



METROPOLITAN
TRANSPORTATION
COMMISSION
SERVICE AUTHORITY
FOR FREEWAYS
AND EXPRESSWAYS

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Memorandum

Agenda Item No. 3

TO: Operations Committee

DATE: December 2, 2011

FR: Executive Director

W.I.: 6031

RE: Call Box Program Evaluation

Staff has completed the most recent evaluation on the call box program to identify usage trends and consider modifications to the system because of declining call volumes and shifts in how motorists summon for help on the freeways. This memorandum summarizes the findings and presents staff's recommendation to reduce the number of call boxes while retaining an adequate level of service for the motoring public. The complete evaluation is attached to this memorandum. Some key findings of our analysis are outlined below. .

Call Box Usage

- Call box call usage has decreased 80% since 2001 in which year we received 98,000 calls. In 2010, less than 20,000 calls were made.
- About 55% of calls are made for emergencies or to request non-emergency roadside assistance. The remainder are inappropriate calls and maintenance checks.
- 78% of call box calls are made between the hours of 6AM and 8PM when other motorist aid services are available and freeway surveillance is highest.
- Call rates in urban and rural areas are similar although urban areas have much higher traffic volumes.
- 13% of respondents in the \$150,000 or higher income range have used a call box where as 20% of respondents in the less than \$25,000 income range have used a call box.

Cell Phone Ownership

- 94% of all surveyed motorists own cell phones while motorists in the less than \$25,000 income range have an 86% cell phone ownership rate.
- 88% of disabled drivers have cell phones. Those without cell phones usually have one available to them when driving on the freeways through another passenger.
- Respondents without cell phones tend to drive less frequently on freeways.
- 57% of call box users own a cell phone but still utilized a call box.

Alternate Services

- 89% of motorists subscribe to a roadside assistance program either through their automobile insurance or car dealership.
- Public awareness of the Freeway Service Patrol and 511 Freeway aid is less than 40%.

Conclusions

Staff concludes that call boxes provide an important service, especially in areas that are remote and have unreliable cellular service and to lower income and disabled drivers who have a slightly lower rate of cell phone ownership and a higher likelihood to use a call box. However, the declining usage trend continues and is attributed to the prevalence of cell phones and other means to summon help on freeways, specifically urban freeways. In turn, motorists are less dependent on call boxes in urban areas, because of heightened freeway surveillance and more reliable cellular service. In addition, other motorist aid programs that operate in urban areas and provide similar call box service are able to help motorists more efficiently. Because of these urban area features, the need for urban call boxes has decreased. Call boxes in rural areas, bridges and tunnels are still a necessity because of their currently isolated location. However, there is potential to optimize the call boxes in rural areas as these locations become less remote and cellular service improves.

Based upon these findings, our recommendations are depicted below.

Staff Recommended Phased Downscale		Call Box Count after Removals*	Start Year
1	50% Urban Reduction & Rural Spot Removal: Remove approximately every other urban call box depending on topography, cell reception, access to services. Spot removals in rural areas, as appropriate. Maintain call boxes that provide an obvious benefit to motorists (Remove ~ 600 call boxes)	1,800	2012
2	511 Freeway Aid Marketing: Increase awareness by installing 511 Freeway Aid signs and implementing other marketing strategies	1,800	2013
3	Urban Corridor Removal: Reassess urban call boxes for reductions by major freeway if warranted by increased freeway surveillance and enhancements in incident detection (Remove ~ 150 call boxes)	1,650	2015
4	Call Box System Reassessment: Conduct evaluation on call box system to ensure program is meeting expectations	1,650	2016
10-Year Net Cost Savings		\$1,900,000	

*Call box count includes future installations on bridges and tunnels

Prior to removal of call boxes, assessments will be performed to ensure that call boxes that provide a clear benefit to motorists will remain intact. All candidates for removal will be discussed with CHP and Caltrans and analyzed under Title VI of the Civil Rights Act of 1964 and environmental justice principles for their impact on lower income and minority residents.

Staff recommends that this Committee refer to the Commission approval of the recommended downsizing. Staff will return to this Committee for future approvals of contracts to remove call boxes and to install 511 Freeway Aid signs.

Steve Heminger

SH: SP

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2011 Call Box Evaluation



Staff Report
December 2, 2011

Executive Summary

The influx of cell phones coupled with the declining call box call volume and the introduction of other motorist aid services prompted a modernization of the call box program to acknowledge the shift in telecommunication trends in requesting roadside assistance and review for cost effectiveness. Staff undertook an evaluation of the Bay Area call box program's deployment strategy and uses of resources by collecting and analyzing five years of call data, conducting a survey on cell phone ownership on Bay Area motorists and holding discussions with partner. This Report details the program's background, analysis that staff conducted, and provides a recommended action plan and its implications.

Background

The call box program was implemented in 1988 providing a network of telephones along freeways, highways, and county roads where motorist can summon help when experiencing car trouble. The Department of Motor Vehicles \$1 per vehicle registration fee provides the call box program with approximately \$6 million per year. Operating expense for the call box program averages \$2 million annually and the remaining funds are transferred to other motorist aid related projects such as Freeway Service Patrol (FSP) and 511 or spent on MTC administrative and general operations.

The call box program has experienced an 80% decline in usage from its peak due to the introduction of cell phones and the increase in freeway surveillance. Currently, the call box system is comprised of approximately 2,200 call boxes and in 2010 received an average of 1,600 calls per month. MTC SAFE is in the process of installing call boxes on the six toll bridges and three upcoming tunnel projects. Upon completion of these projects, the system will increase to approximately 2,400 call boxes by year 2014.

MTC SAFE has undertaken various efforts to improve and reflect changes in the call box program. Call boxes were reduced in 2004 and 2006 which removed call boxes that were rarely used or near services. TTY enhancements were made to call boxes in 2006 and site access improvements are being conducted this year. Legislative bills were also proposed to increase the DMV registration fee by \$1 and allow more flexibility in how call box funds are spent; both attempts were unsuccessful.

Current Call Box Network

Location	Call Boxes	% of total	2010 Call Volume	% of total	Calls/Box/Year
Urban	1,149	52.6%	11,260	57.7%	9.79
Rural	575	26.3%	4,214	21.6%	7.32
Bridge	388	17.7%	3,893	19.9%	10.33
Tunnel	74	3.4%	150	0.8%	2.03
Total	2,186		19,517		8.9 Average

Evaluation of Call Statistics

Call data from 2006 through 2010 was provided by call box call answering center, cellular providers call records, and maintenance provider database and analyzed. The most significant findings from the analysis include:

- Almost 50% of call box calls are made to request non-emergency roadside assistance, 5% of calls are emergency in nature (reports of road hazards, accidents) and the remaining are inappropriate calls or maintenance checks.

- Call box requests for roadside assistance have decreased 43% since 2006 and emergency calls on call boxes have decreased 69% over the same period.
- 78% of call box calls are made between the hours of 6AM and 8PM when other services are available.
- Call rates from urban call boxes have decreased an average of 9% over five years while rural call box call rates have decreased an average of 6% over the same period.

Cell Phone Survey

The survey engaged randomly selected motorists on questions related to demographics, cell phone ownership, motorist aid program awareness, and general driving behavior. A total of 3,627 surveys were completed via email or over the telephone with approximately the same number of respondents from each of the nine counties. The demographics of the respondents were compared to that of the Bay Area and the respondents proved to be representative of the region. The key survey results are listed and summarized in the table below:

- 94% of respondents own cell phones and have them available when they drive.
- Respondents without cellphones tend to drive less frequency on the freeways.
- 7% of all respondents identified themselves as a disabled driver and have greater awareness of the MTC SAFE motorist programs, having used call boxes more so than non-disabled drivers.
- Of the approximately 260 respondents who are disabled drivers, 88% own cell phones but some have one available to them when driving on the freeways either through a driver or another passenger.
- When comparing respondents who own cell phones to ones who do not, about the same percentage have used a call box for assistance.
- The frequency of driving on the freeways increased with household income while cell phone ownership decreased with household income.
- Usage of call box is lower with higher income respondents. 13% of respondents in the \$150,000 or higher income range have used a call box where as 20% of respondents in the less than \$25,000 income range has used a call box.

Key Survey Results

Cell Phone Ownership			
All Respondents	94%		
Income	Low (<\$25,000)	High (\$150,000+)	
	86%	98%	
Drivers	Disabled	Non-disabled	
	88%	93%	
Roadside Assistance Subscription	All Drivers	Disabled Drivers	Low Income (<\$25,000)
	89%	89%	72%
Program Awareness	Call Box	FSP	511 Freeway Aid
	90%	37%	32%

A separate cell phone survey was conducted by the call box call answering center which asked users at the end of each call whether they owned a cell phone. Of those callers that were surveyed, 58% owned a cell phone but still utilized a call box because of two probable reasons: they did not have a working cell phone at the time (dead battery, left it at home, or no signal) or

they felt using a call box was more effective in requesting roadside assistance because of the direct connection to a live operator and predetermined location of the caller.

Conclusions of Analysis

The evaluation confirms that call boxes are a valuable asset as they are still being used to request roadside assistance and report emergencies but at a significantly lower frequency than previous years which can be attributed to the prevalence of cell phones and the other means to summon help on freeways, specifically urban freeways. In turn, motorists are less dependent on call boxes in urban areas not only because these areas have heightened freeway surveillance with the enhancements to CCTV cameras and investments in Freeway Performance Initiative (FPI) projects but also because of the more reliable cellular service that allows motorists to access their roadside assistance through their cell phones. In addition, other motorist aid programs that operate in urban areas and provide similar services as call boxes are able to help motorists more efficiently. Because of these urban area features, the effectiveness of urban call boxes has decreased. Call boxes in rural areas, bridges and tunnels are still a necessary service because of rural area's currently isolated location and limited access on bridges and tunnels. However, there is potential to optimize the call boxes in rural areas as these locations become less remote and cellular signal improves.

The evaluation takes into account that although motorists with lower income drive less frequently on the freeways, they have a slightly lower rate of cell phone ownership or other means to summon help and therefore depend on call boxes. Even more so are disabled drivers without cell phones whom call boxes provide a greater benefit to.

In discussions with partner agencies, CHP, Caltrans, and the MTC Operations Committee and Policy Advisory Committee there is a general consensus that call boxes are a lifeline for motorists regardless of cell phone ownership and provide an important service especially in areas that are remote and have unreliable cellular service.

Other Call Box Programs

Call box systems across the state are facing a similar trend of decline. Other SAFEs have drastically decreased the number of call boxes in their system. Los Angeles has reduced their system by 60% while Orange County and Riverside have done similar reductions. The SAFE in Los Angeles has utilized their removed call box sites to install signs advertising their 511 program as a reminder of other services that have supplemented the absence of call boxes.

Strategies

When developing a plan of action, three main factors are taken into consideration: 1) maintain a lifeline system in areas with unreliable cell service and limited surveillance and access, 2) invest in other programs that provide greater benefits to motorists, and 3) minimize changes to motorists' expectations. Because inefficiencies do exist in the call box system as the analysis reveals, a status quo approach is not sustainable.

Phased Downscale

Strategies		Call Box Count after Removals*	Start Year
1	50% Urban Reduction & Rural Spot Removal: Remove approximately every other urban call box depending on topography, cell reception, access to services. Spot removals in rural areas, Maintain call boxes that provide an obvious benefit to motorists (Remove ~ 600 call boxes)	1,800	2012
2	511 Freeway Aid Marketing: Increase awareness by installing 511 Freeway Aid signs and implementing other marketing strategies	1,800	2013
3	Urban Corridor Removal: Reassess urban call boxes for reductions by major freeway if warranted by increased freeway surveillance and enhancements in incident detection (Remove ~ 150 call boxes)	1,650	2015
4	Call Box System Reassessment: Conduct evaluation on call box system to ensure program is moving in the appropriate direction	1,650	2016
10-Year Cost Savings**			\$1,900,000

*Call box count includes future installations on bridges and tunnels

**Includes the cost to implement the recommended strategies

Phased Downscale

Prior to implementation of the two removal strategies #1 and #3, assessments will be performed to ensure call boxes that provide a clear benefit to motorists will remain intact. Access to nearby services, proximity of freeway exits and topography of the freeway will be evaluated as part of this process to reduce the urban call boxes by approximately 50%. In addition, some areas that are now considered rural may develop greater freeway surveillance and have improved cell signal. In such cases, spot removals may be conducted in these areas as appropriate. All candidates for removal will be discussed with CHP and Caltrans. Moreover, strategy #2 will require approval from Caltrans and CHP as to the exact message that will be displayed on the 511 Freeway Aid signs. Finally, strategy #4 will be implemented at the completion of the previous strategies to ensure the call box program is moving in the appropriate direction.

