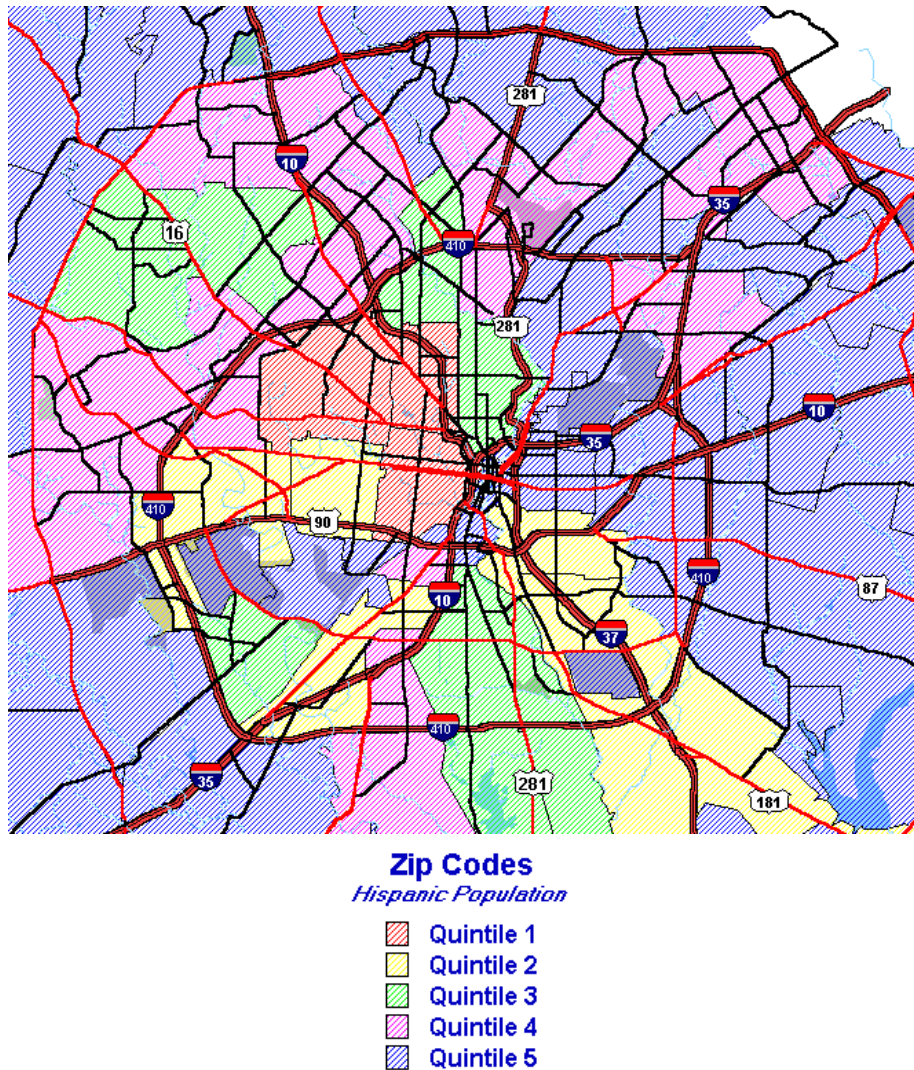
### *Relationships To Other Characteristics?*

We examined both the relationship to average daily circulation and area in the market (downtown vs. suburb) but there was no definitive relationship as was found when we examined the type of roadway. Obviously the higher the circulation the more likely the road was a freeway or arterial roadway.

