Drive Smart Bay Area

Evaluation Report

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Submitted to:
Metropolitan Transportation Commission

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I. Executive Summary

1. Background

"Smart driving" refers to a set of strategies and techniques that maximize motor vehicle fuel efficiency by improving driving habits and vehicle maintenance. A variety of research studies suggest that drivers can use smart driving principles to reduce their fuel consumption and associated greenhouse gas (GHG) emissions by up to18%. More recent and rigorous studies have demonstrated average fuel economy savings of between 2% and 4%.

Smart driving techniques include:

- Using smooth starts to minimize rapid acceleration
- Driving at constant speed when possible
- Anticipating traffic flows and coasting when possible
- Observing speed limits and minimizing speeds over 65 mph
- Minimizing unnecessary idling
- Closing windows and sunroofs when driving over 40 miles per hour
- Minimizing use of air conditioning and opening windows instead, if driving under 40 mph
- Using cruise control when driving on the highway
- Using trip chaining to reduce miles traveled and vehicle trips

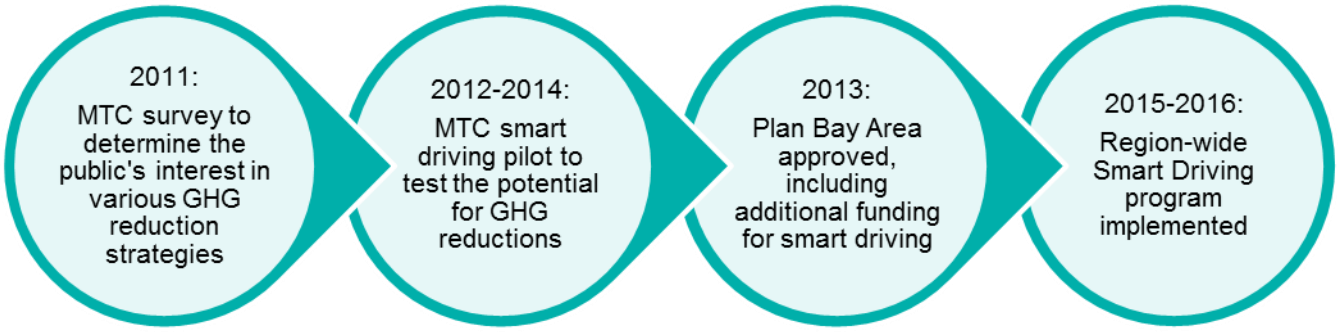
Smart driving also encompasses vehicle maintenance techniques such as:

- Maintaining proper tire pressure
- Eliminating unnecessary weight in the vehicle
- Removing roof-racks to improve vehicle aerodynamics
- Conducting regularly scheduled vehicle maintenance

As part of efforts to meet per capita GHG emissions reduction targets set by the State of California, the Metropolitan Transportation Commission (MTC) plans to promote smart driving over the next 25 years. This effort will include implementing a smart driving education campaign for the region's drivers. The effort may include the use of in-vehicle devices, which can be more effective at altering driver behavior than general tips or delayed online feedback because they provide real time feedback (visually or through auditory cues) to discourage inefficient driving habits.

Since smart driving programs have never been tested on the regional scale before, MTC used a phased approach to implement their smart driving program, named *Drive Smart Bay Area*, as shown in Exhibit 1. They paired this phased approach with a strong evaluation component to inform modifications and alterations of the program over time. This evaluation report is one segment of that ongoing evaluation process.

Exhibit 1. Key Phases of MTC Smart Driving Program



2. Program Development and Implementation

To implement the region-wide program, MTC took the following steps:

- **Selected the smart-driving in-vehicle device** by reviewing 18 after-market devices, apps and services that communicate information on driving behavior, and evaluating them on cost, compatibility, and functionality criteria. This evaluation led to the selection of the Automatic in-vehicle device, which was sold through the program at a 50% discount for $50.
- **Developed a marketing strategy** by first identifying campaign goals, opportunities, challenges, the target market, and potential audiences, and then developing a program identity, messaging, strategies, and tactics that would effectively reach the identified audiences and achieve the identified goals.
- **Developed a program website and video** to serve as a central clearinghouse for the program, providing an overview of the program, smart driving tips, access to program materials, links to related resources, and information on purchasing the Automatic device. All promotional content and calls to action were directed to the website.
- **Established two device purchasing options** including online fulfillment through a program-specific page on Automatic's website and in-store fulfillment through 23 Bay Area Best Buy stores.
- **Implemented a marketing strategy** focusing on awareness, education, and product adoption. Marketing efforts included earned media, online and offline paid media, social media, email, and in-person events including both in-store retail promotion and outreach at large-scale public events.

3. Evaluation

The program met with mixed success. While the marketing strategy reached a broad audience and encouraged over 20,000 visitors to visit the Drive Smart Bay Area website, a more limited number actually purchased an Automatic device. Below are some key metrics from the campaign:

- **More than 10 million impressions** through online and offline media.
- **22,246 unique page views** for the Drive Smart Bay Area website over the course of the campaign.
- **1,169 video views** for the Drive Smart Bay Area animated video.
- **Approximately 1 in 10 site visitors** viewed the animated video when it was required for purchase.
- **125 document downloads** of device-related and educational PDFs.
- **332 page views** for the Automatic Program webpage.
- **150 devices sold** at a discounted rate as part of the program. An additional 102 devices were sold at full price in Bay Area Best Buy stores during the campaign.
- **73 tons of GHG emissions avoided** over the 7 month campaign (estimated to be 124 tons if the program had run for one year) with almost all of the emissions reductions stemming from the educational component of the campaign.

4. Recommendations

The program team encountered multiple barriers and challenges during program development and implementation and have identified a number of recommendations and lessons learned to address them. A few key recommendations are listed below:

- **Set realistic expectations for the program's success** by understanding the historical conversion rate from webpage views to device purchases for the product you are promoting. It may take many more media impressions than you think to sell your target number of devices.
- **Balance educating the public about smart driving and promoting in-vehicle devices** by determining the desired budget split between the activities. While it would be ideal to do both at once, it is not practical with small search ads or short radio reads.
- **Incorporate more direct marketing by fulfillment partners** by reaching out directly to their customer base, ensuring there is consistent messaging about product price across all partner advertising, and minimizing the steps required for the customer to access the promotional pricing.
- **Test consumer price sensitivity** to determine the ideal price to maximize distribution and use of the in-vehicle device.
- **Consider creative marketing and outreach ideas** such as establishing a "Bay Area Drive Smart Week," working with new media partners who have a strong online and local presence, creating themed infographics, and engaging local influencers to disseminate messaging.

II. Background

This section provides background on the Drive Smart Bay Area program and a brief overview of smart driving.

1. Program Background

The California Sustainable Communities and Climate Protection Act of 2008 (SB 375) required that the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) develop a long range transportation and land use plan that would reduce regional greenhouse gas (GHG) emissions. Pursuant to SB 375, in 2011, the California Air Resources Board (CARB) assigned the Bay Area a per capita GHG emissions reduction target of 7 percent by 2020 and 15 percent by 2035, from a 2005 baseline.

In terms of its development, the Bay Area is a relatively mature region, with a well-established transportation system

Because of the limited ability to affect land use, to meet the targets from CARB, MTC invests in technology advancements for low-emission travel options to help meet the emissions reduction targets. As a result, the Plan Bay Area 2040 Climate Initiatives Program invests $526 million in strategies including transportation demand management programs, alternative fuel/vehicle strategies, car sharing and smart driving.

What is Smart Driving?