A phased downscale addresses the inefficiencies experienced by the urban call boxes but limits the impact to motorists' expectation by gradually reducing the call box system. This phased action plan lays out defined strategies for the future to enable staff to make concrete decisions about the program and produces better financial projects for budgeting purposes. It also achieves a meaningful cost savings.

Report Layout

This Report is organized by the following:

- I. Program Background & Finances
- II. Current State of the Systems
- III. Call Box Evaluation
- IV. Motorists' Expectations
- V. Other Opportunities
- VI. Recommended Action Plan & Alternatives

SECTION I – Program Background & Finances

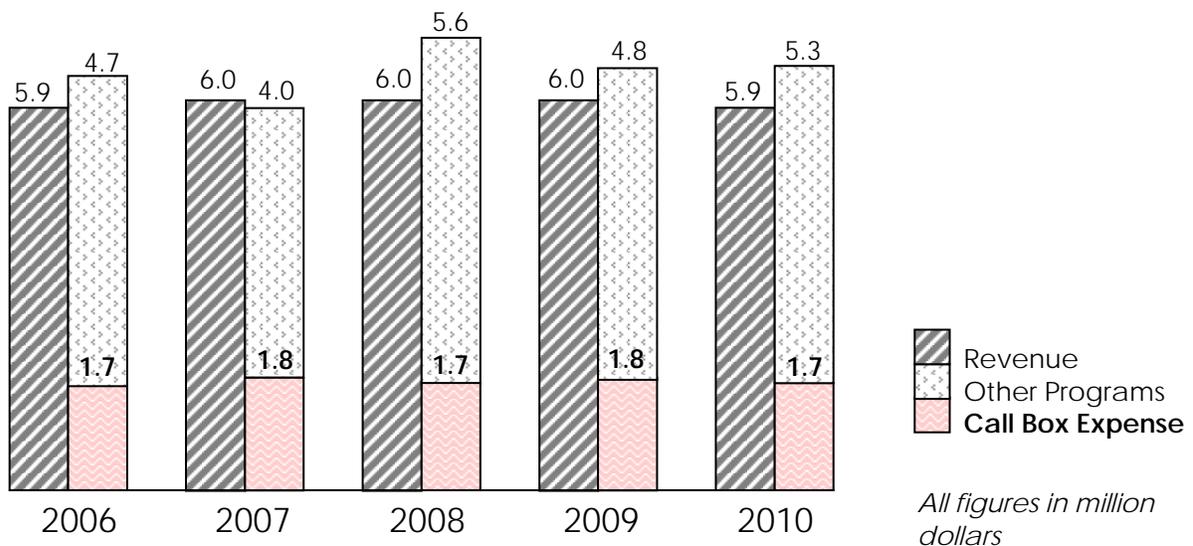
The California Legislature passed Senate Bill 1190 in 1985 to enable counties to generate revenue for the purpose of purchasing, installing, operating and maintaining a motorist aid system on freeways, highways, expressways, and county roads. The Metropolitan Transportation Commission Service Authority for Freeways and Expressways (MTC SAFE) was created in 1988 to implement and operate an emergency roadside call box program in addition to collecting the \$1 per year fee levied on all motor vehicles registered with the Department of Motor Vehicles (DMV) in the nine counties of the Bay Area.

The MTC SAFE call box program operates under a set of guidelines created in conjunction with the California Department of Transportation (Caltrans) and the California Highway Patrol (CHP). These guidelines serve to provide consistency across all call box systems in California by detailing ideal locations for installation and design specifications. It also defines the processes for amending the implementation plan and sets requirements for American with Disabilities Act (ADA) accessibility and hardware.

Call Box Revenue & Expense

MTC SAFE collects approximately \$6 million annually from the DMV fee; the same \$1 in dollar value terms has been collected since 1988. Almost \$2 million per year is spent on the basic operational expenses of the call box which does not include salaries and other administrative costs for the call box program. Both annual revenue and expense are relatively stable as Graph 1 shows. Legislation allows MTC SAFE to provide excess revenue as funding match to related motorist aid program and between \$4 to \$5 million is transferred to Freeway Service Patrol (FSP), 511, traffic operation systems (TOS), and incident management projects each year. MTC SAFE also finances eligible salaries and general administrative cost for MTC to support MTC SAFE programs which are all depicted in the graph. MTC SAFE often draws from its reserves to be able to fund these ancillary programs and administrative costs.

Graph 1. MTC SAFE Revenue vs. Expenses



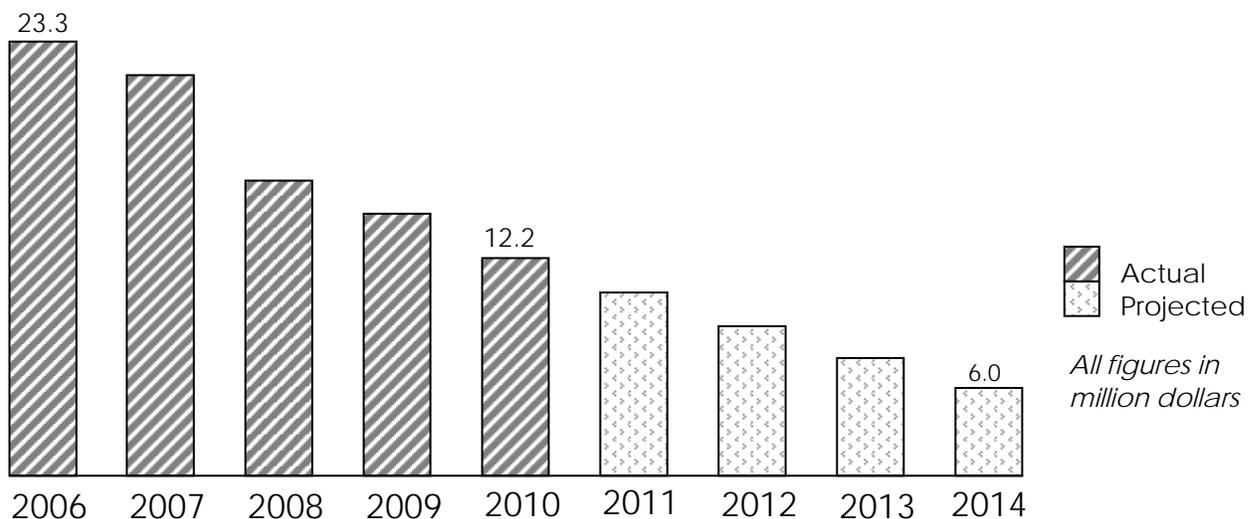
Call Box Expenditures

Expense to operate and maintain the call box program is just under \$2 million per year but when eligible salaries and administrative costs for the call box program are included the total expenditure is nearly \$3 million annually. These additional costs are not included in Graph 1 because any changes to the call box program do not affect these required costs. Capital costs are not categorized as an annual expenditure and are also not included in this graph as they are funded through different revenue sources. Call box expenditures have not changed significantly over the last five years despite efforts made to operate as cost effectively as possible through competitive procurements and small system reductions. Regardless, operational costs are still relatively low when compared to the funding match MTC SAFE provides to other MTC programs.

MTC SAFE Reserves

MTC SAFE maintains an annual reserve which serves as a funding backup should MTC SAFE need to unexpectedly terminate contracts or fund its operations in case of revenue shortfalls. By Resolution, MTC SAFE must maintain 20% of its operating revenue in reserves. More recently, the MTC SAFE reserve has taken on the role of becoming steady revenue streams for other motorist aid programs and general agency costs. Cuts have been made to the MTC SAFE operational programs to sustain the reserves and the funding matches to the other motorist aid programs. In the last five years, the reserve has decreased by almost 50% as shown in Graph 2. Without an increase in revenue, additional cuts to its operational projects, or reductions in matching funds, the MTC SAFE reserve is projected to be negative after year 2014.

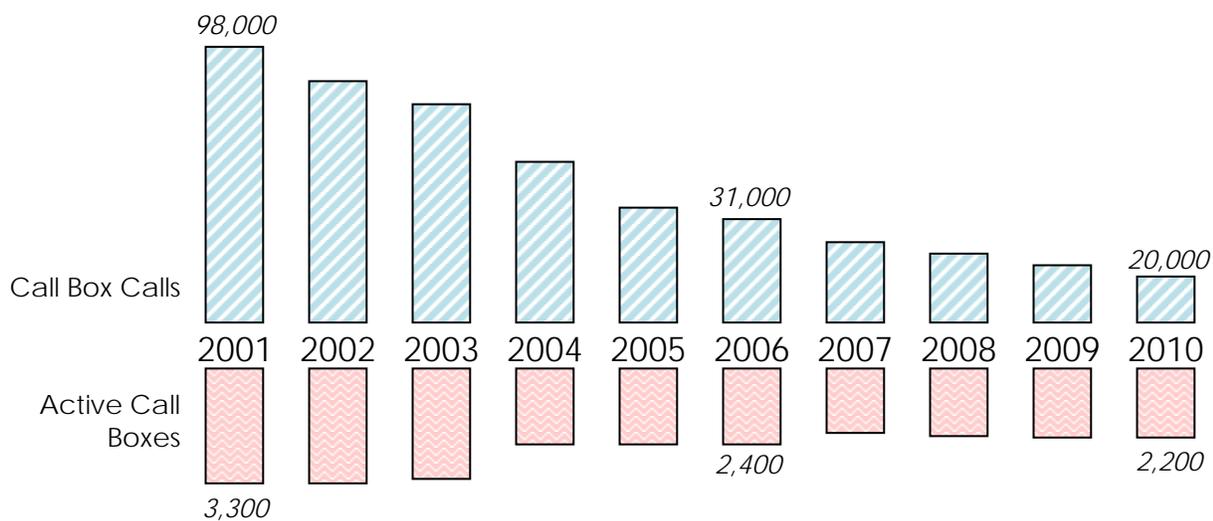
Graph 2. MTC SAFE Reserve Draws and Outlook



Call Box Program Trend

The call box program has experienced a significant decline in call volume. With cell phones becoming cheaper and easier to obtain and motorists using these cell phones to call 911, their auto club, or friends and family directly for assistance, call box usage has declined dramatically as Graph 3 depicts. Also attributing to this is the availability of other motorist aid programs including the Freeway Service Patrol (FSP) program, which roves the freeways and quickly spots stranded motorists and 511 Freeway Aid which allows motorists with cell phone to get roadside assistance without getting out of the car. Both programs provide the same services as a call box and are further detailed in Section IV of this Report. In highlighting the last ten years, the graph below depicts the 80% decline in call volume from 2001 to 2010. Similarly, installed call boxes have also been reduced by 30% over the same time period. No significant changes have been made to the call box system since 2006 while calls continued to decline.

Graph 3. 10-year Call Box Trend



Efforts to Address Program Trend

With fewer motorists dependent on call boxes to request services and fewer resources available in current-dollar terms, MTC SAFE embarked on various efforts to accommodate these realities as summarized in Table 1.

Table 1. Program Milestones

2004	Removal of 900 call boxes in response to declining call box call volumes.
2006	System wide upgrade to make call boxes TTY capable and removal of 500 call box sites due to continuing decline of usage.
2008	Start of 511 Freeway Aid, which allows for motorists to access call box services by using the 511 phone service
2009	Senator Yee sponsored SB 1731 to increase DMV reg. fee by \$1 for MTC SAFE. Bill vetoed by Gov. Schwarzenegger
2010	SB 1418 proposed to increase DMV reg. fee by \$1 for SAFEs and change the nature of the call box program to a broader motorist aid program. Bill failed.

System reductions were conducted in 2004 and 2006 to address the decline in call box calls. A total of 1,400 call boxes were removed over this period. Extensive research, outreach, and

analysis were conducted to select which boxes were candidates for removal. Amendments were made to the implementation plan which was approved by Caltrans and CHP. In 2008, MTC SAFE recognized the prevalence of personal cell phones and introduced the 511 Freeway Aid program which allows motorists access to call box service from their cell phones in the safety of their vehicles. In addition, legislative attempts have been made to increase the \$1 fee that MTC SAFE collects and to redefine the nature of the program to allow for more flexibility in what SAFE revenues could be spent on but both attempts were unsuccessful.

SECTION II - Current State of the System

The system currently operates approximately 2,200 call boxes with a monthly average of 1,600 calls; equating to approximately 0.70 calls per month per box. The distribution of all call boxes in the system by county is detailed in Table 2. The call box distribution singled out by bridge and tunnel is also detailed.