## Using The Results – A Typical Example Based On San Antonio Data

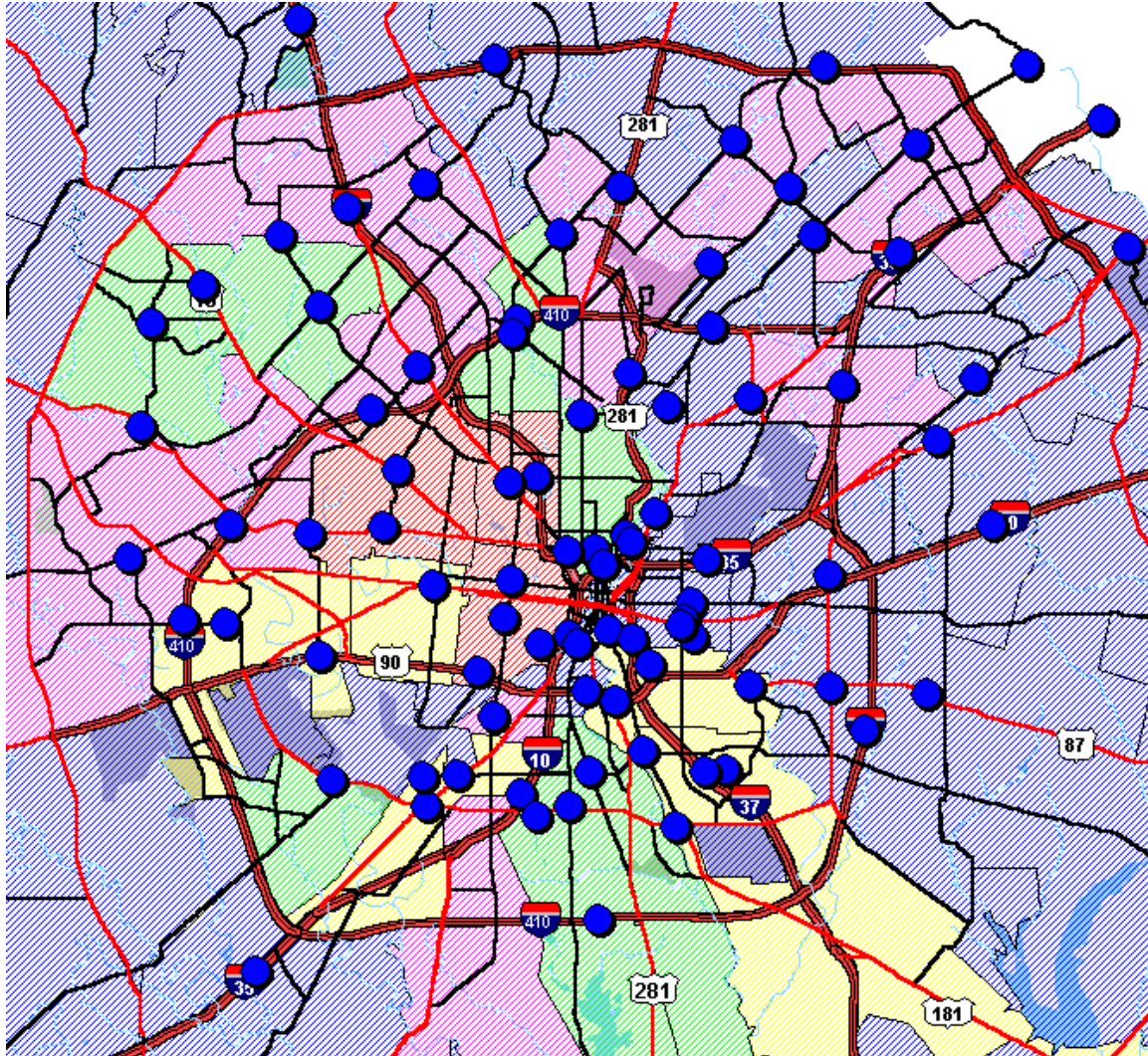
A typical request in San Antonio is for a showing targeted to the Hispanic population. The following map shows the areas of Hispanic population. “Red is hot, Blue is not”. Typically an outdoor advertising buyer would want to buy locations in the red or yellow areas only. They may select some faces in green areas for some market distribution.

The survey results and demographic profile results are based on actual data. The faces shown represent example locations and are not representative of any operator’s actual locations. Data Solutions would like to thank Clear Channel Outdoor for allowing the use of their survey data and providing the demographic analysis data used in this example.