"Smart driving" refers to a set of strategies and techniques that maximize motor vehicle fuel efficiency by improving driving habits and vehicle maintenance. Smart driving techniques include:

- Using smooth starts to minimize rapid acceleration
- Driving at constant speed when possible
- Anticipating traffic flows and coasting when possible
- Observing speed limits and minimizing speeds over 65 mph
- Minimizing unnecessary idling
- Closing windows and sunroofs when driving over 40 miles per hour
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Smart driving also encompasses vehicle maintenance techniques such as:

- Maintaining proper tire pressure
- Eliminating unnecessary weight in the vehicle
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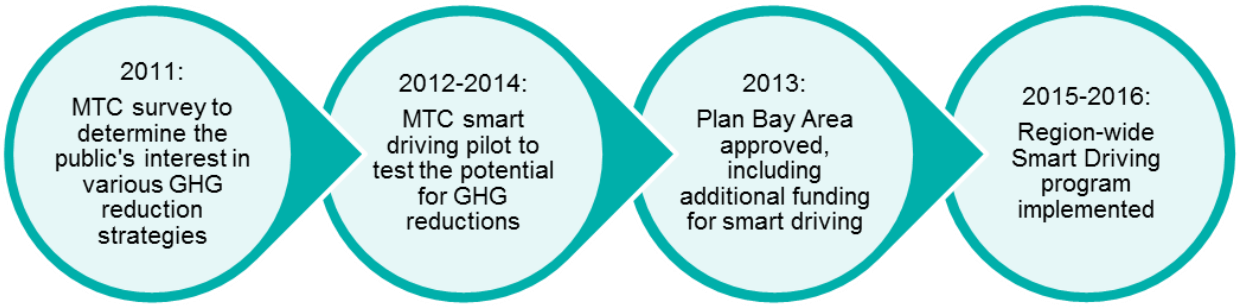
Since smart driving programs have never been tested on the regional scale before, MTC used a phased approach to implement their smart driving program, paired with a strong evaluation component to inform modifications and alterations of the program over time. This evaluation report is one segment of that ongoing evaluation process.

Exhibit 2. Key Phases of MTC Smart Driving Program



Past examples of MTC's smart driving evaluation are described below:

- In 2011, MTC conducted a baseline survey on climate change attitudes and behaviors. In that survey, 56% of participants stated that it would be Very Easy or Easy to "Adjust [their] driving habits to reduce [their] use of gas, including staying under 65 miles per hour, and being smooth in how you speed up and slow down". In the same survey, 48% of respondents said it would be Very Easy or Easy to "Remove unneeded items from [their] vehicle to improve [their] gas mileage, such as roof racks, golf clubs, etc." This demonstrated the openness of the regions drivers to trying smart driving techniques.
- In 2014, MTC conducted an evaluation of its smart driving pilot program. The pilot program tested in-vehicle, real-time fuel efficiency feedback devices, as well as a smart driving app. A very small sample size of the in-vehicle device portion of the pilot made it difficult to determine statistically significant findings. The results from the app pilot were more promising. For drivers using the app with the journey fuel economy shown in the center of the phone screen, a 15.5% reduction in fuel consumption was observed. Overall, the results of the pilot were determined to be promising but inconclusive.

In 2015, MTC decided to proceed with a region-wide smart driving program. That program is the basis of this evaluation report. The program consisted of two core components:

1. Develop a regional smart driving public education campaign.
2. Provide rebates for in-vehicle, real-time fuel efficiency gauges.

More information about the specifics of these components is included in the Program Development and Implementation section.

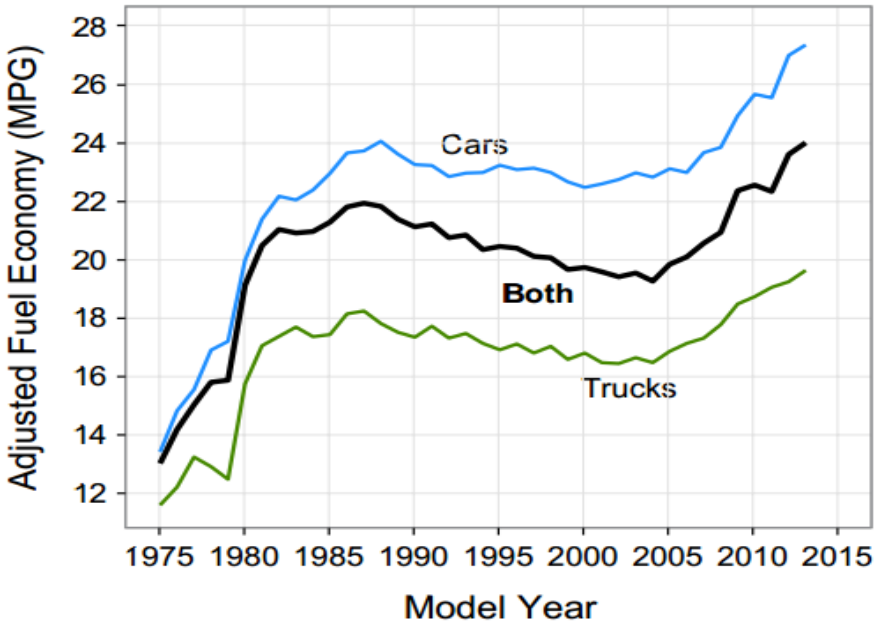
2. Smart Driving Basics

2.1 How Does Smart Driving Work?

Vehicles have become increasingly efficient over the last 100 years. These improvements have been spurred by technological breakthroughs in response to air pollution, high gas prices and/or fuel rationing, increases in government fuel efficiency standards, and the environmental movement's demand for reducing the use of limited resources. In particular, there were large fuel efficiency gains in the late 1970s and early 1980s following the oil crisis, and there have

been steady improvements over the last decade that began around 2005 and continue to this day. See Exhibit 3 for a graph of fuel economy improvements over time.

Exhibit 3. Average U.S. Fuel Economy for MY 1975-2013 [1]



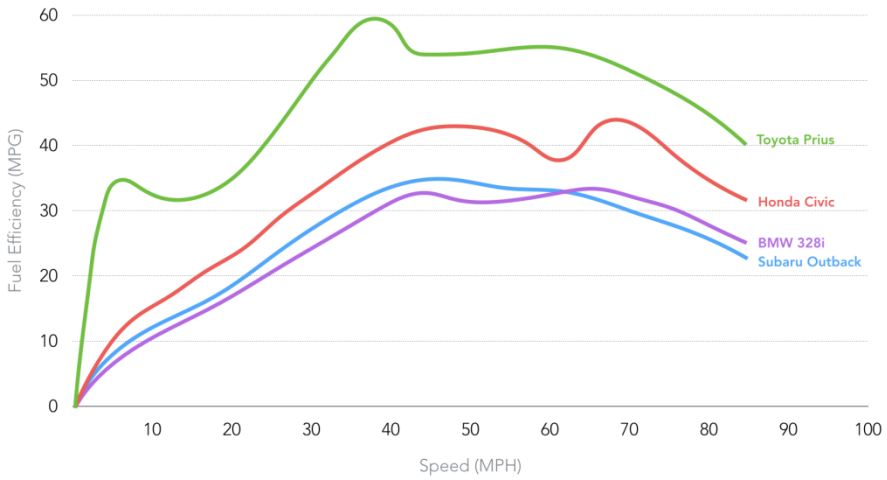
Improvements in fuel economy have been accomplished through tactics such as decreasing the weight of vehicles, shifting from rear-wheel drive to front-wheel drive vehicles, increasing transmission efficiency, increasing the number of gears, incorporating computers in fuel injection and engine control, and decreasing aerodynamic drag. More recently, the introduction of hybrids and electric vehicles have significantly improved the fuel efficiency of those vehicles.

However, technology is only part of the story in vehicle fuel economy—the other critical piece is driver performance.

The EPA's fuel efficiency ratings for vehicles are commonly taken as absolute numbers when, in reality, "actual results may vary." The ratings are developed through a series of lab-based tests which may not reflect real world driving conditions or, more importantly, driving styles. While overall fuel economy has increased tremendously, fuel efficiency varies over a range of speeds and rates of acceleration. Exhibit 4 illustrates that all vehicles (hybrids, sports cars, and utility vehicles) have lower fuel efficiency at lower speeds and reach their most efficient speed around 40 to 60 miles per hour, with substantial decreases in fuel efficiency at higher speeds. If armed with this information, drivers could consciously try to not exceed their vehicles peak operating speed and thus increase their overall fuel economy.