Table 2. Call Box Distribution

County	Call Boxes
Alameda	372
Contra Costa	321
Marin	113
Napa	96
San Francisco	129
San Mateo	356
Santa Clara	362
Solano	258
Sonoma	179
Total	2,186

Bridge	Call Boxes
SFOBB	102
San Mateo	92
Dumbarton	39
Richmond/San Rafael	43
Carquinez	57
Benicia	55
Tunnel	Call Boxes
Caldecott	74
Posey/Webster	34
Total	462

Call Box Expenditures in 2010

In an effort to reduce cost, MTC SAFE released competitive procurements for several contracts that expired in 2010. At the same time, MTC SAFE embarked on new call box projects including the site mitigation project to improve access to call box sites and installation of call box systems in tunnels. Table 3 breaks out the expenditures in 2010 to operate the call box program.

Table 3. Call Box Expenditures in 2010

Operational	Tasks	Amount Spent
Cellular Service	Provide digital cellular phone lines	\$15,000
Landline Service	Provide hardwired phone lines	\$215,000
Maintenance & Repairs	Perform routine repairs	\$891,000
Call Box Inspector	Inspect call boxes for functionality	\$21,000
Data Management	Gather call box data	\$96,000
Call Answering Center	Handle call box calls	\$101,000
CHP Dispatch Services	Handle transferred calls	\$128,000
Other	Miscellaneous call operational expense	\$233,000
TOTAL for 2010		\$1,700,000

Current Projects

MTC SAFE is in the process of completing its final phase in physical improvements to 900 call box sites. Upgrades are being conducted to include a pedestrian pad and path or convert sites to improve access. During this process approximately 180 call boxes will be permanently removed due to inaccessibility and location. In addition, MTC SAFE continues to install call boxes on Bay Area toll bridges with the upcoming installation on the New East Span of the San Francisco-Oakland Bay Bridge being the final phase of the project before completion. MTC SAFE is currently in discussions with Caltrans to include a call box system in the three upcoming tunnel projects: Devil's Slide in San Mateo County, Doyle Drive in San Francisco and Caldecott Bore 4 at the Alameda and Contra Costa county lines. Upon completion of these projects, the system will be at approximately 2,400 call boxes.

SECTION III – Call Box Evaluation

The last review of the call box program was conducted in 2006 and since then new motorist aid programs have emerged and improvements have been made to telecommunications. The purpose of this evaluation is to identify usage trends and areas of inefficiencies and determine modifications to the system that can address the declining call volume and shift in how motorists summon roadside assistance. The evaluation consists of an analysis of call box call data and results from the cell phone and driving behavior survey that was conducted on Bay Area motorists. This Section is divided by these two main evaluation components.

Call Box Call Data Analysis

This part of the Section looks into what types of calls are being made on call boxes, where these calls originate and when these calls are handled. MTC SAFE staff and its consultant retrieved five years of call box data. Data on call types, transfers to CHP, calls by location were taken from 2006 through 2010. All information is provided by the private call answering center, cell phone service provider call records, and the maintenance provider.

Call Box Usage by Location

Within the system, call boxes are categorized into four broad areas: urban, rural, tunnel, and bridge. Urban call boxes are on freeways with high traffic volumes, frequent freeway exits and the availability of other motorist aid services like the Freeway Service Patrol and freeway surveillance including CCTV. Along the same lines, cell phone reception is generally more reliable with greater access to gas stations and other related services in urban areas. In contrary, rural call boxes are in areas with much lower traffic volumes and less availability of motorist aid services. Moreover, approximately 60 call boxes in these rural locations are on landline service because of unreliable cell signal. Table 4 details the breakdown of call boxes by these four locations and their call volumes in 2010.

Table 4. Call Boxes & Calls by Location

Location	Call Boxes	% of total	2010 Calls	% of total
Urban	1,149	52.6%	11,260	57.7%
Rural	575	26.3%	4,214	21.6%
Bridge	388	17.7%	3,893	19.9%
Tunnel	74	3.4%	150	0.8%
Total	2,186		19,517	

The percentage of calls from each location is directly correlated with the number of call boxes installed at each location. Table 4 shows that because approximately 52% of all call boxes are installed in urban areas, approximately the same percentage of calls originates from this location. The same can be said about the other three areas.

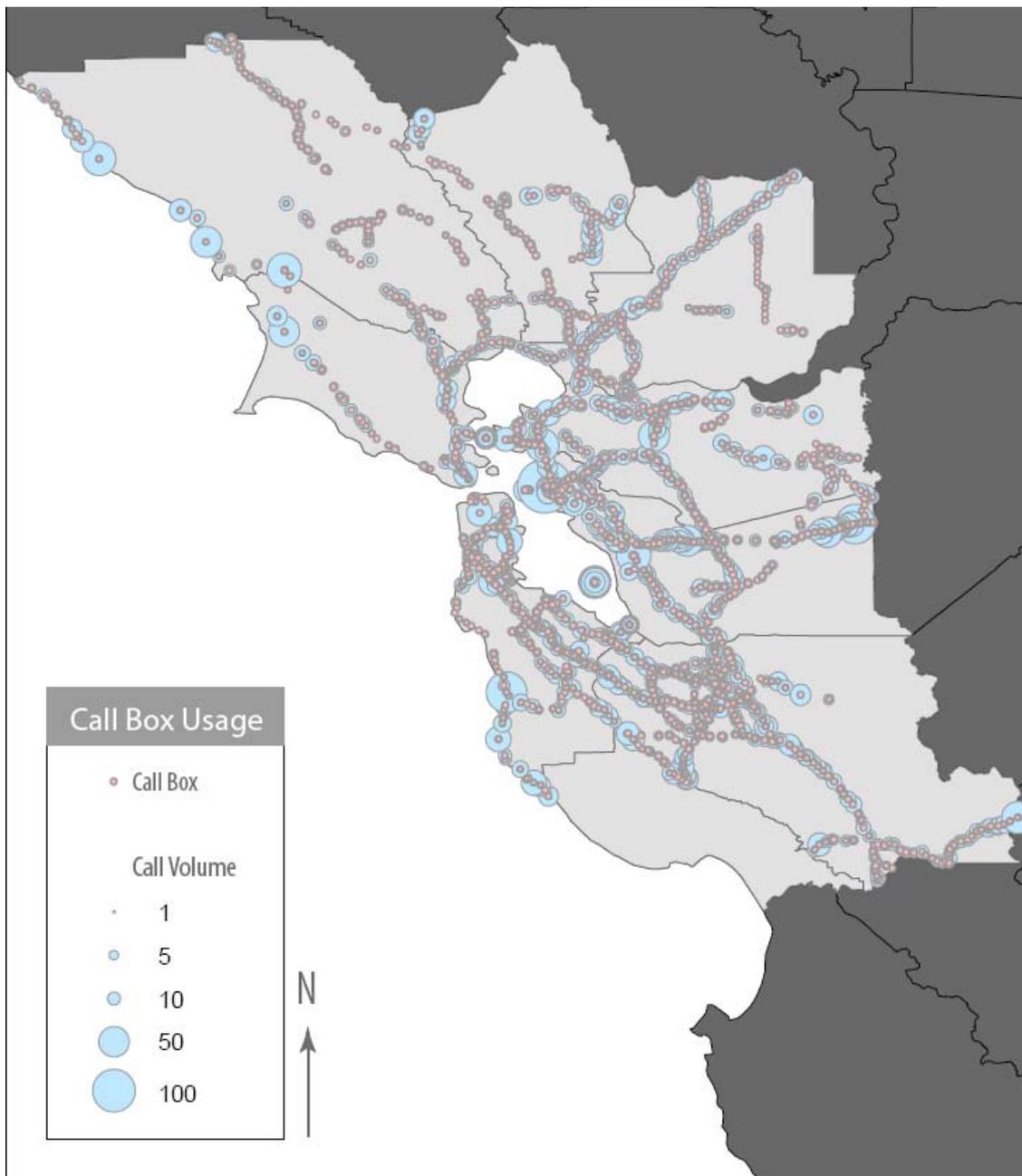
The number of calls per box from urban and rural call boxes is compared in Table 5. Urban call boxes have an overall higher call rate but when considering traffic volumes between rural and urban areas, the difference in call rate is minimal. However, looking at the percentage change in call volume over the five year period, urban call boxes have a higher average rate of decline than call boxes in rural areas.

Table 5. Five Year Call Rate Comparison

Location	2006	2007	2008	2009	2010	Average Decline
Rural	10.1	8.0	6.8	5.7	7.3	-6%
Urban	14.6	15.2	13.7	11.7	9.8	-9%

Call volume for 2010 by location are plotted on Map 1 and demonstrate the widespread use of call boxes and that call box calls are not isolated to specific locations. A high concentration of calls is received from the remote coastal call boxes and from call boxes in high traffic urban areas.

Map 1. Call Box Usage by Location



Call Types

Motorists use call boxes for a variety of reasons, the main being requests for non-emergency roadside assistance either through FSP, rotational tow, the motorists' car club or through a friend/family. Another reason, though rare is to report an incident that is emergency in nature. These calls include reporting a road hazard, an accident or crime and other related incidents that do not necessarily involves the reporting party. These two call types are detailed in Table 6. Other call types include inappropriate calls that are unrelated to roadside assistance, test calls by the call box inspector or maintenance provider and calls that connect into the call answering center without a caller on the other end.

Comparing all call box calls, non-emergency roadside assistance request make up the majority of legitimate calls that come into the call answering center while calls that are emergency in nature make up less than 10% of the total. Overall, both call types have declined as usage declines but emergency calls have decreased more drastically than roadside assistance calls when comparing the difference between 2006 and 2010.

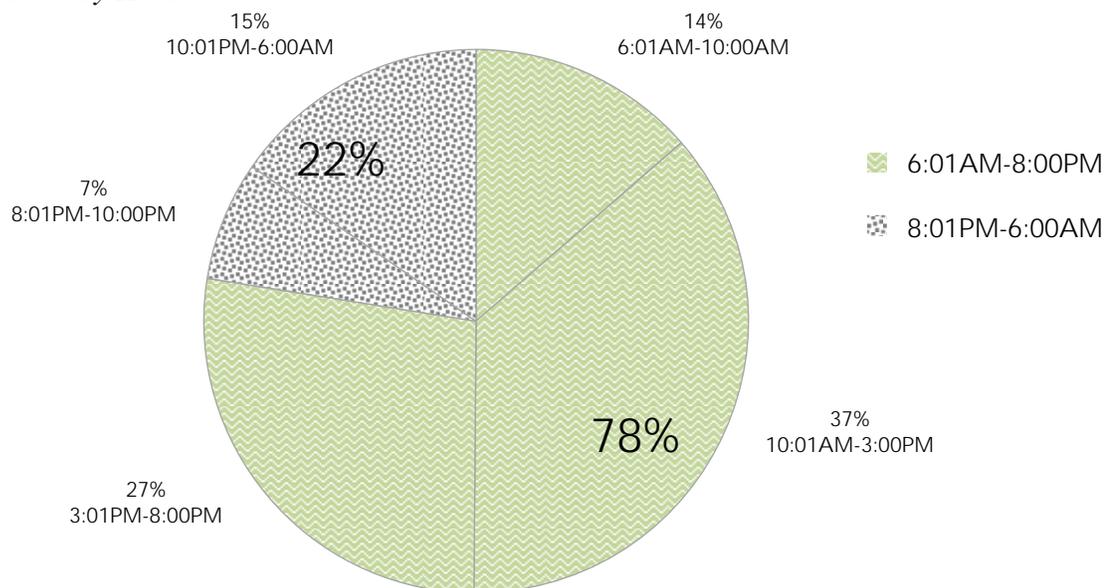
Table 6. Call Box Call Types

Call Types	Roadside Assistance		Emergency		Call Box Checks		Inappropriate, False Calls		All Calls
2006	45%	14,062	10%	3,125	14%	4,375	31%	9,687	31,249
2007	47%	11,835	10%	2,518	24%	6,043	19%	4,784	25,180
2008	46%	10,652	8%	1,852	24%	5,557	22%	5,094	23,156
2009	43%	8,573	6%	1,196	24%	4,823	27%	5,425	20,094
2010	41%	8,002	5%	976	32%	6,245	22%	4,294	19,517

Calls by Hour

The call box program is a 24 hour service and when looking at calls by hour, the pie chart in Graph 4 reveal that 78% of call box calls are made between 6:01AM and 8:00PM. Of that 78%, the majority of calls occurs during commute hours between 6:01AM-10:00AM and 3:00PM-8:00PM when traffic volumes and in turn freeway surveillance are highest.

Graph 4. Calls by Hour



Call Destinations

All call box calls are initially handled by the CAC to gather information on the caller and their needs. When towing is needed on the toll bridges and on the freeways, the calls are transferred to Caltrans and CHP, respectively. Calls that are transferred to other agencies may be from call boxes in local police or sheriff's jurisdictions therefore the transfers to CHP are lower in rural locations. However, most rural calls are completed by the CAC assuming there are far less requests for rotational tow or reporting of emergency incidents in these areas. Table 7 displays the breakdown of call destinations.