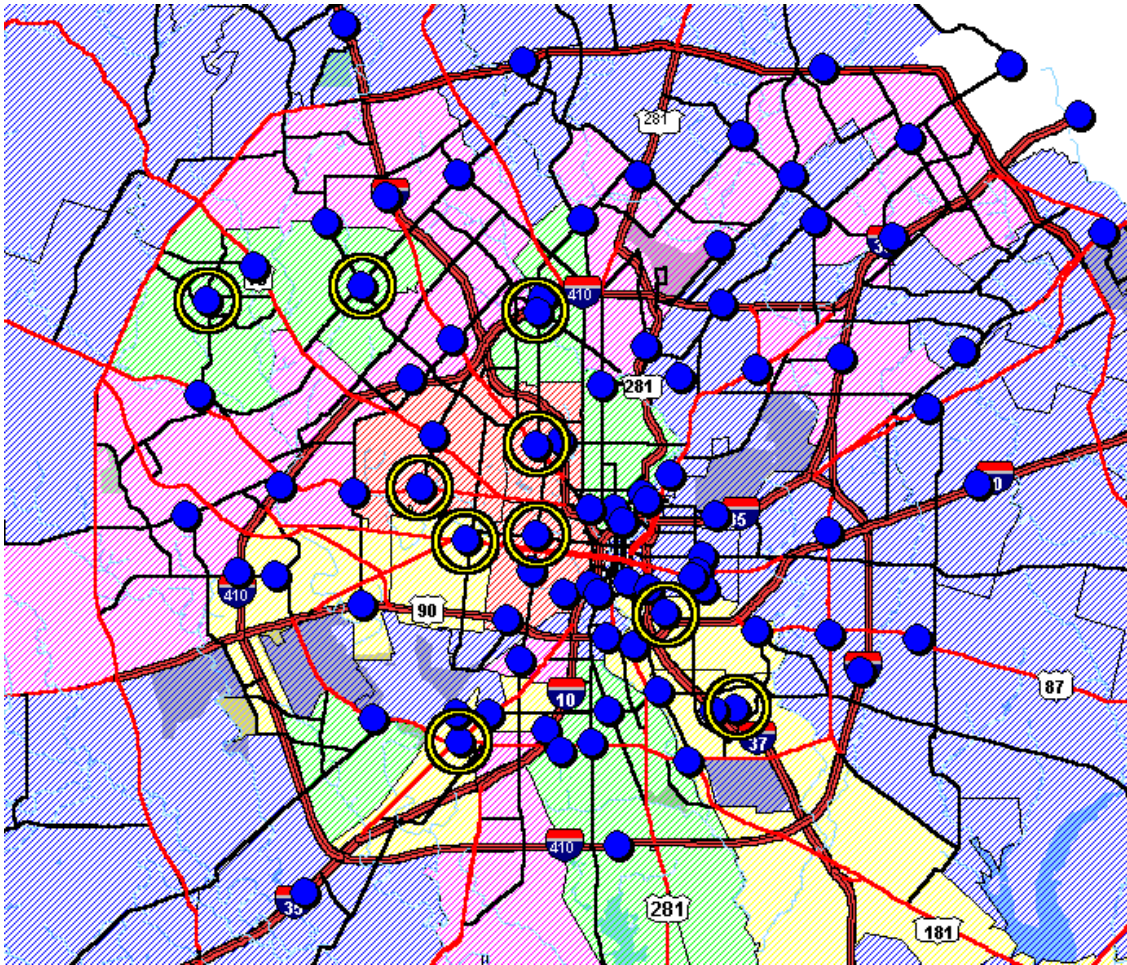




The next step for most plant operators is to superimpose their locations on this demographic map to visually relate them to the Hispanic population in San Antonio. The blue dots on the following map represent the available faces in the market.







Without the benefit of knowing the demographic profile of the traffic passing each face a agency/media buyer would normally request faces for this contract based on their proximity to the Hispanic zip codes. Our selection would probably resemble the selections shown on the following map. We have tried to pick faces in the “red” zones and some yellow and green to give us some market coverage. The following map represents the selection a typical media buyer might select.