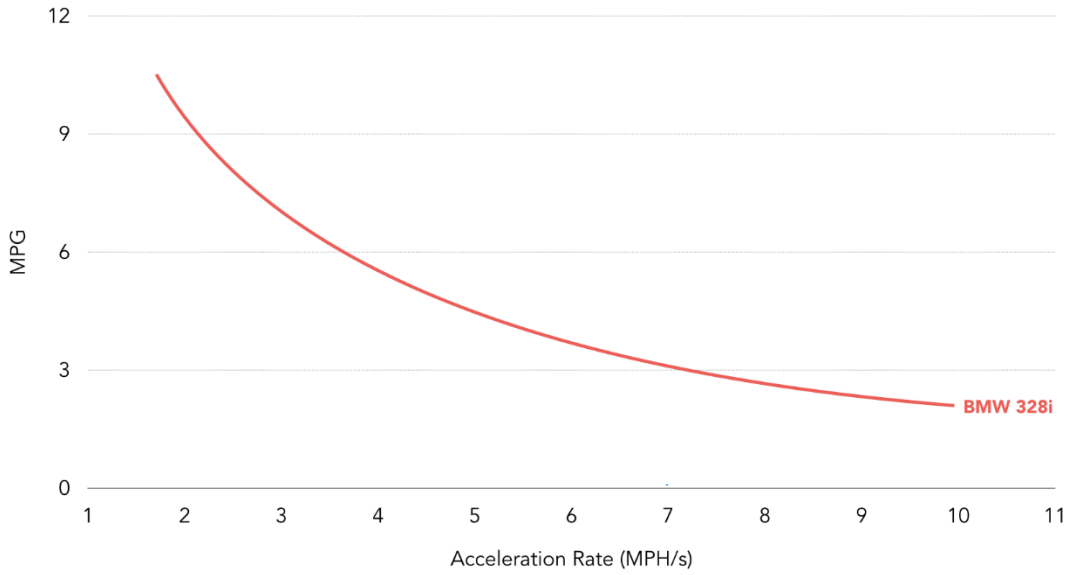
[1] EPA, "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 – 2013", http://www.epa.gov/otaq/fetrends-complete.htm

Exhibit 4. Varied Fuel Efficiency with Speed [2]



Similar facts exist when assessing acceleration. Rapid acceleration results in significantly lower fuel efficiency (see Exhibit 5). If drivers adopt slow and gentle acceleration and deceleration habits, their overall fuel efficiency can be improved.

Exhibit 5. Fuel Efficiency Decrease with Vehicle Acceleration[3]



[2] Automatic, “The Cost of Speeding: Save a Little Time, Spend a Lot of Money”, http://blog.automatic.com/cost-speeding-save-little-time-spend-lot-money/
[3] Automatic, “The Hidden Cost of Aggressive Driving”, http://blog.automatic.com/aggressive-driving/

2.2 Smart Driving Effectiveness

In 2014, ICF prepared a *Smart Driving White Paper* for MTC, including a review of academic literature, to identify the potential for fuel savings and GHG emissions reductions with smart driving. The review concluded that drivers can reduce their fuel consumption and associated GHG emissions through smart driving principles by up to 18% with more recent and rigorous studies demonstrating average fuel economy savings of 2% to 4%.

In 2015, the National Center for Sustainable Transportation released a white paper, *"Actual Results May Vary": A Behavioral Review of Eco-Driving for Policy Makers.*[4] The researchers reviewed 40 smart driving studies and found that, on average, fuel efficiency was increased by 9%. However, the studies reviewed in this paper included a range of study structures, and simply averaging the results may not provide the most useful or accurate prediction of the potential for smart driving to reduce emissions.

[4] Kurani, K., A. Sanguinetti, and H. Park. *"Actual Results May Vary": A Behavioral Review of Eco-Driving for Policy Makers.* A White paper from the National Center for Sustainable Transportation. July 2015. Accessible at: http://ncst.ucdavis.edu/wp-content/uploads/2014/08/07-29-2015-NCSTEco-drivingWhite-Paper_FINAL.pdf

III. Program Development and Implementation

This section provides a summary of the Drive Smart Bay Area campaign development and implementation process, including:

- Selection of smart driving in-vehicle device
- Development of the Drive Smart Bay Area marketing strategy
- Development of the program website and video
- Establishing device purchasing options
- Marketing strategy implementation

Although the timeline to the right presents the program as a sequential process, there were constant adjustments, revisions, and the addition of new tactics throughout the campaign process.

1. Selection of Smart Driving In-vehicle Device

A key element of Drive Smart Bay Area was to distribute discounted devices that plug into vehicles to help drivers become more fuel efficient, "smart" drivers. In-vehicle devices, as opposed to general tips or delayed online feedback, are more effective at altering driver behavior because they can provide real time feedback (visually or through auditory cues) to discourage inefficient driving habits.

There are several new in-vehicle devices that take advantage of the wealth of data available in modern automobiles. Opportunities to monitor driver behavior and vehicle efficiency continue to grow as more devices are added to the market. The most effective in-vehicle smart driving devices plug into the vehicle's Onboard Diagnostic (OBD) port to directly access the data and computer-controlled systems in the vehicle. This information is then transmitted to the driver using a WiFi or Bluetooth connection to the driver's smartphone (see Exhibit 6 for examples of such devices). The smartphone processes the data into metrics relevant to fuel efficiency and displays the

vehicle data through apps loaded onto the phone—often, these metrics include the driver's real-time fuel economy.

Exhibit 6. OBD Port Devices (clockwise from top left): Kiwi 2 Bluetooth; Craven OBDII Connector; BAFX Bluetooth OBDII Scan Tool; Automatic Link

1.1 Device Selection

To determine the most appropriate device for roll-out as part of Drive Smart Bay Area, ICF conducted an internet review of 18 after-market devices, apps, and services that communicate information on driving behavior.

There are a number of technology factors that must be considered when selecting a device and a display interface. Some OBD port device manufacturers also develop apps specifically to interface with their equipment, while others only provide the port device and rely on third parties to develop apps that can interface with their wireless devices. Another consideration is that not all equipment and apps can correctly read or interpret data from all vehicle types; most device and app producers provide lists to look up compatibility with specific makes and models. Generally, these devices do not work with electric vehicles, and some do not work with hybrid, diesel, or natural gas vehicles; however, many of these advanced technology vehicles already have built-in displays which can be used to show real-time fuel economy.

In assessing the devices, ICF considered the features that would best fit the structure of the program and lead to more fuel-efficient driving behaviors. To determine the feasibility of apps and devices for this program, we assessed each option along the following criteria:

- **Cost** – The total cost of using the devise, including upfront device and app costs, as well as regular service fees.

- **Operating System** – Compatibility of the device and app with both iOS (iPhone) and Android operating systems. Because of the limited number of apps developed for Windows phones, the Windows operating system was not considered.
- **Fuel-efficient Driving Feedback** – Ability to provide real-time feedback focused on improving fuel economy is preferred.

Exhibit 33 in the Appendix lists the information collected from this review of devices. Exhibit 7 summarizes each product across the core criteria.

Exhibit 7. Summary of Selection Criteria for Each Device, App, or Service

Device/Service	Product	Cost*	Compatible with Android and iOS?	Driving Feedback?	Real-Time Feedback?	Fuel Efficiency Focus?
Automatic	Both	$100	✓	✓	✓	✓
Dash	App only	$0 + device	✓	✓	✓	✓
Battelle VITAL	Both	unlisted	✓	✓	✓	✓
Efficiency, Free	App only	$0 + device		✓	✓	✓
DashCommand	App only	$0 (Android) $10 (iOS) + device	✓	✓	✓	
OBDLink MX WiFi/LX Bluetooth Scan Tool	Both	$120/$70	✓	✓	✓	
Torque Lite	App only	$0 + device		✓	✓	
Audiovox Safe Driver Car Connection	Both	$50 + $100/yr	✓	✓		
Zubie	Both	$100/yr	✓	✓		
OBD Car Doctor Pro	App only	$3 (Android) $4 (iOS) + device	✓	✓		
Mojio	Both	$150 + $5/mo after 1st year		✓		
Delphi - Verizon	Both	$249 (2 yrs service)	✓			
Harry's Lap Timer	App only	$20 + device				
obdCANex	App only	$5 + device				
ScanMaster	App only	$0 + device				

** Costs as of May 2015*

Based on the review, ICF recommended the following devices for the program:

- Dash paired with a generic on-board diagnostic (OBD) port device
- Automatic

Both Dash and Automatic had been present in the market for a couple of years and provided customer support and continual software updates. Although the Battelle device met the minimum qualifications, it was not recommended because it did not publish costs and seemed to be geared toward fleet applications rather than individual consumers.