Table 7. Call Destinations

Call Box Location	NOT Transferred	Car Club	Caltrans	CHP	Other Agency
Rural	79%	>1%	1%	19%	0%
Urban	67%	>1%	2%	30%	1%

Conclusions from Call Box Call Data Analysis

This Section of the Report confirms that call boxes are still being utilized to request roadside assistance but at a lower rate. Emergency calls have declined faster than roadside assistance requests because motorists are finding other means to report such incidents. The decrease in both call types suggests motorists are becoming less dependent on call boxes over time. Generally, calls are completed with the CAC, requiring no additional assistance from CHP or Caltrans thus proving the call boxes are mostly utilized to make non-emergency requests. Moreover, the overwhelming majority of calls occur between the hours of 6AM and 8PM when freeway surveillance is highest and other motorist aid programs like FSP, instead of call boxes are able to service motorists driving in urban corridors.

Urban call boxes have nearly the same call rate as rural call boxes but with the additional resources to summon help either through increased freeway surveillance or FSP, the urban call boxes are less effective than rural call boxes. In turn, rural call boxes are more valuable to motorists traveling in these locations that have unreliable cell service and limited freeway surveillance or access to services.

Motorists Behavior Survey

A major component of this evaluation is the analysis on cell phone ownership because of its attribution to the decline in call box calls. Through surveys, MTC SAFE sought to determine the cell phone penetration rate for the Bay Area. First, MTC SAFE began incorporating a one question cell phone survey for the operators at the CAC to conduct at the end of each call box call. Callers were asked if they owned a cell phone. More detailed questions were not asked as to limit the call time and the caller's exposure on the freeways. Callers with emergencies or other related circumstances were not surveyed. Over the last four months, most call box callers have cell phones but nevertheless used a call box as shown in Table 8.

Table 8. CAC Cell Phone Survey – “Do you own a cell phone?”

Response	June	July	August	September	Average
Yes	62%	59%	56%	54%	58%
No	38%	41%	44%	46%	42%
Total Calls Surveyed	968	868	869	839	886

Reasons as to why motorists with cell phones used a call box are unknown but it can be assumed that the caller did so for two main reasons: they did not have a working cell phone at the time (dead battery, left it at home, or no signal) or they felt using a call box was more effective in requesting roadside assistance because of the direct connection to a live operator and predetermined location of the caller.

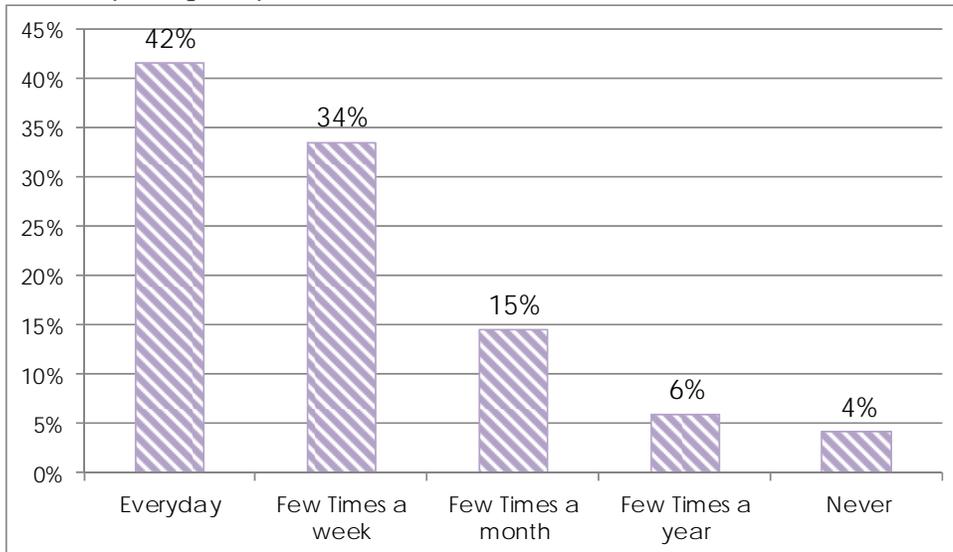
Because the above survey was limited to call box users and cell phone penetration information for the entire Bay Area is neither readily available nor reliable, MTC SAFE hired a research firm to conduct surveys via email and phone calls on motorist behavior and cell phone ownership. Included in this survey were demographic questions. Between July and September 2011, over 350,000 surveys were emailed and 180,000 phone calls were made to randomly selected motorists of the Bay Area. The complete survey questions and results are available upon request.

The aim was to achieve an equal number of completed surveys from each of the nine counties. A total of 3,627 surveys were completed with some counties having over 400 completed surveys and other counties having just fewer than 300. It was previously determined that a sample size of approximately 3,600 respondents is an accurate representation of for the Bay Area and the results have a confidence level of 95%, $\pm 1.63\%$. The key survey results are broken out into four main categories: driving habits, cell phone ownership, disabled driver, and household income and are highlighted in the next pages.

Driving Habits

Respondents were asked how frequently they drove on the freeways. The results in Graph 5 show that 76% drive everyday or few times a week.

Graph 5. Freeway Frequency

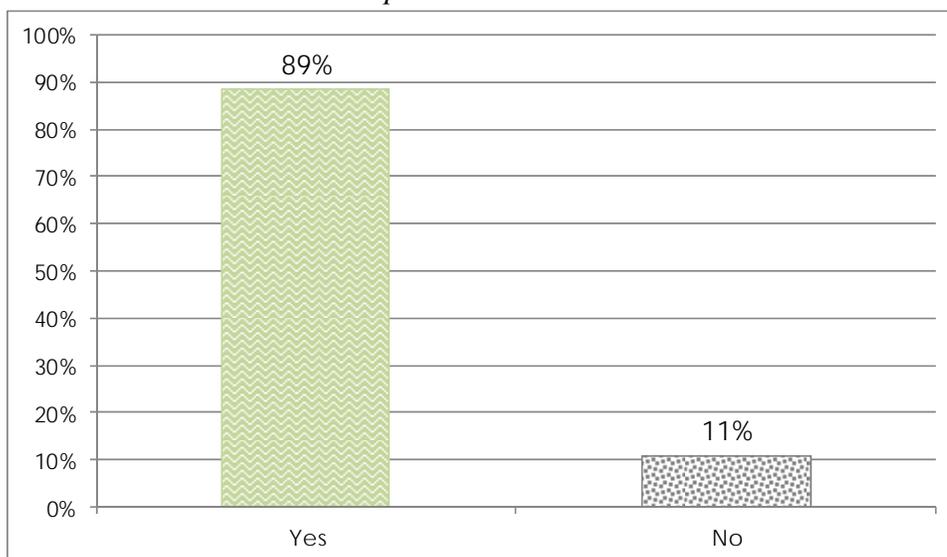


Next, respondents ranked what action they would take if their vehicle were to break down on the side of the freeway and there were no injuries. Finding a call box to request assistance was ranked lowly but the top 2 actions were:

1. Use cell phone to call their emergency roadside assistance (58.3%)
2. Use cell phone to call family or friend (38.9%)

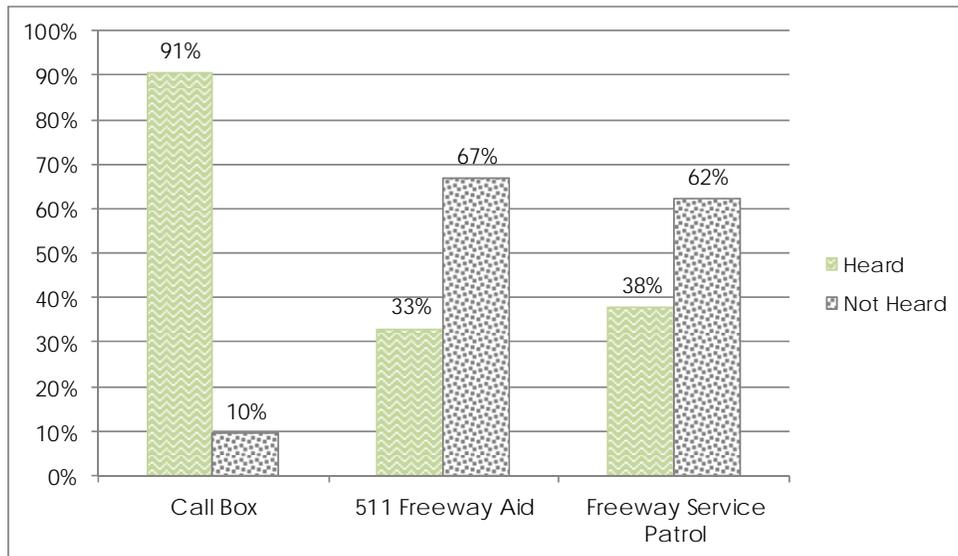
When asked whether respondents subscribe to a roadside assistance program either through their auto insurance or car dealership, 89% of respondents have this service as shown in Graph 6.

Graph 6. Roadside Assistance Subscription



The 3,627 respondents were asked if they have seen the yellow call boxes on the freeways. They were also asked if they were aware of other motorist aid programs like 511 Freeway Aid and Freeway Service Patrol programs. The results in Graph 7 show that 91% of respondents have seen call boxes but over 60% of them have not heard of FSP or 511 Freeway Aid.

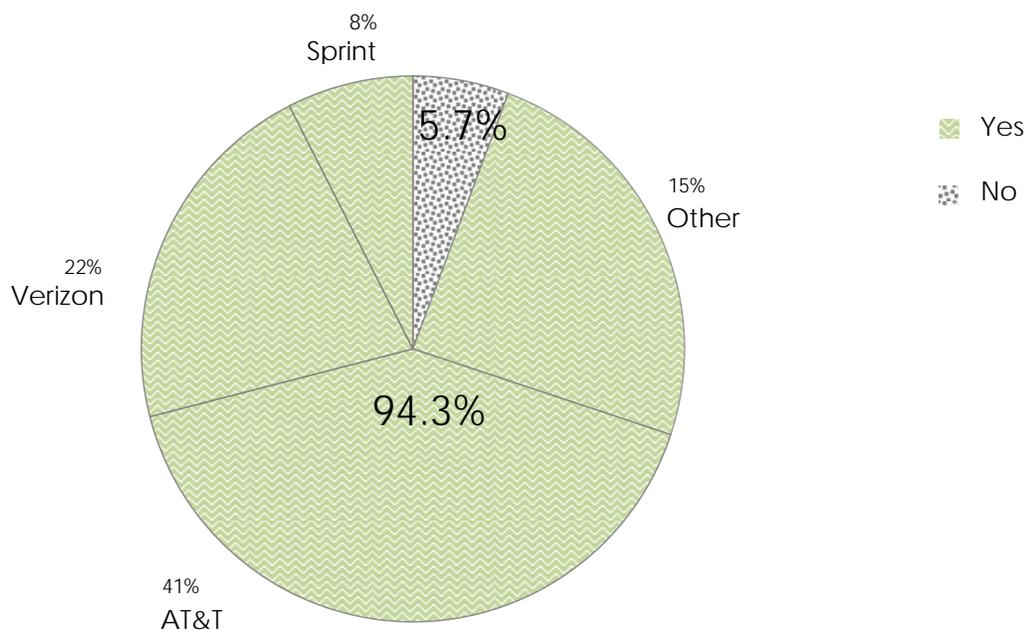
Graph 7. Public Awareness of Motorist Aid Programs



Cell Phone Ownership

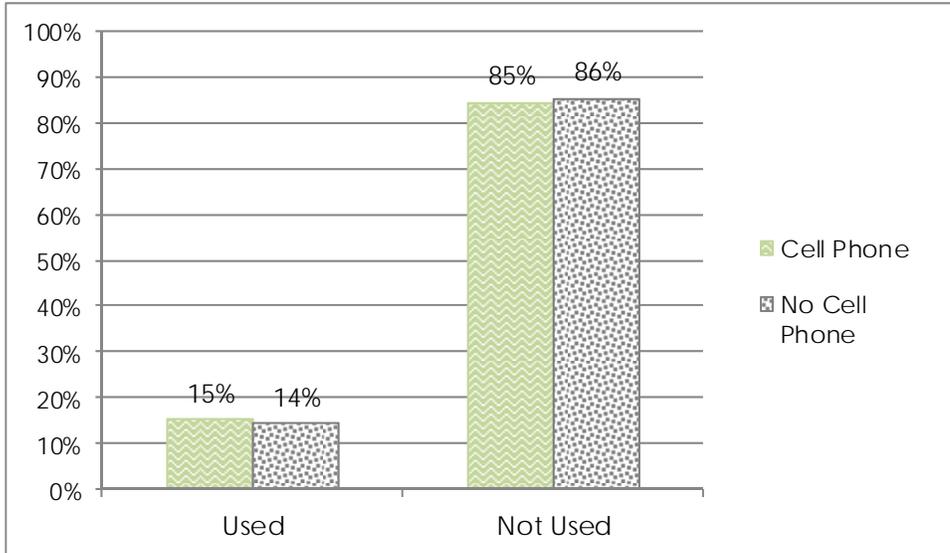
Respondents were asked whether they owned a cell phone and if so who was their service provider. About 94% of respondents own cell phones and of these owners the top 3 service providers are broken out in Graph 8. Those that reported 'Other' as a cellular service provider include no contract and prepaid cellphone companies including Metro PCS, Credo, Consumer Cellular, TracFone, and Net10.