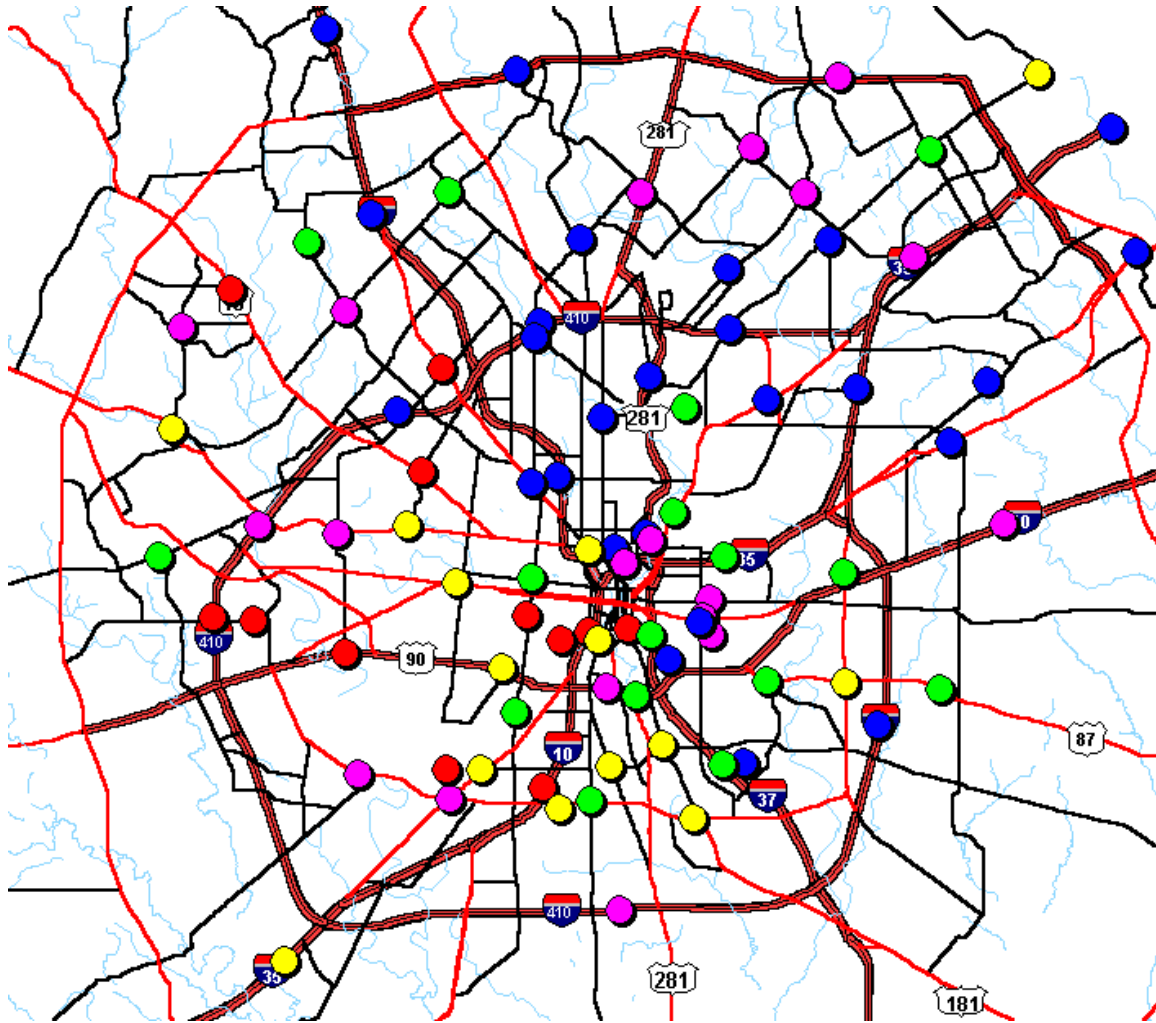
 Outdoor Locations Selected

**Zip Codes**  
*Hispanic Population*

-  Quintile 1
-  Quintile 2
-  Quintile 3
-  Quintile 4
-  Quintile 5



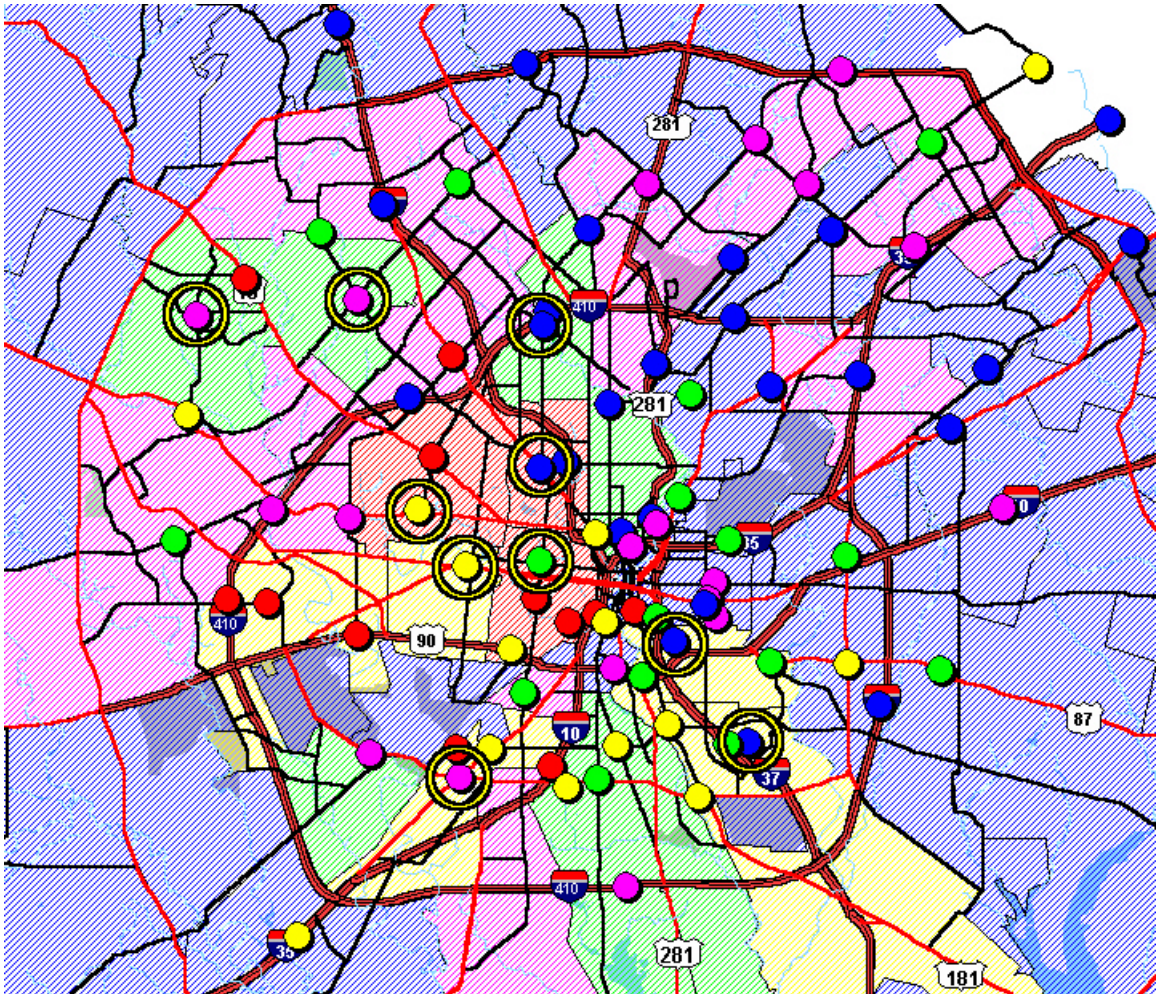
Now lets look at the demographic profile of the actual audience passing each of the available sites. We use the same demographic software/data and the same parameters we used to color the zip codes. Only this time we will color the dots representing the locations using the same colors. Remember, "Red is Hot Blue is Not".