Dash received positive reviews for its user interface and comprehensive driver feedback. However, Dash did require the separate purchase of a third party OBD device (note that this is no longer the case). At the time of the review, Dash was only a phone app that could receive and interpret information from the OBD reader. Although most OBD reader devices are compatible with Dash, the developers provided links to select devices and specifically recommended the OBDLink devices. Depending on the choice of devices, the cost of this option may be lower than Automatic. However, devices would need to be tested with the app before making the final selection.

Automatic was one of the most well-established and widely reviewed products and was one of the first apps to take advantage of vehicle data to provide user-friendly feedback (Exhibit 8). The app received positive review for its easy setup and simple user interface. In addition to providing driver feedback through a well-developed app and online dashboard, the plug-in device provides audio signals to warn the driver when he or she is accelerating or braking hard or driving above a certain speed. Thus, this device does not require the driver to use a smartphone for the fuel-efficient real-time feedback. And while not the focus of the program, Automatic provides other features that could broaden its appeal to participants, including emergency response in case of an accident, among other benefits. Additionally, because the company provides both a device and a native app, it was expected to reduce administrative, setup, and troubleshooting burdens compared to Dash.

Ultimately, the program team selected Automatic for the program for a number of reasons.

- The device provides audio cues to signal poor driving behaviors and does not require having a smartphone for those cues.
- Automatic produces both the device and the user interface, avoiding confusion from having to direct program participants to multiple vendors. Automatic was a single point of contact for MTC and participants for sales and support.
- Automatic was an established company with a product well-developed relative to the nascent market.

Exhibit 8. Automatic Plug-in Device (left) and App Driving Feedback Displays (right)

1.2 Setting Promotional Pricing

One of the objectives of the Drive Smart Bay Area campaign was to buy-down the cost of in-vehicle devices to encourage their adoption and use. Through the Drive Smart Bay Area program, consumers were able to purchase an Automatic device for a promotional price of $50 (half off the standard retail price of $100). To offer this subsidized price, MTC paid Automatic for the difference between the wholesale price of the Automatic device and the promotional price (about $25/device). Automatic's sales team advised that the $50 price point would maintain a perceived value in the product and that offering a lower price of $30-$40 would likely not change the sales significantly.

1.3 Program and Device Restrictions

Program restrictions were established to maximize participation, prevent fraud, and target the appropriate drivers. First, the device has technical restrictions: it only works in vehicles that are model year 1996 or newer and it does not work in electric vehicles. Program participants were directed to Automatic's vehicle webpage where car owners could look up the make, model, and year of their vehicle to confirm compatibility. Second, MTC established programmatic requirements for online purchases: participants were limited to ordering two subsidized devices per household; participants had to be commuters in the nine-county Bay Area; and participants were required to watch an online educational video about smart driving benefits and strategies (see Section 4 for more information about the video).

2. Marketing Strategy Development

In developing the Drive Smart Bay Area campaign, the program team took the following steps:

- Identified **campaign goals** to inform development of the marketing strategy

- Evaluated **opportunities and challenges** presented by the program
- Defined the **target market and potential audiences** to tailor the campaign and increase effectiveness
- Developed a **program identity** relevant to all audiences
- Crafted **messaging** that resonated with target audiences
- Developed **campaign materials and strategies** to effectively disseminate messaging

The following subsections describe each of these marketing strategy development steps.

2.1 Campaign Goals

The Drive Smart Bay Area campaign had four main goals, as follows:

- Messaging
  - Create accessible educational information about Smart Driving that is useful for both those who purchase the device and those who do not
- Branding
  - Establish a program identity to promote consistency in all marketing and public communication materials
- Device Distribution
  - Distribute up to 4,000 discounted Automatic devices
- Programmatic
  - Have every device owner view the educational materials as a requirement before receiving the rebate

These goals informed the development of the marketing strategy, described in the following sections.

2.2 Opportunities and Challenges

The program team conducted a comprehensive evaluation of opportunities and challenges to inform campaign development and implementation, ensure consistency, and avoid any potential pitfalls. Early identification of these strengths and weaknesses enabled the program team to assess the programmatic landscape and best leverage opportunities. These were considered living lists and amended over the course of the program.

The evaluation identified the following opportunities and challenges:

Opportunities

- MTC and 511, trusted sources for information by Bay Area residents
- Access to established channels used by commuters (e.g., 511.org)
- Relatively tech savvy population in the Bay Area
- Large commuter volume

- High regional cost of living that makes easy savings attractive
- Financial discount for program device
- New and interesting technology
- Low barrier/simple behavior change

Challenges

- Scale of target audience and area
- Unknown adoption rates of proposed activities
- Uncertainty surrounding new technology
- Perceived privacy concerns with GPS device
- Getting qualified and appropriate participants involved
- Helping people through the awareness/purchase/rebate/install process
- Keeping users engaged to complete recommended behaviors
- Avoiding the appearance of product endorsement
- Relatively low price of gas reducing incentive of fuel efficiency savings

2.3 Target Market and Potential Audiences

By defining the target market and potential audiences, the marketing team was able to tailor the campaign and maximize the campaign effectiveness. The target market captures all potential participants for the smart driving campaign, while the potential audiences reflect further refinement of eligible participants as sub-groups for targeted marketing.

2.3.1 Target Market

For the *educational campaign*, the target market is captured in Exhibit 9. The potentially broad appeal and impact of an educational campaign was a key driver for MTC's implementation of this program.

Exhibit 9. Characteristics of Target Market for Educational Campaign

Commuter Characteristics	Behavioral Characteristics
Residents of 9 County Bay Area	Open to smart driving behavior
Frequent drivers/commuters	Cost conscious and/or environmentally conscious regarding gas

The slightly smaller target market for the *smart driving device campaign* is indicated in Exhibit 10. This still reflects a large market within the Bay Area.

Exhibit 10. Characteristics of Target Market for Device Element

Commuter Characteristics	Behavioral Characteristics
Residents of 9-county Bay Area	Open to smart driving behavior
Frequent drivers/commuters	No undue privacy concerns
Owners of a 1996 or newer vehicle	Reasonably tech savvy
Owners of smartphones	Cost conscious regarding gas
Individuals able to fund remaining purchase price	Feedback/data-oriented

2.3.2 Potential Audiences

To implement a targeted campaign, the program team developed the following set of potential audiences based on a literature review, a review of existing data, and an understanding of the program and Bay Area residents.

The majority of the campaign tactics focused on the primary audiences, which were the subgroups predicted to be most likely to implement smart driving techniques and to be interested in a smart driving device. The secondary audience was the broader public who may not have been early adopters but were possibly interested. The tertiary audiences were part of the earned media campaign and were targeted to gain public endorsements and increase the conversation surrounding the campaign.

Primary Audiences

- **Super Commuters** – There is a large and growing population moving to new developments and more affordable homes that lack access to public transportation. They commute anywhere from 45 minutes to 3 hours each way depending on traffic and destination. They represent a high potential to participate, and should they participate, could deliver high volume results.
- **Gadget Geeks** – The Bay Area is one of the most technologically advanced regions in the area. This consumer may not be financially motivated, but will be highly engaged with the product and program. As an added benefit, many individuals in this category are active on social media channels, often providing reviews and recommendations.
- **Comfortable but Cost Conscious** – The high regional cost of living is an issue for many residents, and while comfortable, these consumers like to save where they can. This group uses Groupons, downloads Target's coupon app, and takes pooled Uber and Lyft rides. Still, they enjoy spending on luxury goods and usually have a newer car and the latest model smartphone.

Secondary Audience

- **General Public** – This includes those individuals who fall outside the high propensity groups but are still within the program target market.

Tertiary Audiences

- **News media** – This audience can increase visibility for the program and assist with reaching audiences.
- **Elected officials/decision-makers** – This group of stakeholders includes legislators, county boards, advocacy groups, potential collaborators, and state and federal agencies who can engage their constituencies if provided information and resources.
- **Internal groups** – This includes internal MTC groups that may need to be informed or play an active role.

2.4 Program Identity

There was a strategic need to brand the program in a manner that was relevant to these diverse groups. While programs specifically focused on cost, environment, and technological advances have been launched across the country, the program team decided to build its effort around more universal themes. The program reflects:

- **Universal accessibility** – Speaks to all drivers equally
- **Regional pride and ownership** – Rooted in our shared region
- **Actionable personal efforts** – "Smart" nomenclature reflects improvement over current personal behavior

With these themes in mind, the program team wanted a campaign name that captured the elements of positive behavior change and simple local actions. To this end, the team named the campaign *Drive Smart Bay Area*.