Graph 8. Cell Phone Penetration and Provider

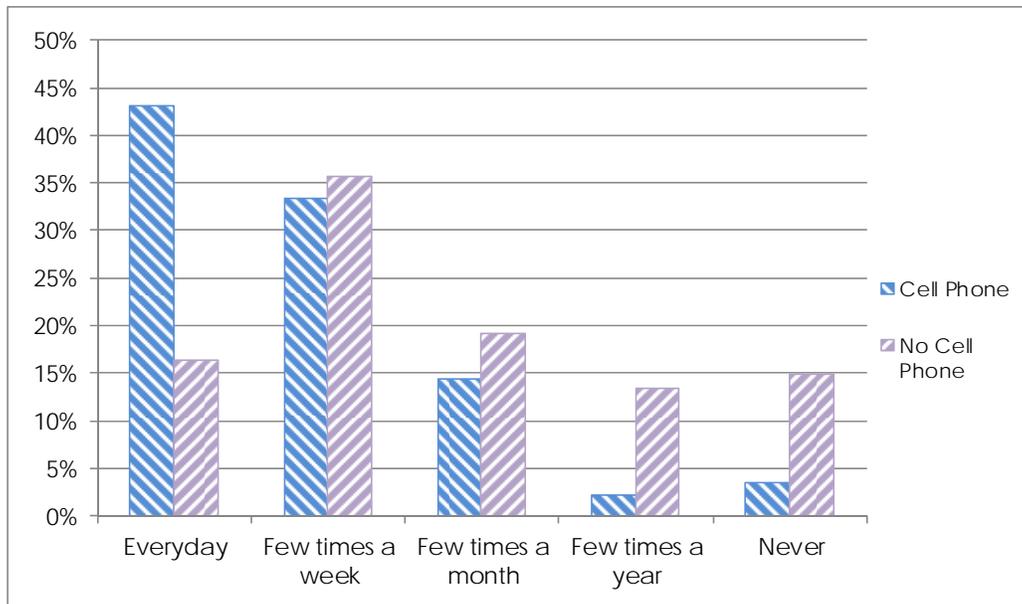


Respondents were categorized into two groups: those that owned cell phones and those that did not. In asking if they had used a call box before, Graph 9 shows that both respondent types have the same call box usage rate. In Graph 10, the respondents with cell phones drive more frequently on the freeways.

Graph 9. Call Box Usage by Cell Phone Ownership



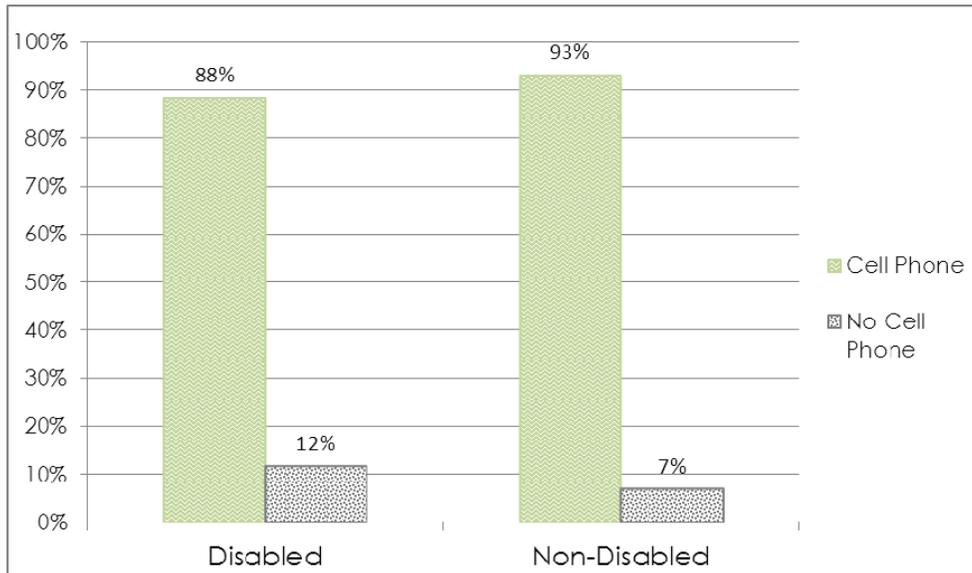
Graph 10. Freeway Frequency by Cell Phone Ownership



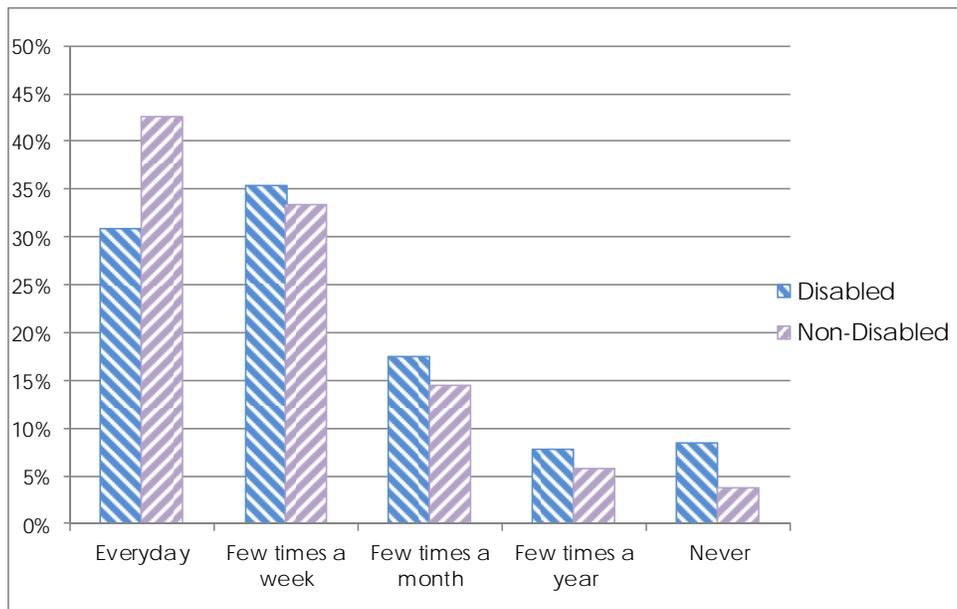
Disabled Driver

The survey asked disabled drivers to voluntarily identify themselves. Of the 3,627 respondents, 261 are disabled drivers. The survey results for disabled drivers nearly paralleled those of non-disabled drivers in cell phone ownership, roadside assistance subscription and freeway frequency as shown in Graph 11 through 13.

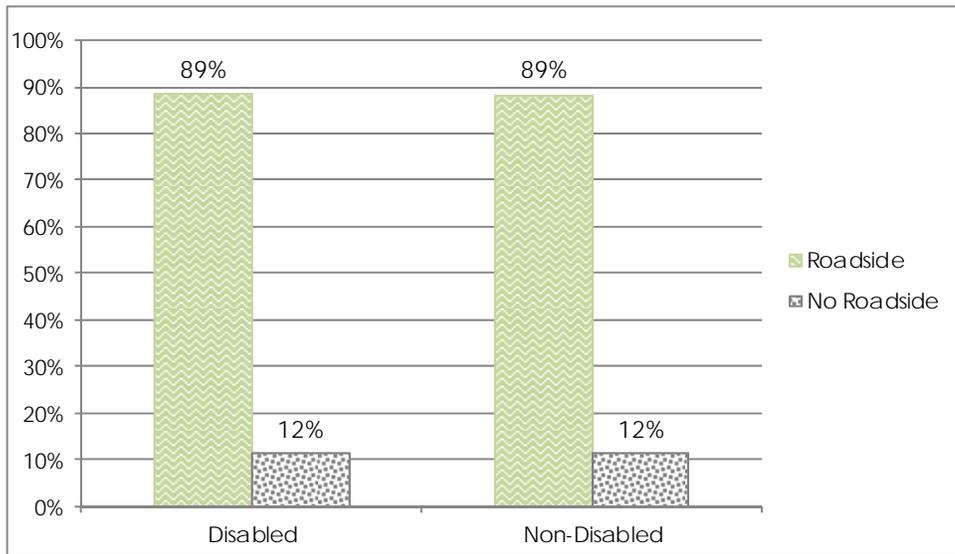
Graph 11. Cell Phone Ownership by Driver



Graph 12. Freeway Frequency by Driver



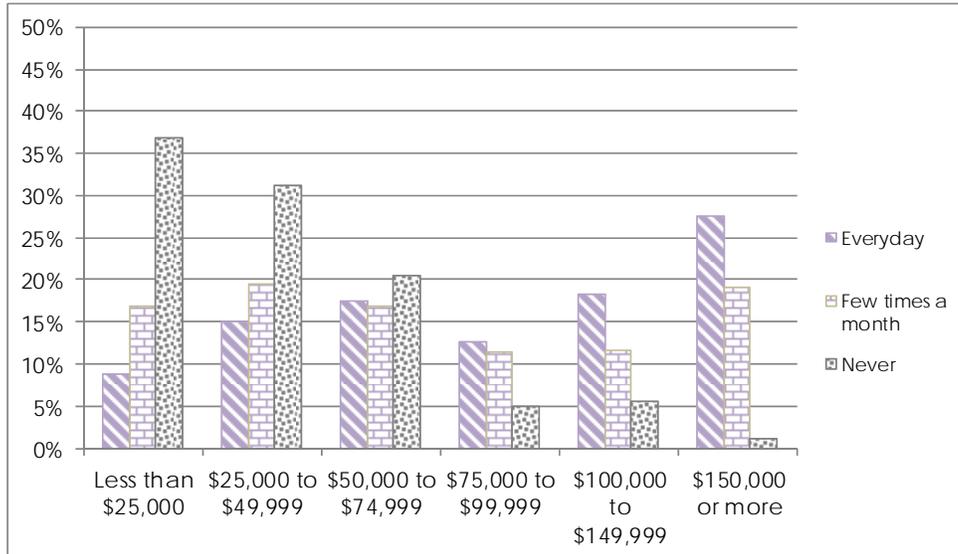
Graph 13. Roadside Assistance Subscription by Driver



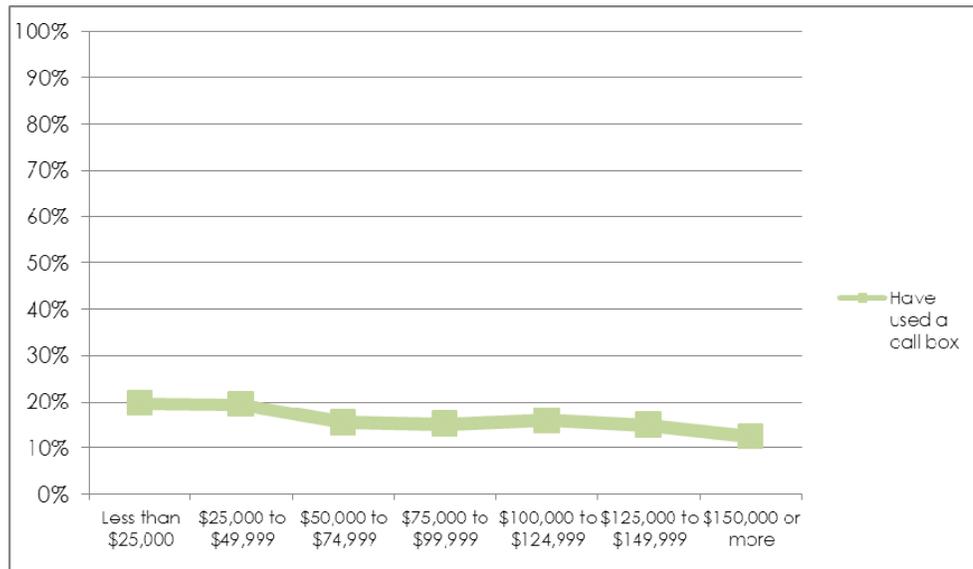
Household Income

The 3,627 respondents were asked demographic questions of which all the results are in the next section. The most revealing demographic is the household income as it directly impacts cell phone ownership and freeway frequency. Graph 14 through 17 details the differences between household income on freeway frequency, call box usage, cell phone ownership, and roadside assistance.