**Passing Traffic Demographics**  
*Hispanic Population*

- Quintile 1
- Quintile 2
- Quintile 3
- Quintile 4
- Quintile 5


Lets put the two maps together to show the demographic profile of the zip codes and the demographic characteristics of the traffic passing each location.



 **Outdoor Locations Selected**

**Passing Traffic Demographics**

*Hispanic Population*

-  Quintile 1
-  Quintile 2
-  Quintile 3
-  Quintile 4
-  Quintile 5

**Zip Codes**

*Hispanic Population*

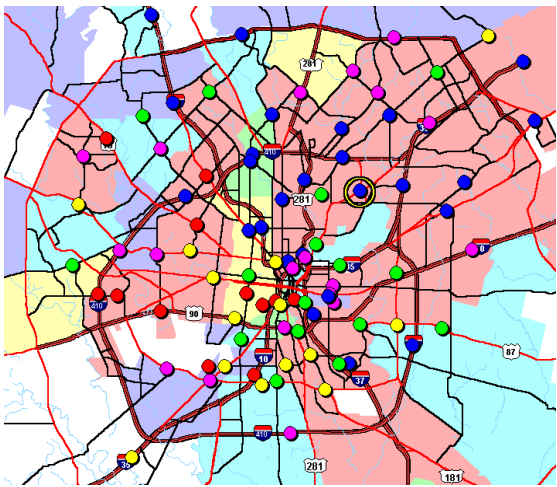
-  Quintile 1
-  Quintile 2
-  Quintile 3
-  Quintile 4
-  Quintile 5