To help align these ideals and reinforce program elements, the campaign spoke to a central goal to "save gas and money, increase safety, reduce stress, and improve air quality." This effectively connected personal behaviors and benefits to both community and environmental gains. To reinforce this idea and foster greater regional pride, marketing visuals prominently featured Bay Area-specific locations.

Exhibit 11. Sample Marketing Material Featuring Regional Landmark

2.5 Messaging

With target audiences identified and program identity established, the marketing team worked with MTC and Automatic to craft messages that would specifically resonate with the target market and audiences. The team focused on key motivators, effective incentive language, and message applicability, especially in condensed digital formats.

The resulting messages spoke to three key value themes:

- **Accessibility** – The ability to benefit from smart driving habits in your existing vehicle. This theme increased the potential for interest in the broadest group possible. It was designed to increase awareness, promote free education, and dispel current misunderstandings that efficiency is only achievable by purchasing a new vehicle.

Get Driving Tips and Save
Driving Smart Is Easy. Learn How to Improve Fuel Efficiency. Get Tips.
511.org/DriveSmartBayArea

- **Performance and features** – The potential for enhanced vehicle performance and the availability of the expanded functions of the Automatic device. This theme provided appealing incentives to data- and tech-oriented consumers. It also expanded the benefits beyond the efficiency space, capturing additional interest, including from parents. These messages were designed to reinforce education and drive retail purchase.

Increase Your Gas Mileage
Improve Vehicle Performance to Save Gas and Money. Get Driving Tips.
511.org/DriveSmartBayArea

- **Cost savings** – The potential financial savings achievable through smart driving behaviors and the available discount on the Automatic device. This theme served as the bulk of the campaign messaging. It was designed to trigger the universal appeal to save money and the action-driving behaviors related to special limited offers. These messages served to create awareness and subsequently connected consumers to education and retail purchase phases.

Want to Save Gas Money?
Increase Fuel Efficiency w/Tips and Smart Driving Assistant. Learn How.
511.org/DriveSmartBayArea

The foundation of each of these messages was anchored in the program's overarching goal to "save gas and money, increase safety, reduce stress, and improve air quality."

All messages followed a uniform framework and directed consumers to the Drive Smart Bay Area website (see Section 4) where they could access program information, educational materials, and retail purchasing resources. The framework consisted of three elements:

- **Primary Message** – This varied based on the theme above. For example, *smart driving can save you money.*
- **Secondary Message** – Automatic device can help.
- **Call to Action** – Visit the website for more information.

2.6 Campaign Materials and Strategies

To effectively disseminate these messages, the program team developed a full suite of branded materials that would be used across the campaign to inform and educate Bay Area drivers. Exhibit 12 lists the campaign materials developed for the program. These materials established a base for all subsequent communications and created a central touchpoint for all interactions.

Exhibit 12. Campaign Materials

Item	Format
Educational Materials	
Website	Central splash page
Video	30 to 60 second video
Smart Driving Guide	Downloadable PDF with technical information on strategies and benefits
Factsheet	Downloadable PDF
Webpages	
Smart Driving Page	Page housed on 511.org
Promotion on 511.org	Rotating promotional message on main 511 page
MTC	"In the News" press release with link to website

In addition to the campaign assets, the program team developed central strategies to guide the marketing approach. These included gaining publicity through earned media, and conducting retail consumer outreach. The strategies and associated considerations are described below. Over time, the program team defined the optimal mix of strategies and tactics by balancing program preferences with time and budgetary constraints.

2.6.1 Strategy 1: Awareness Building

With this strategy, the program team sought to create a campaign that provided sustained broad reach for limited paid media investment. Exhibit 13 outlines the options considered under this awareness building strategy. The program team selected tactics (noted in ***bold italic*** text in the table below) that represented a balance between program preferences and time and budgetary constraints.

Exhibit 13. Strategy 2 Media and Formats

Item	Format
Social Media	
511.org Facebook	511 Facebook page
MTC Facebook	MTC Facebook page
511.org Twitter	511SFBay Twitter feed
Out of Home	
Yerba Buena Billboard	Signage along Bay Bridge
Gas Station Toppers	Dependent on station
Email/Mail	
FasTrak Statements	Short ad on statements
FasTrak Quarterly Newsletters	Short ad in newsletter
Radio	
Radio	Live DJ reads during commute hours; Pandora radio reads
Digital	
Digital	Google display and search, locational/psychographically targeted

2.6.2 Strategy 2: Earned Media/Buzz

This strategy sought to create earned visibility via regional partnerships. The program team suggested several tactics, including the following:

- Plan and implement a news and publicity campaign with local media
  - Engage general media
  - Provide ride-along demonstration(s) for reporter(s)
  - Identify and engage tech and green media outlets

- Engage bloggers
- Leverage existing events
  - Alameda Express Lane opening
  - Community events/fairs/festivals in targeted areas (e.g., Brentwood)
- Install point of purchase signage where device is in store
- Leverage Automatic's PR and marketing channels
- Engage stakeholders to create program evangelists
  - Provide device samples and campaign resources to MTC staff, county transportation staff, and Bay Area AQMD
  - Encourage them to distribute samples and resources
  - Encourage them to mention the campaign on their social media channels
- Develop high profile partnerships
  - Provide a set of devices to a visible group of heavy drivers (e.g., vanpool drivers, commuters) for a day or week and profile results with media

2.6.3 Strategy 3: Engagement

Initially, the program team considered gamification as a tactic under this strategy, but the complexities and cost of developing an application were prohibitive. This was subsequently replaced by program staff directly engaging with Bay Area commuters at retail outlets and local events.

3. Marketing Strategy Implementation

Based on the strategy developed above, the program team implemented the marketing plan. Exhibit 14 summarizes all of the elements of the campaign.

Exhibit 14. Summary of Campaign Implementation

Tactics	▪ Online ▪ Retail ▪ Paid Media ▪ Earned Media ▪ Organic/Word of Mouth (WOM)

Tools	▪ Custom webpage on 511.org ▪ Custom video ▪ Program FAQ sheet ▪ Smart Driving resource sheets ▪ Program information sheet ▪ Downloadable coupon ▪ Custom webpage on Automatic.com ▪ Location-sensitive ordering system on Automatic.com ▪ Retail - Price discount at 23 participating Best Buy locations ▪ Retail - Promotional in-store signage at 23 participating Best Buy locations ▪ Retail - Promotional in-store events at 2 largest volume Best Buy locations
Earned Media	▪ Joint press release with MTC, Automatic, participation of Best Buy ▪ KGO Radio interview with MTC
Paid Media	▪ Google Search -Text Ads ▪ Desktop Display - Desktop Banners ▪ Mobile Display - Mobile Web/App Banners ▪ Internet Radio- Pandora Audio/ Banners ▪ Radio Live Read ▪ “Brought To You By” Adjacency Sponsorship Reads
Social Media	▪ Social content calendar for MTC consideration ▪ Facebook posts – content, image, links ▪ Twitter posts – content, image, links

The program team implemented the following three-pronged plan focused on the strategies described in the previous section:

- **Program awareness** through various media channels (earned, paid, and social)
- **Smart driving education** through the web content, video, and downloadable resources
- **Product adoption** of the plug-in smart driving device through the website and in stores.

These elements are described in detail in the sections below.

3.1 Earned Media

The Drive Smart team leveraged the team’s collective resources and established media contacts to gain earned media visibility. Working with the program partners, MTC developed and circulated an awareness and education-building press release through PR Newswire, and direct to MTC’s regional media contacts.

The piece was subsequently picked up by KGO radio, one of the Bay Area’s leading talk radio stations and a key radio news outlet. The station hosted an interview with MTC’s Senior Public Information officer detailing the program and related benefits. The recording was featured on KGO’s homepage for the following two weeks.

3.2 Paid Media

The program team used a mix of online and offline paid media channels.

3.2.1 Online Paid Media

The program team used four online channels for paid media: Google Search, Desktop Banners, Mobile Banners, and Internet Radio. The messages were specifically targeted to adults in the nine county Bay Area, and accessible via both web and mobile platforms. In all cases, clicking an ad would bring the consumer to the Drive Smart landing page and related educational materials. Samples of all ads can be seen Appendix B.