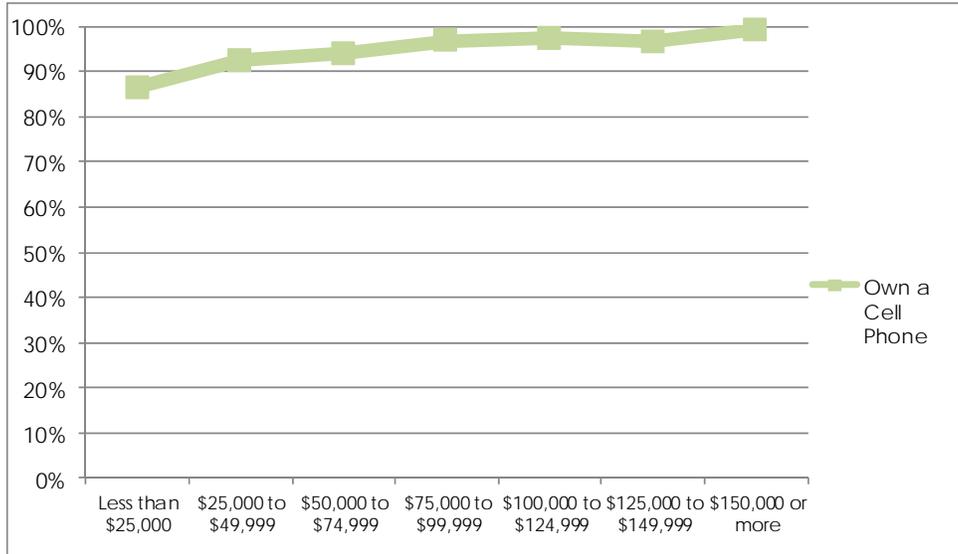
Graph 14. Freeway Frequency by Household Income



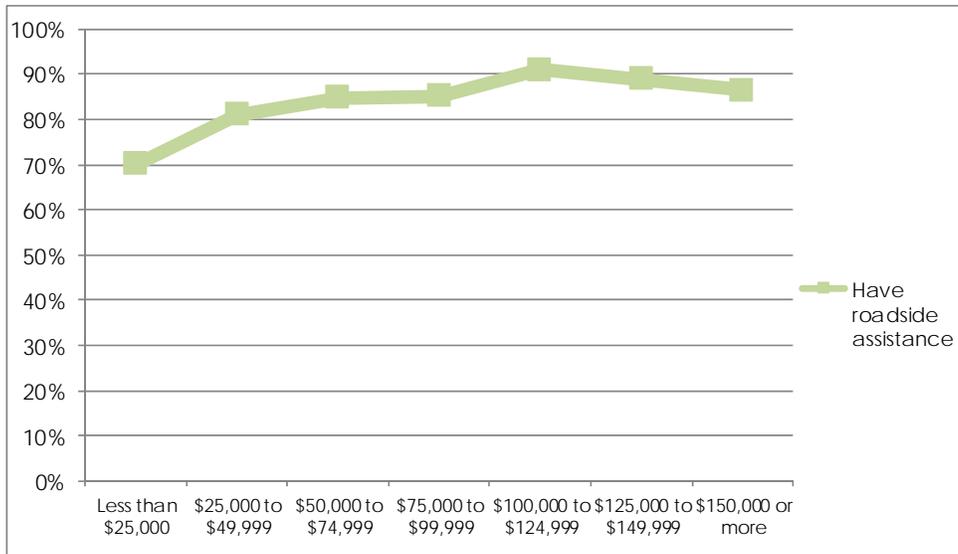
Graph 15. Call Box Usage by Household Income



Graph 16. Cell Phone Ownership by Household Income



Graph 17. Roadside Assistance by Household Income



Survey Respondents v. Bay Area

The demographics of the survey respondents are compared to the 2010 Bay Area Census in Table 9 to see the distribution of race, age, gender, income and education and whether the respondents accurately represent the Bay Area. The significant differences are the distribution of ethnicity of the survey respondents to the Bay Area population. However, the other demographics including age and household income are similar to the Census.

Table 9. Demographic Comparison

Race/ethnicity	Respondents	Bay Area Census
White	66.5%	52.5%
Black or African American	4.4%	6.7%
American Indian and Alaska Native	0.9%	0.7%
Asian	11.0%	23.3%
Native Hawaiian and Other Pacific Islander	1.4%	0.6%
Some Other Race	3.1%	10.8%
Two or More Races	2.8%	5.4%
Hispanic	9.9%	23.5%
Age		
20-24	7.5%	8.6%
25-34	11.8%	19.6%
35-44	15.7%	19.8%
45-54	21.3%	19.9%
55-64	24.6%	15.8%
65 or over	19.1%	16.3%
Gender		
Female	53.7%	50.4%
Male	46.3%	49.6%
Education Level		
Less than high school	2.6%	13.1%
High school / GED	10.2%	17.9%
Some college	18.5%	20.0%
2-year college degree	9.4%	7.1%
4-year college degree	25.5%	25.2%
Graduate degree	28.7%	16.6%
Household Income		
Less than \$25,000	13.5%	17.1%
\$25,000 to \$49,999	18.5%	17.9%
\$50,000 to \$74,999	17.1%	15.9%
\$75,000 to 99,9999	12.6%	12.5%
\$100,000 to \$149,999	16.1%	17.2%
\$150,000 or more	22.4%	19.4%

Overall Conclusions

The survey revealed that the Bay Area is nearly saturated with cell phone, with only approximately 5% of the population without them. Even at the lowest household income range (less than \$25,000), cell phone penetration is near 86%. The survey also revealed that 89% of drivers have roadside assistance, both disabled and non-disabled drivers. The high cell phone ownership rate together with the high roadside assistance subscription further confirms the lowered dependency on call boxes by motorists as they now have other means to summon help. However, respondents are unaware of additional resources for roadside assistance through FSP and 511 Freeway Aid as only less than 35% know about either program.

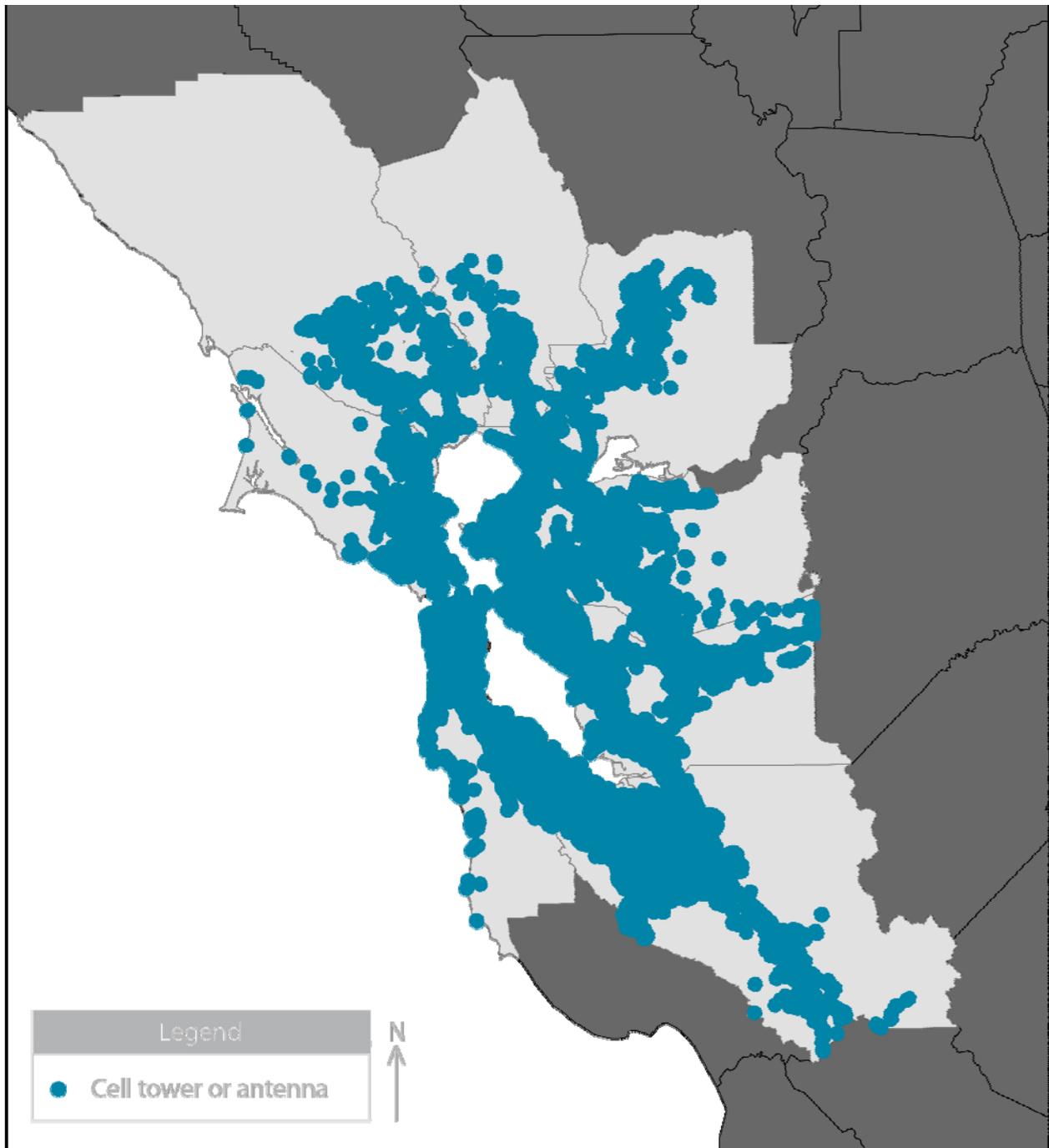
Motorists who may still rely on call boxes drive less frequently as the survey reports. More importantly, the survey reveals that call boxes are a service utilized by all motorists regardless of income level, cell phone ownership, and disability and is a recognizable feature of the Bay Area Freeways.

Cellular Signal Coverage

In continuing the analysis on cell phone ownership, a part of that research relies heavily on cellular signal because regardless of cell phone penetration, there needs to be reliable cell signal.

Map 2 displays the cell towers and antennas locations taken from the Federal Communication Commission (FCC) database and various websites which shows the concentration of reliable cell signal to be in the more urban areas. The absence of cell towers in rural areas and the need for call boxes in these areas to be on landline service confirm the lack of reliable service.

Map 2. Cellular Antennas



Sources

Federal Communication Commission Wireless Telecommunication Bureau. (2011). Cellular [Data file]. Retrieved from http://wireless.fcc.gov/geographic/index.htm?job=licensing_database_extracts
Cell Tower Location – San Francisco Bay Area. (2011). [Data file]. Retrieved from <http://geocommons.com/maps/87901>

SECTION IV – Motorists’ Expectation

Call boxes are a recognizable feature of the Bay Area freeways. As shown by the survey, over 90% of motorists have noticed the call boxes. The awareness value of the call box on the freeway is not ignored nor is the call boxes’ ability to determine the exact location of the caller. However, motorists behavior and consequently motorists’ expectation has changed significantly which ultimately impact the call box program.

The original objective of the call box program was to provide motorists with a 24 hour emergency phone system that directly connected to CHP. Motorists’ dependency on call boxes during this time was significantly higher as cell phones were rare, freeway surveillance was lower, and other motorist aid programs were nonexistent.. Slowly personal cell phones entered the market and FSP started to expand where the need for a direct connection to the CHP diminished. As motorists’ behavior shifted, so did the call box program. The call box program transitioned away from an emergency service to a roadside assistance program to provide quick incident response to reduce congestion. At the same time, the responsibility of handling the call box calls was transferred from CHP to a private call center and motorists were using their cell phones to call 911 and call boxes to request roadside assistance. However, as other programs that can more effectively and efficiently clear incidents become available and private companies offering roadside assistance as part of the auto insurance package, the call boxes have reverted back to being a lifeline for motorists without working cell phones and traveling outside of commute hours.