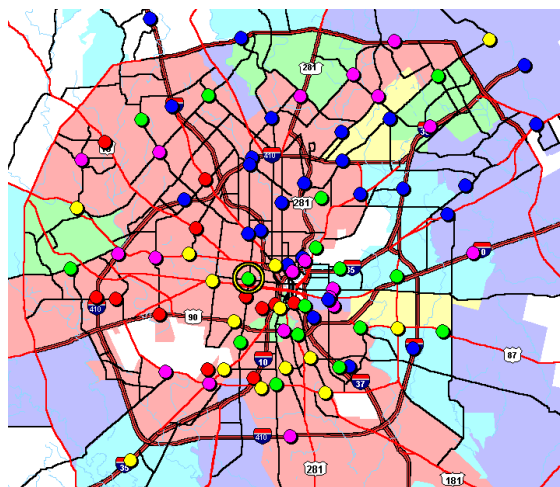
The locations circled in yellow are the locations we previously selected as ideal to reach the Hispanic population based on proximity to the zip codes exhibiting high Hispanic populations. If you examine the locations we picked and look at the demographic profile of the actual audience at those you should see we could have done much better. We managed to pick average to poor locations while leaving good locations out of our selection.

## Additional Information Provided By Origin Studies

Each of the individual studies can provide a wealth of information useful to both the plant operator and the buyer. Each face delivers an audience from around the market place. Surveys can define this coverage. The following examples show where traffic passing a survey site on The Austin Highway (yellow circle) and a second location on Zarzamora Street (yellow circle) originate.