From January to August 2016, online channels produced 9,505,600 impressions for the Drive Smart Program. An impression is defined as any interaction with a piece of content and an audience member. For example, it is the number of times that an ad was displayed on a webpage or the expected number of listeners to a particular radio ad spot.

3.2.2 Offline Paid Media

In addition, the program team used offline media to maximize reach to Bay Area commuters. The program was highlighted by local radio DJ's via live reads and traffic and weather update sponsorships during peak drive time. This allowed the program to reach frequent/high mile drivers, while concurrently leveraging trusted regional personalities.

From February to May 2016, offline media reached 1,139,562 listeners. See the Evaluation section for more details.

3.3 Social Media and Email

Social media and emails were used throughout the campaign to increase visibility and leverage the contacts that MTC and Automatic have developed.

3.3.1 Social Media

MTC (through 511) ran a series of weekly Twitter and Facebook posts in the month of April, which is National Car Care Month. Examples of the posts (without the associated graphics) include:

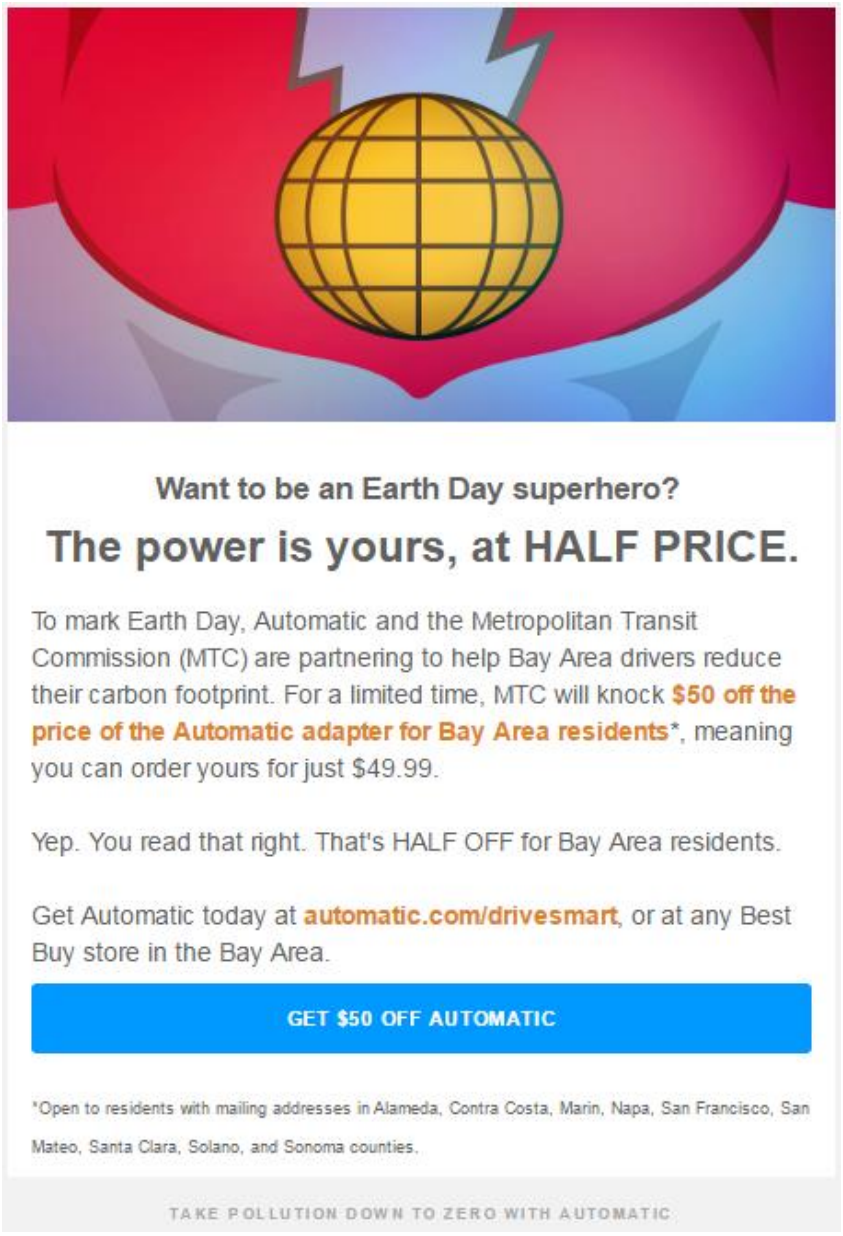
- April doesn't just mean baseball. It's National #CarCareMonth. Get your car ready for warmer temps with a tune up and #DriveSmartBayArea
- 84% of cars tested last #CarCareMonth needed basic care – does yours? This April, tune up and #DriveSmartBayArea
- Get your #CarCareMonth rolling with properly inflated tires- and save nearly 10 ¢ per gallon #DriveSmartBayArea
- Don't just care for your car for #CarCareMonth – make it smart. Get a connected car tool for 50% off. Save MPG, read engine lights, + more.

Automatic also posted about Drive Smart Bay Area through a series of posts focused at the beginning of the campaign and around Earth Day.

3.3.2 Email Outreach

MTC and Automatic also sent emails about the program to various groups during the campaign. Automatic sent an email on Earth Day (see Exhibit 15) to residents of the Bay Area who had previously purchased an Automatic device, emphasizing the reduction in pollution from reducing fuel use. The email was coupled with a Facebook ad with the same messaging. The email and Facebook ad were highly effective at increasing interest and driving a short-term boost in sales.

Exhibit 15. Automatic Earth Day Email to Bay Area Residents



3.4 In-Person Events

3.4.1 In-Store Retail Promotion

To augment the product adoption effort in participating retail locations, the program team hosted targeted Drive Smart Bay Area in-store retail promotion events.

Working in partnership with Automatic, MTC, and local Best Buy management, the team selected two highly trafficked stores: the San Francisco (Harrison) Best Buy and the San Jose (Santana Row) Best Buy. At each location, experienced program staff engaged and educated shoppers during peak retail hours. These tabling events augmented permanent in-store point-of-purchase signage and couponing on Automatic end caps.

San Francisco (Harrison) Best Buy – February 13, 2016

Rationale: This location has more than 270,000 households living within a 15-minute radius. Located in the South of Market (SOMA) area, home to San Francisco's exploding tech scene, and nestled between the Mission and Potrero Hill, where South Bay-commuting gadget-geeks and cost-conscious locals coincide, it provided a unique testing ground for the campaign and the product.

Results: On average, a quarter of customers who approached or passed the table were willing to engage in some way, and roughly a quarter of those were willing to talk about the promotion or device. Over the course of the event, the team spoke to approximately 50 adults, and distributed nearly 30 coupons. It is notable that this event preceded any paid media or other promotion and experienced slightly lower than normal traffic due to a holiday weekend.

San Jose (Santana Row) Best Buy – February 20, 2016

Rationale: This is one of the region's most trafficked stores, located in one of the state's largest population centers. Technology is a primary employer in the area, creating an exceptionally high per capita income. The suburban region necessitates frequent driving, and offered an appealing mix of tech-savvy drivers.

Results: The tabling event increased customer engagement, with higher interest across both younger demographics and families interested in the device for teen drivers. Many of the customers visiting this store were from suburban neighborhoods where they were reliant on personal vehicles for transportation. Additionally, the store general manager sent store associates to learn more about the product so that they could better engage with their customers after the event and distribute coupons to interested participants.

Exhibit 16. In-Store Event at Best Buy San Francisco

3.4.2 Public Events

This same direct outreach and assistance was provided outside of the retail environment at large scale public events. This included two efforts in partnership with MTC.

Earth Week – April 19, 2016

Workday, one of the largest employers in the Tri-Valley area, hosted an Earth Week event at their offices in Pleasanton that focused on educating consumers about environmentally friendly behaviors and everyday conservation practices. Drive Smart Bay Area program experts staffed a booth, providing educational collateral and advise to event attendees and distributing several program coupons to multiple event participants.

Experience Electric – April 2016

Experience Electric is a separate program administered by MTC, offering ride-and-drives at events to allow participants to try out electric vehicles. The program coordinators displayed Drive Smart Bay Area materials and distributed collateral at their booth at Home & Garden Shows April 2-3 in Concord and April 16-17 in Fairfield.