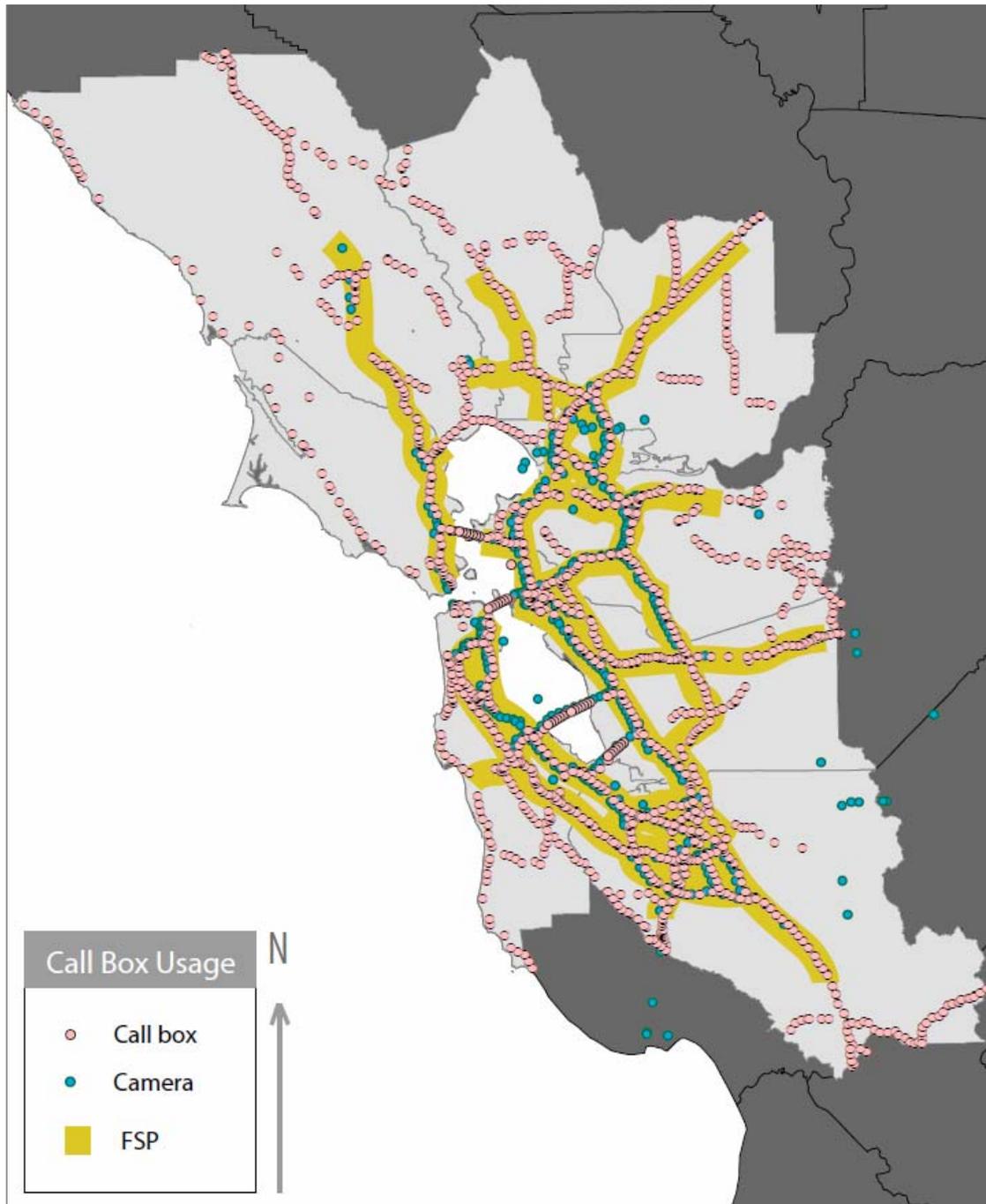
Currently, motorists expect call boxes to be available should all other resources be exhausted and this evaluation recognizes the importance of minimizing changes to motorists’ expectation. At the same time, other motorists with cell phones are reporting incidents on the freeway that do not necessarily involve them so altogether, there is a greater sense of freeway surveillance that has taken over the role of call boxes. However, there is a general consensus from partner agencies and the MTC Committees that call boxes provide a valuable service to motorists when there are no other services available especially in areas with limited freeway surveillance or unreliable cellular signal.

Previous modifications to the call box system have not adversely affected motorists as only ineffective call boxes were removed and those that served unsafe locations remained intact. Future reductions to the call box system will follow similar tactics and align with motorists’ behavior.

SECTION V - Other Opportunities

In addition to call boxes, MTC SAFE operates two other programs that provide roadside assistance to motorists: the Freeway Service Patrol (FSP) and 511 Freeway Aid which both receive funding from the call box revenue. Both programs supplement the deficiencies that the call boxes have by finding motorists to assist as in FSP and allowing motorists to use their cell phones to request roadside assistance with 511 Freeway Aid. Map 3 details all the motorist aid services that MTC SAFE currently supports.

Map 3. Bay Area Motorist Aid Services



Freeway Service Patrol

The Freeway Service Patrol (FSP) is a roving tow truck program that locates and assists motorists with automobile problems. During commute hours, FSP can help motorist traveling on all major freeways in the Bay Area change a tire, offer a tow off the freeway or provide gas. Operating times of FSP vary but most beats operate between 6AM-9AM and 3PM-7PM on weekdays. There are also some beats that operate all day in the most congested freeways and those that operate on the weekends. Most incident responses are self-dispatched, discovered by the FSP tow truck drivers while patrolling. The FSP program receives approximately \$2 to \$3 million in matching funds annually from the call box program and MTC SAFE reserves; the program cost \$11 million per year to operate with most of its cost covered by state funds. To reduce expenditure and its dependency on the SAFE revenue, FSP has made recent efficiency cuts and continues to evaluate the program for other potential cost savings.

Table 10 details the program’s statistics over the last five years. The program averages 130,000 assists per year with a typical response rate of nine minutes to help motorists with mechanical issues in addition to removing road hazards and assisting CHP in traffic accidents. The response times and approval ratings are taken from motorists surveys who were provided the service.

Table 10. Five Year FSP Statistics

	Assists	Response Time	Approval Rating	Fund Transfer
2006	140,255	9.3 minutes	95.0%	\$3.4M
2007	127,933	9.5 minutes	96.0%	\$2.1M
2008	140,313	9.4 minutes	95.5%	\$2.8M
2009	122,233	8.9 minutes	97.2%	\$3.0M
2010	132,025	9.0 minutes	97.0%	\$2.8M

511 Freeway Aid

511 Freeway Aid was introduced in late 2008 as an additional avenue for motorists to request non-emergency roadside assistance in an effort to reduce the call load on 911. It provides motorists with a direct line to the call box call answering center (CAC) that handles call box calls through the already familiar 511 phone system. With their personal cell phones, motorists can dial 5-1-1 and say “Freeway Aid” to get connected. The service area of 511 Freeway is extended to where call boxes are installed, essentially everywhere except city streets. Calls into 511 Freeway Aid are often longer because operators must determine the location of the caller unlike call box calls where the location is immediately identifiable. 511 Freeway Aid aligns with the current trend of cell phone penetration and allows motorists to stay in the safety of their vehicles while requesting assistance. The program stresses that 511 Freeway Aid is a non-emergency service in which callers with emergencies are directed to call 911.

MTC SAFE recognizes that public awareness of this program is limited as marketing campaigns have been minimal. Because of this, the majority of the calls received through this program are not requesting roadside assistance as detailed in Table 11.

Table 11. 511 Freeway Aid Statistics

	Total Calls	Percentage of Inappropriate Calls	Call Handling Cost*
2008	16,700	74%	\$14,800
2009	33,081	73%	\$29,200
2010	24,600	72%	\$24,600

* Call handling cost is based on a per minute rate

Future Opportunities

The future of driving has evolved tremendously to include enhancements in freeway surveillance, incident detection technology, and roadway safety improvements through investments in the Freeway Performance Initiative (FPI). As the future of driving and motorists safety moves toward a more interconnected driving experience, the discussion on the role of call boxes in the freeway landscape will continue.

Other SAFEs

A reduction in call box calls has been the statewide trend in recent years. Some SAFEs have converted their call boxes to a “smart call box” where the call box unit is used to collect traffic data. The SAFE in Los Angeles has utilized their removed call box sites to install larger signs advertising their 511 program on the existing call box poles. MTC SAFE hopes to implement this same plan as further described in Section V. The largest statewide reductions are listed in Table 12.

Table 12. Statewide Call Box Systems

SAFEs	Peak	Today	Change
Los Angeles	4,500	2,000	-56%
San Diego	1,750	1,400	-21%
Orange County	1,500	620	-59%
Riverside	1,124	614	-45%
Bay Area	3,300	2,200	-33%

SECTION V – Recommended Plan & Alternatives

The most revealing conclusions from the call box data analysis, cell phone survey, and discussions with the partner agencies include:

- 1) Cell phone penetration in the Bay Area is near saturation and roadside assistance subscription is very high over all socioeconomic levels
- 2) Urban call boxes are becoming redundant because of other motorist aid programs available and heightened freeway surveillance in the same areas
- 3) Other programs that have the ability to substitute an absence of call boxes are not well known to the motoring public
- 4) Call boxes in rural locations are still a necessary service because of the lack of reliable cell signal and other motorist aid services
- 5) Call boxes are still being utilized for legitimate services regardless of whether the callers own a cell phone.
- 6) Total number of emergency calls and roadside assistance requests through call boxes make up less than 50% of all calls. Other calls are maintenance checks, false calls, and inappropriate use.

Three overarching factors were taken into consideration when developing the appropriate action plan:

- Maintain lifeline service in areas with unreliable cell service and limited surveillance and access
- Invest in other programs that provide greater benefits to motorists
- Minimize changes to motorists' expectations of the call box system

Through the analysis and cell phone survey, the urban call boxes has been identified as a potential for removal and cost savings while continuing to maintain the current system in rural areas, bridges and tunnels is of value to the program. As previously mentioned, call boxes in urban areas are becoming less cost effective as other services which are more in line with the current motoring trends are available. At the same time, call boxes in rural areas, bridges, and tunnels are still essential because of their currently limited access to services and unreliable cell phone signal. With this thought in mind, a phased approach detailed in Table 13 is recommended to modernize the call box program. This phased approach allows for reductions to be made at intervals that are appropriate with the current driving and telecommunication trends. This short term phased recommendation clearly lays out the future strategies so concrete and sounds decisions can be made which enables better financial projections for budgeting purposes.

Procedure

Reducing the urban call boxes by 50% per strategy #1 will take approximately 500 call boxes out of commission from urban corridors, essentially removing every other call box. The thought behind the removal of every other call box is that this is the most logical to apply across the system as this method maintains a consistent spacing. However, the removal of these urban call boxes will not be completely systematic as additional assessments will be done to ensure call boxes that provide a clear benefit to motorists will remain intact. Access to nearby services, frequency of freeway exits, and topography of the freeway will be assessed to determine which call boxes should not be removed. Candidates for removal will be vetted by the partner agencies as they have a better grasp on which locations absolutely need call boxes. In addition, some areas that are considered rural now may grow and develop greater freeway surveillance and more

reliable cell phone service in the near future. In such cases, spot removals may be conducted as appropriate.

Once, the list of call boxes to be removed has been narrowed down, only the call box and solar panel will be removed and MTC SAFE has the potential to sell the used call box material to various buyers. Because of the already familiar call box sites, the pole and foundation of the removed call boxes will remain intact in areas with the highest traffic volumes for 511 Freeway Aid signs that will be installed at all these sites as part of strategy #2. These signs serve to remind motorists of other available resources for roadside assistance. The exact message on the sign has yet to be determined and require additional approval from Caltrans and the Manual on Uniform Traffic Control Devices (MUTCD) sign committee. Another strategy is to utilize the changeable message signs on urban freeways to display messages about 511 Freeway Aid. This will also require Caltrans approval.

Strategy #3 will be implemented if applicable at the current time. Urban call boxes may be removed by corridor when staff is comfortable with the public awareness of its other motorist aid programs and telecommunication trends are moving towards less dependency on call boxes in potential removal areas. Other factors for consideration include future enhancements in incident detection along urban corridors and potential increases in freeway surveillance.

Finally, strategy #4 entails reevaluating call box system as a whole and assessing the results of the previously completed strategies to ensure the call box program is moving in the appropriate direction. Such evaluation may recommend additional removals or suggest a status quo approach depending on the driving trend at the time.

Implementing all of the phased recommendation does not require a change in the SAFE legislation. Although, should the latter strategies be implemented, an amendment may be required to shift the call box program to an all-encompassing motorist aid program of which includes the 511 Freeway Aid, Freeway Service Patrol and call box programs. Additional revenue for the call box program will not be sought in the near future as previous attempts have unsuccessful. In addition, with the proposed call box reduction and the continued streamlining of the Freeway Service Patrol program, the goal of balancing revenue and expense may be achieved.

Cost Implications

Initial savings in operational expenditures will be offset by the cost to remove call boxes and install 511 Freeway Aid signs in implementing the first and second strategies. At the same time, the per call box maintenance rate will be renegotiated because the contractor will have less work but the same fixed costs. Also, the call answering center cost will increase due to the influx of 511 Freeway Aid calls which take longer to handle. However, after completing the removals and the sign implementation, the program is projected to reduce its operational expenditures by \$190,000 each year thereafter.

Motorists' Expectation

The reduction of urban call boxes will increase the spacing from the current 1 mile spacing to 2 miles. Because the phased recommendation is a gradual reduction over several years, the changes to motorists' expectation will be minimal. In addition, the recommendation does not

initially remove call boxes from an area completely so that if motorists need a call box, they will still be able to find one.