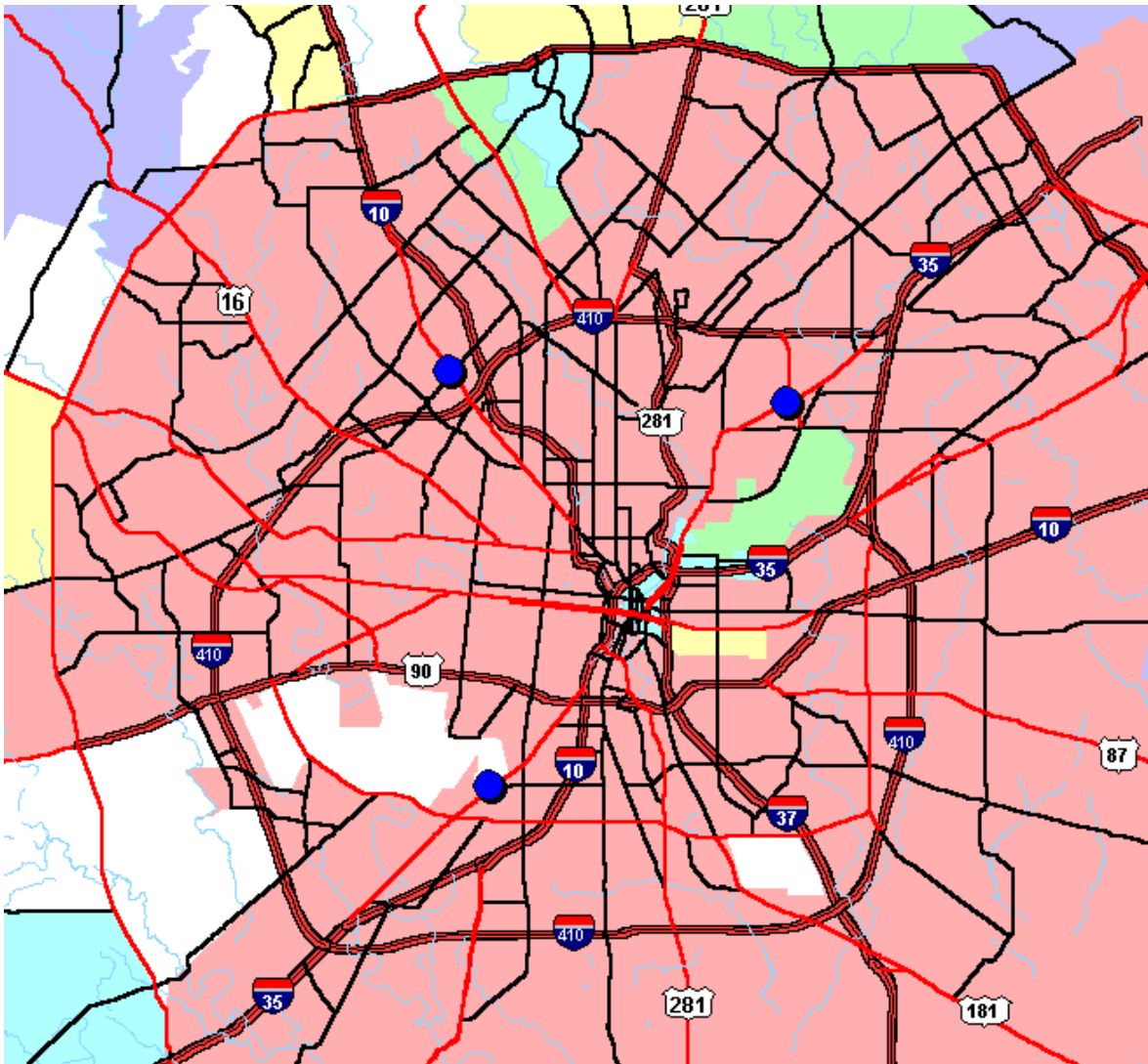


Austin Highway Survey



Zarzamora Survey

By combining all carefully selected locations in a showing we can show the coverage we are getting. By selecting three non-freeway locations you can see we are reaching most zip codes in the market.



**Contract Coverage Pattern**  
*Three Non Freeway Faces*

- High Coverage
- Medium High Coverage
- Medium Coverage
- Medium Low Coverage
- Low Coverage
- Poor Coverage

## What Does This Mean For the Buyer?

For the buyer of outdoor advertising, they will be able to accurately target showings based on demographic characteristics of the actual audience passing the advertising faces purchased.

This will result in better results for the campaign and possibly having to purchase fewer faces to reach their intended audience.

## What Does This Mean For The Seller?

For the sellers of outdoor they now can prove that all their locations are ideal for a specific demographic audience. These locations can now be defined, packaged with similar faces and sold as a truly targeted showing. Every face is an excellent face for some group of demographics. It may be possible to increase rate cards for specific demographically targeted showings.

Coverage in the more affluent suburbs is minimal to non-existent in a number of markets. This tool helps identify where those people are in the traffic stream. Advertising faces that may have been difficult to sell based on their location in the market in perhaps a less than desirable area now are proven to have a value based on the demographic profile of the audience not the area.

This system is not just for posters or bulletins; any media type including most pedestrian based media can be measured, analyzed and displayed in this fashion. Survey results may have to be modified to obtain the data but the end result would be the same.

## In Summary

We believe the ARF said it best in their review of the system. “In summary, the Outdoor DemoTrack® System offers a promising way to estimate the demographic make-up of traffic that is exposed to outdoor advertising. The Outdoor DemoTrack® System could increase knowledge about the scope and reach of the outdoor medium and is therefore of potential value to the advertising industry.”

For the first time it is possible to understand the demographic composition of the outdoor audience to deliver a truly targeted audience for outdoor media buys. The San Antonio results clearly show that the traditional selection process using the demographic profile of the surrounding zip code can produce poor results. The surveys prove that the higher the level of road function (freeway vs. local streets) the greater the audience distribution from around the market.

Using Outdoor DemoTrack® both buyers and sellers benefit by understanding the actual audience at outdoor sites.

## Appendix A – Q & A

In discussing the survey methodology and results we are often asked similar questions. Some the typical questions and answers are provided here.

### *Can Travel Patterns be Determined from Samples of Traffic?*

The best proof that one can reliably interpret overall travel patterns from individual observations taken in a small window of time is the major transportation planning studies which have been, and are, conducted by internationally recognized Transportation Consulting Companies. These studies base future transportation needs on projections of existing traffic patterns, the existing patterns being determined from observations of traffic which are concentrated in peak and non-peak weekday periods, the same periods chosen surveyed by Data Solutions.

With respect to sample size, over six hundred licence plates are collected at each survey location, based on the recommendation of a professional statistician, which should provide very reliable information. This sample size was endorsed by the Advertising Research Foundation.

### *What about the Variations in Traffic Flow?*

Data Solutions collects data on weekdays only. This decision, based on a knowledge of traffic and on a purely practical basis, is sensible. Weekday traffic generally accounts for about 90% of all traffic in a week, depending upon location, and the majority of drivers and passengers would be the same on a weekend as during the week. Data Solutions is therefore sampling from well over 90% of the weekly vehicle population of interest at a location by confining its observation to weekdays only.

With respect to day of sample within all weekdays, the evidence is that all weekdays exhibit essentially the same travel characteristics<sup>1</sup> so it is irrelevant whether a location is sampled on a Tuesday or Thursday, say. Again this is analogous with major transportation planning studies, where origin data is of vital importance; in these cases, studies are conducted on any weekday, each representing the typical weekday.<sup>2</sup>

---

<sup>1</sup> Traffic and Transportation Handbook, Second Edition, Institute of Transportation Engineers, Washington, DC 1982.