4. Website and Video Development

As identified above, a central component of the Drive Smart Bay Area campaign was the program website. A simple external splash page on 511.org (which is maintained by MTC) centralized the smart driving recommendations, served as a central clearinghouse for the program, provided a clear overview of the program, housed all documents, and offered links to various partners and pages, including information on purchasing the Automatic device. All promotional content and calls to action were directed to the website.

Exhibit 17 provides a graphical summary of how the various campaign elements were united and the process that a customer would follow from marketing through smart driving action. As shown, the MTC/511 website was the central hub for information dissemination.

Exhibit 17. Customer Experience Flowchart

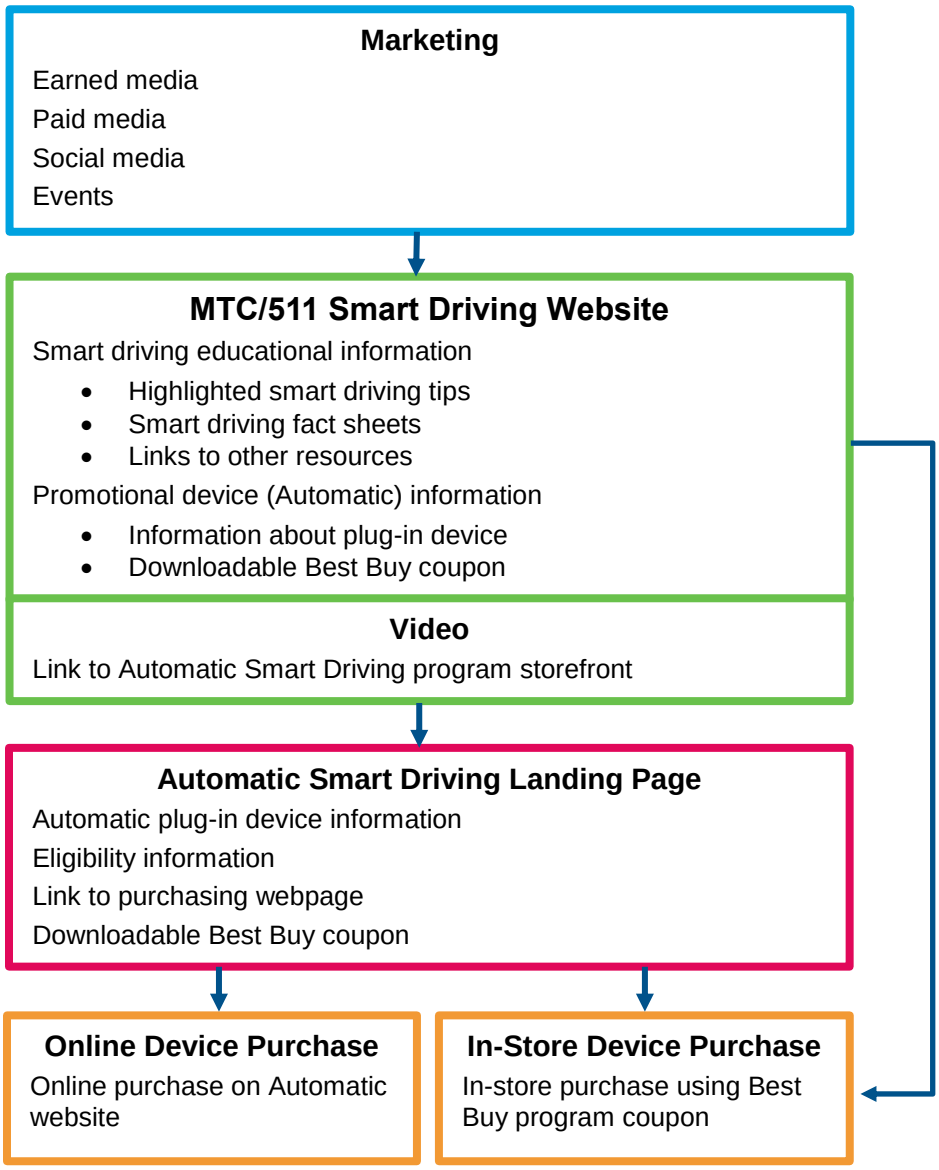
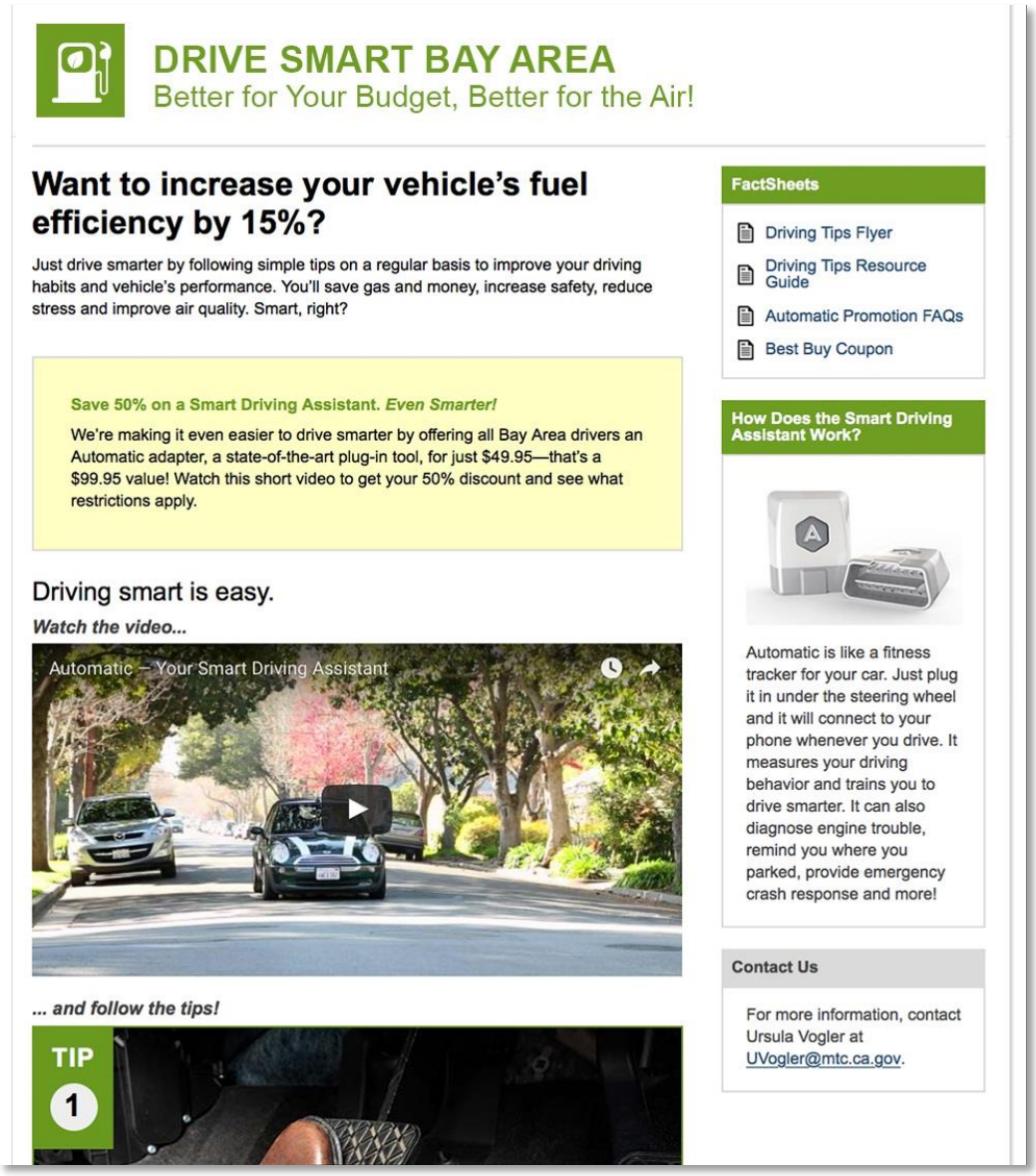


Exhibit 18 shows a screenshot of an early version of the program website and the subsections below describe elements of the website in more detail.

Exhibit 18. Drive Smart Bay Area Website



4.1 Content

The focus of the website content was to convey that smart driving is something easy and immediate that all drivers can do. A significant portion of the content was devoted to highlighting smart driving strategies with short but striking strategy descriptions and visuals.