Table 13. Phased Downscale

Strategies		Year	Advantages	Cost Implications
1	50% Urban Reduction & Rural Spot Removal: Remove approximately every other urban call box depending on topography, cell reception, access to services. Spot removals in rural areas, Maintain call boxes that provide an obvious benefit to motorists (Remove ~ 600 call boxes)	2012	<ul style="list-style-type: none"> - Enables better projections of cost savings for budgeting purposes - Minimizes administrative hurdles with partners - Clearly defines strategic plan for the program to help make concrete decisions - Initiates stabilization of expenditure to continue providing match for other programs - Provides the largest cost savings compared to alternatives 	Cost to Implement Removal of 550 call boxes: \$175,000 Installation of signs: \$200,000 Corridor removal: \$20,000
2	511 Freeway Aid Marketing: Increase awareness by installing 511 Freeway Aid signs and implementing other marketing strategies	2013		
3	Urban Corridor Removal: Reassess urban call boxes for reductions by major freeway if warranted by increased freeway surveillance and enhancements in incident detection (Remove ~ 150 call boxes)	2015		
4	Call Box System Reassessment: Conduct evaluation on call box system to ensure program is moving in the appropriate direction	2016		10-Year Cost Savings \$1,900,000

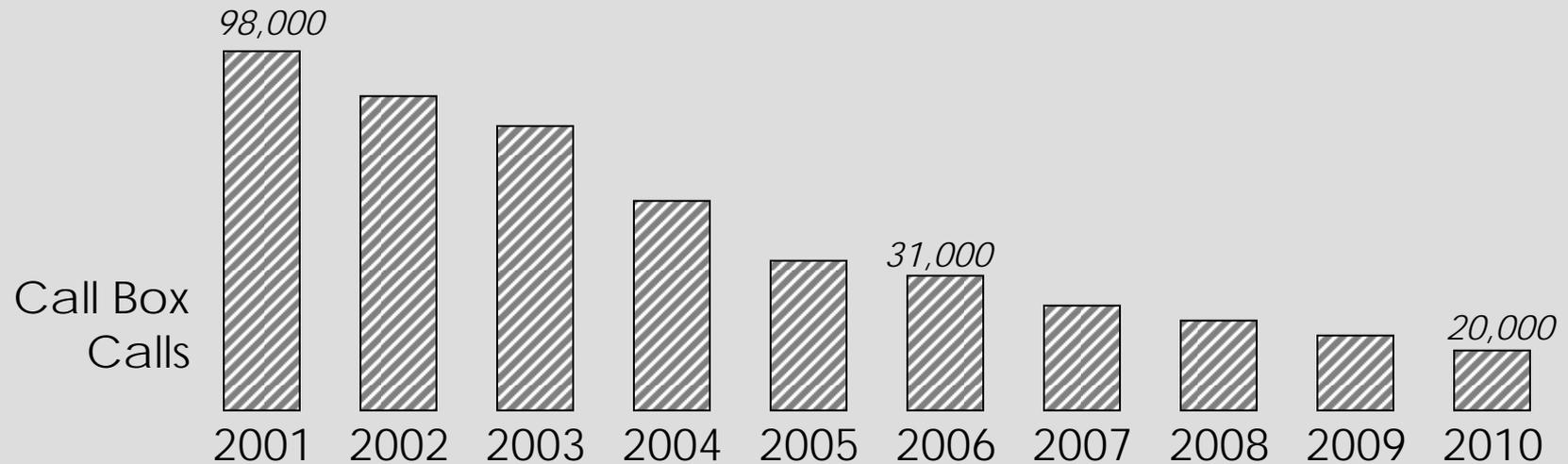


Call Box Program Evaluation



Stefanie Pow – Highway & Arterial Operations
Operations Committee – December 9, 2011

Reasons for Evaluation



- Significant decline in call box usage
- Emergence of other motorists aid services
- Shift in how motorists summon help on freeways

Evaluation Components



- Analyzed call box call data provided by call center and phone service provider
- Conducted a survey on Bay Area motorists to gauge cell phone ownership and driving behavior
- Held discussions with CHP, Caltrans, and the Policy Advisory Committee

Call Data Analysis



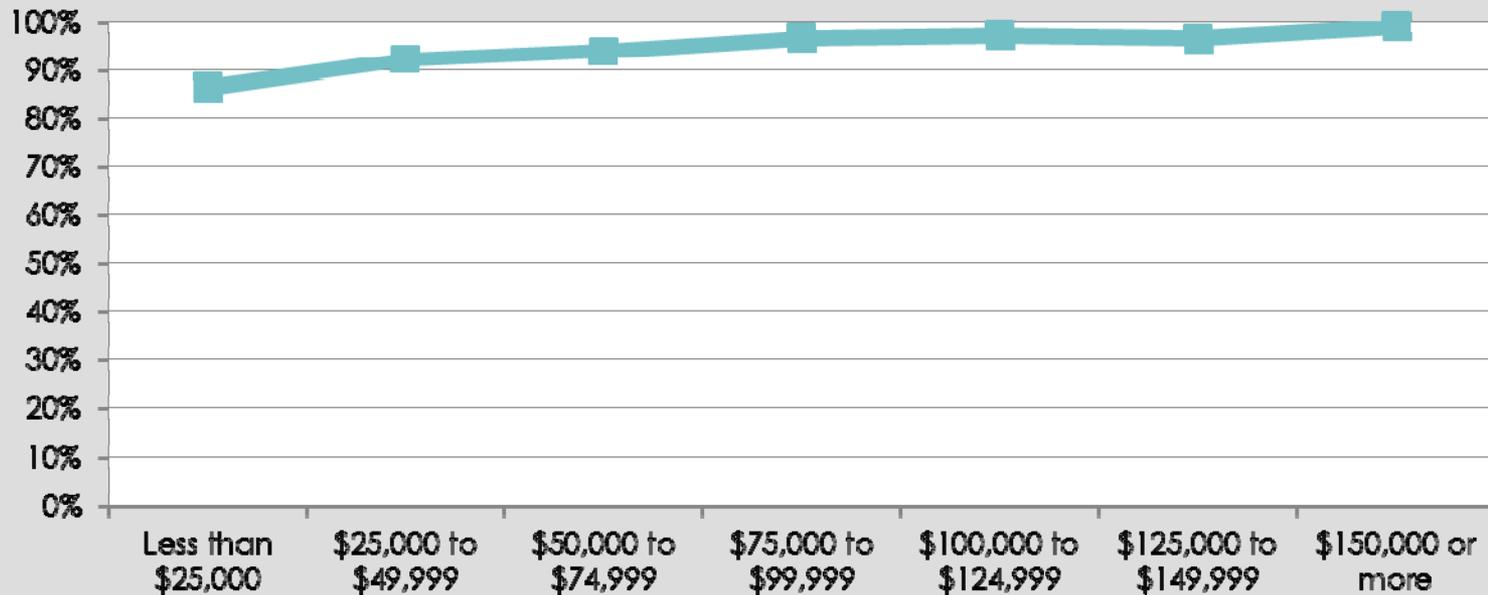
Call Box Call Types	Percentage of Total Calls	Decline from 2006
Roadside Assistance	41%	-43%
Emergency	5%	-69%
Test, False Calls	54%	
Decline of all calls since 2006		-38%

Urban v. Rural Calls	Urban	Rural
Call Rate	9.8	7.3
Decline	-33%	-28%

Call Times	6AM-10AM, 3PM-8PM	10AM-3PM	8PM-6AM
	41%	37%	22%

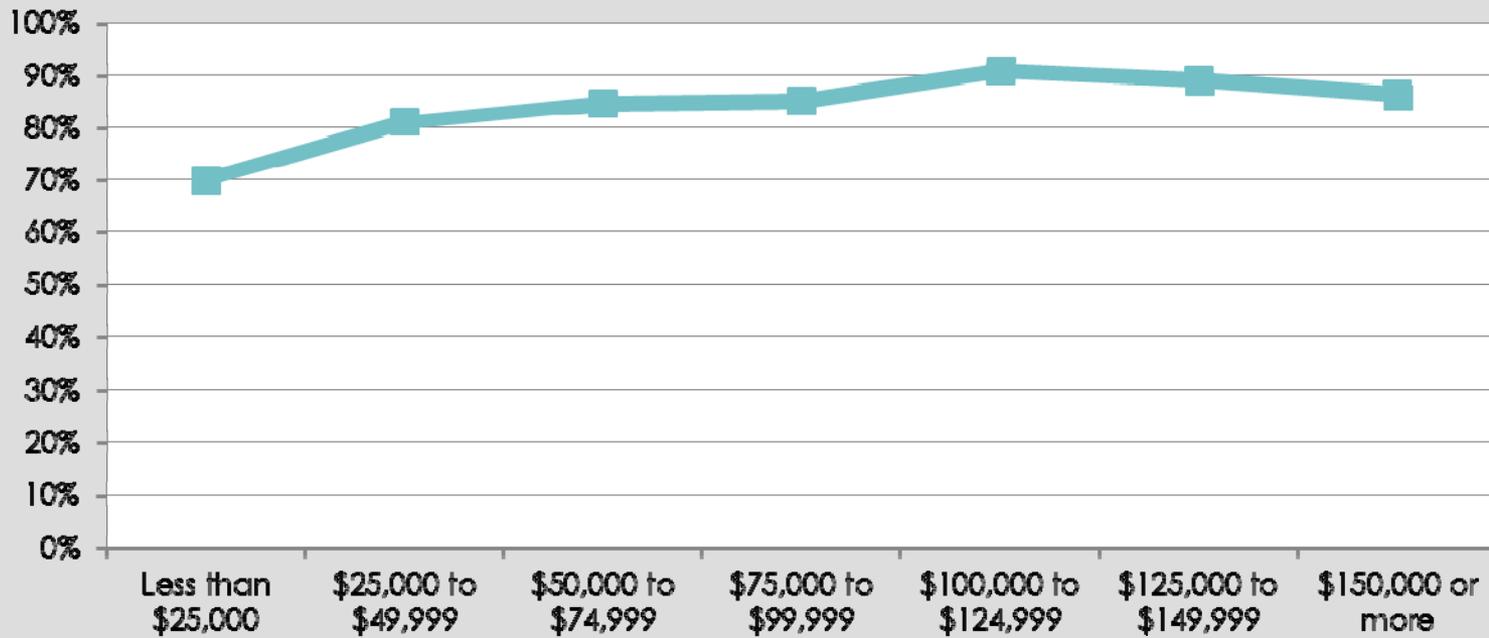
All call data in the above table is taken from calendar year 2010

Cell Phone Ownership



- 94% ownership rate
- No cell phone drivers drive less frequently
- 88% of disabled drivers own cell phones

Other Motorist Aid Services



- 89% roadside assistance subscription
- Less than 40% are aware of FSP and 511 Freeway Aid

Overall Conclusions

- Call boxes are still being used for roadside assistance but at a significantly lower rate
- Cell phone ownership and roadside assistance subscription are high
- Awareness of other motorist aid programs is low
- Motorists are becoming less dependent on call boxes

Recommendation

- Maintain a lifeline system in areas with unreliable cell service and limited surveillance and access
- Invest in other programs that provide greater benefits to motorists
- Minimize changes to motorists' expectations

Phased Downscale

Strategies		Call Boxes Removed	Post Removal System*	Start Year
1	50% Urban Reduction & Rural Spot Removal	600	1,800	2012
2	511 Freeway Aid Marketing	-	1,800	2013
3	Urban Corridor Removal	150	1,650	2015
4	Call Box System Reassessment	-	1,650	2016
10-Year Cost Savings				\$1,900,000

Next Steps

- Discussion with Caltrans and CHP to amend implementation plan and public awareness strategy for 511 Freeway Aid

Questions?

Supplemental Slides

Urban v. Rural

Urban

- Frequent exits
- Nearby services
- Higher traffic volume
- I-880, I-80, US-101, SR 24, etc.

Rural

- Limited services
- Unreliable cell signal
- Lower traffic volume
- Isolate locations
- County roads, highway 35, 152, 12, I-505, etc.

Cost Savings Analysis



Strategies	Boxes Removed	Post Removal System	Operating Cost	Reduction Expense	Savings
50% Urban Reduction & Rural Spot Removal	624 (26%)	1,776	\$850,000	\$120,000	\$130,000
Urban Corridor Removal	150 (8%)	1,626	\$770,000	\$22,000	\$202,000
				\$142,000	\$332,000
Per Year Savings					\$190,000

Assumptions:

- Per call box maintenance rate will increase because contractor has less work but same fixed costs
- Call handling cost will increase due to the length of 511 Freeway Aid calls
- Cost savings in operational expense is only with telecommunication and maintenance