<sup>2</sup> Traffic Engineering – Theory and Practice, Louis J Pignataro, Prentice-Hall, Inc., Englewood Cliffs, NJ

Again, in most urban areas, monthly variations are small although Data Solutions specifically avoids obvious special events, or holiday periods. There is one qualification about using the Outdoor DemoTrack® System and that is that it should be used with caution, if at all, for remote rural areas, and is invalid in heavily recreational areas in peak time recreational time frames, Consequently it would be unwise to use it in locations such as Florida beach fronts. but it should still prove reliable in urban areas adjacent to the beaches.

Data Solutions collects data at variable times throughout the day to keep field staff, and hence costs down, and to enable equal volumes of information to be collected at each site during both peak and off-peak periods. The fact that at some sites the peak data are collected in the AM and at others in the PM is irrelevant since it is widely accepted in traffic engineering that the characteristics of morning and evening peak flows are similar but reversed. Collecting information in both directions takes into account this characteristic.

Finally, although Data Solutions' sampling times are analogous to the sampling methods used to conduct major transportation studies – which to be fair are considerably more important than the Outdoor DemoTrack® System, and are based on sound traffic engineering principles developed over many years by seasoned professionals – it might be thought that the data required for such studies, and by DemoTrack, are so different that the analogy does not hold. In fact the data are analogous: DemoTrack is seeking the same data, often in the same manner, as major transportation surveys, the origin of trips, so it can be said with confidence that the times used by Data Solutions to collect the data it needs to help populate MISA's Outdoor DemoTrack® software are reasonable, valid and consistent with best practice.

### *Why not use Cameras to Record License Plates?*

High resolution cameras and optical character recognition (OCR) systems are generally good tools to capture license plate data *under strict controlled conditions*, typically at freeway entrance or exit ramps where lighting, camera angle, vehicle paths and support systems can be carefully designed and maintained. Even so, such cameras (for example on Highway 407 in Ontario<sup>3</sup>) can take literally months to fine tune to capture the information required – license plates.

Cameras are not a practical alternative to field staff to capture license plate data for the Outdoor DemoTrack® System because:

---

<sup>3</sup> Implementation of a new Freeway Toll Road (Highway 407) in Toronto, Ontario in 1998

- Data Solutions cannot control the environment so camera and OCR – collected data are more, not less, likely to record errors, or void data, than field observers in these situations,
- It is totally impractical to spend even hours, let alone months, to calibrate cameras for observations that can take less than an hour in heavy traffic conditions,
- The danger of theft is real: some areas where data need to be collected pose threats, and
- Finally, the cost of one camera, let alone the four or five needed, is totally out of all proportion to the task.

For these reasons using field observers is the only reliable and practical way of collecting the license plate data under the conditions dictated by the Outdoor DemoTrack<sup>®</sup> System.

### *Is State License Plate Data Accurate and Up to Date?*

It has been suggested that State License Plate data may be questionable and that it should be audited by Data Solutions! This is virtually impossible due to the very real need for the authorities to keep individual information confidential. However Data Solutions' consultants are confident that such State data is extremely accurate and up-to-date. Their opinion is based on the fact that these databases are used in two instances, by the Police (often on-line) to acquire immediate vehicle owner information in suspected criminal and civil infractions and by domestic and foreign auto manufacturers for recall purposes. In both cases any inaccuracy in such data could have severe legal consequences. It is inconceivable that the data bases (the same ones used by Data Solutions) would be used in these circumstances if they were not the most accurate and current available.

In addition Data Solutions currently checks the state database as a bi-product of one of their current data collection practices wherein they insert a number of "dummy" license plates which is the plate number of an individual known to them in the market. This has always proven to illustrate the reliability of the states' databases.

*Have you hired independent consultants to review the procedures?*

In summary, it is the opinion of Data Solutions' consultants that the times and methods used by Data Solutions to collect license plate mean that Data Solutions is sampling the representative traffic flow and will provide a reliable basis from which the Outdoor DemoTrack® System can perform its operations to estimate the comparative weight of a selected demographic passing a billboard.

The methods used have been reviewed and approved by the Advertising Research Foundation who, in a 1999 Report said that "the ARF finds that the design, method and reporting of the Outdoor DemoTrack® System represents good research practice."



## Appendix B – For More Information

For more information please contact:

**Data Solutions**

**Phone:** 800 988-DATA (3282)

**e-mail:** [tomh@data-solutions.biz](mailto:tomh@data-solutions.biz)

**web site:** [www.data-solutions.biz](http://www.data-solutions.biz)