In discussion with MTC, the program team decided to include the following content pieces on the website:

- Introduction to smart driving and the Drive Smart Bay Area campaign
- Smart driving tips, including a clear subset on the webpage and a full downloadable list

- An animated video providing smart driving information
- Downloadable educational resources
- Links to external smart driving resources
- Information about Automatic and the discount
- A link for purchasing the discounted Automatic

The website copy was edited and tweaked multiple times throughout the campaign to encourage visitors to review the content and consider purchasing a plug-in device.

4.2 Format

The format of the webpage changed over time in response to an evolving understanding of website visitors and their preferences.

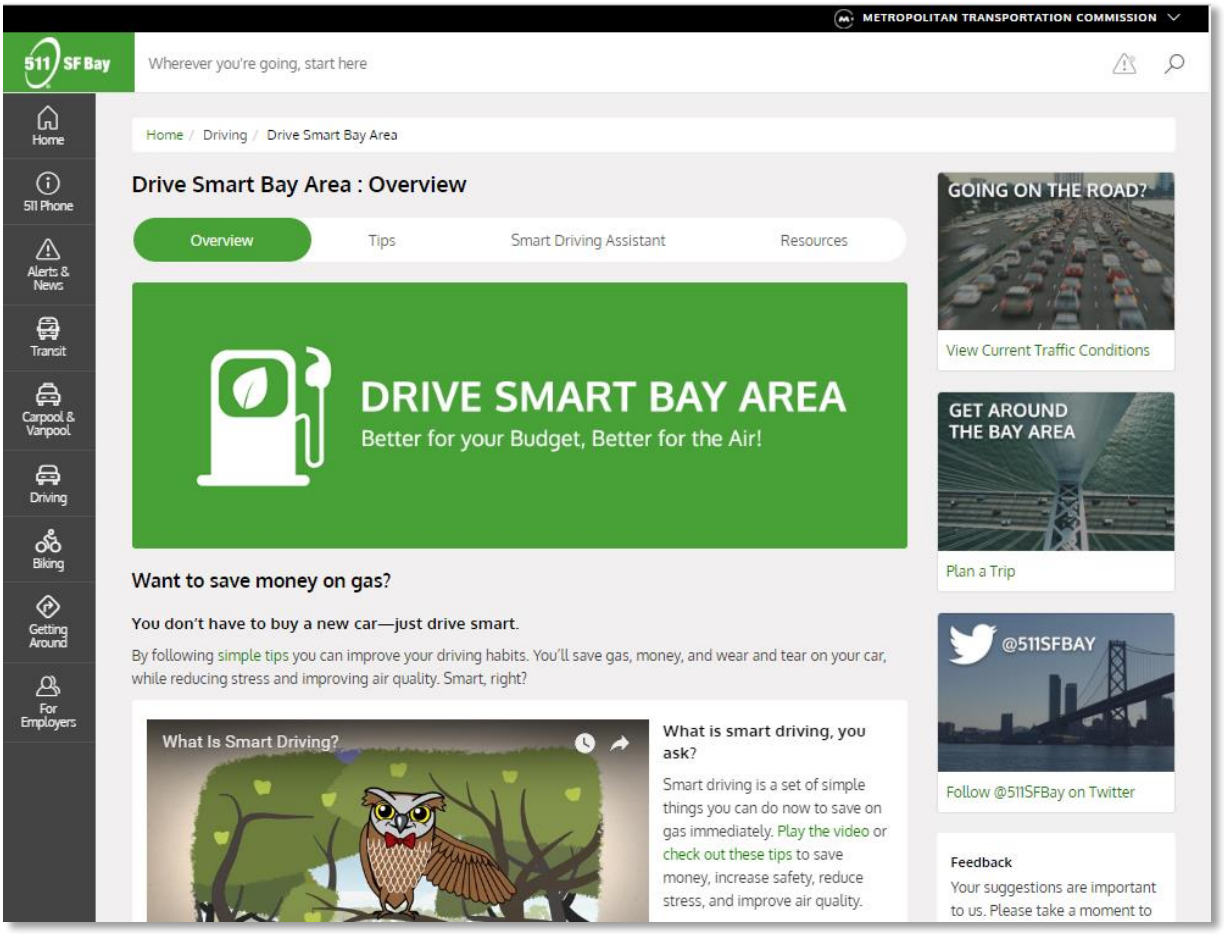
At the outset, all content was designed to be on one page to maintain a simple webpage design. Later, the format was updated to be optimized for smartphones. For example, in an early iteration of the website, strategies and images were displayed in a rotating carousel screen. When the website was updated for smartphone optimization, strategies and images were stacked vertically for easy viewing on a mobile screen.

In June 2016—midway through the campaign—MTC overhauled its 511.org website, which required revamping the Drive Smart Bay Area webpage. The new format separated the content onto multiple clickable tabs rather than using a long vertical layout. Content was divided into:

- Overview
- Tips
- Smart Driving Assistant
- Resources

Exhibit 19 shows the Overview screen of the revised program website.

Exhibit 19. Drive Smart Bay Area Page on Revamped 511 website



4.3 Video

In addition to providing static written and visual content, MTC developed an engaging animated video describing smart driving and some example strategies. The three-and-a-half minute video was scripted, voiced, and animated by content and design experts at MTC. A shorter "trailer" version of the video was produced for sharing on social media.

The original intent was to require all visitors who wanted to purchase the discounted device to watch the video. The Automatic smart driving purchasing webpage URL was listed at the end of the video and links were provided in the video description section of the YouTube page. After visitors watched the video, the hope was that they would migrate to the Automatic program webpage to learn more about the device and purchase one.

As the campaign continued and device sales did not meet expectations, a direct hyperlink to the Automatic website was provided in the written program description on the website.

Exhibit 20 shows a screenshot of the video.

Exhibit 20. Screenshot of Smart Driving Video

5. Establishing Device Purchasing Options

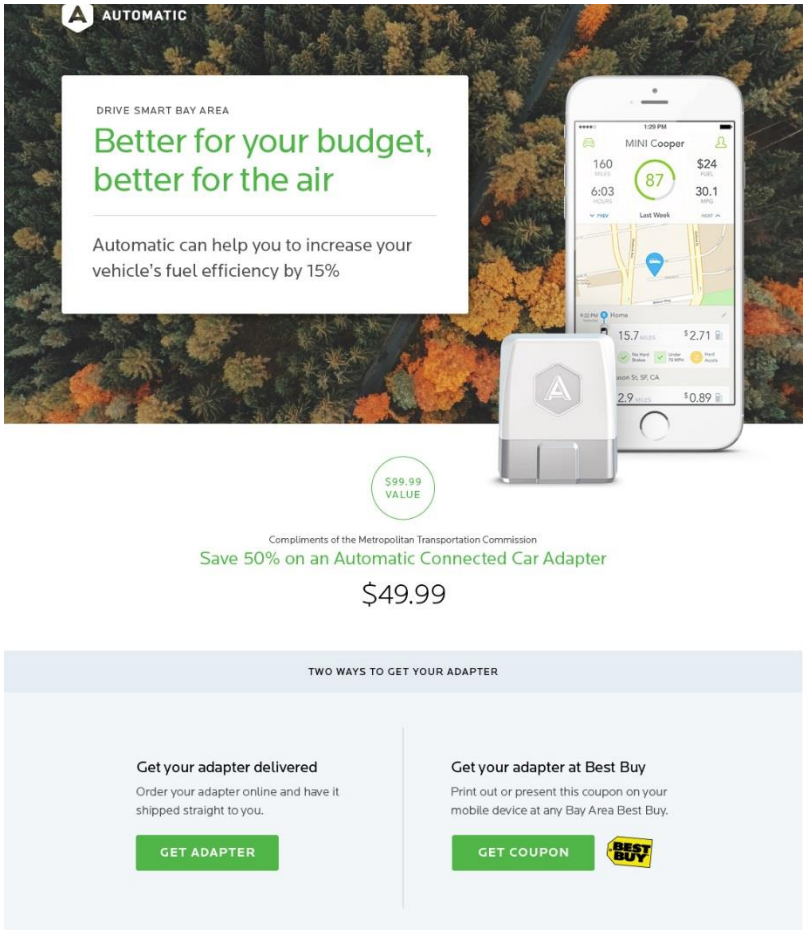
The program provided two venues for obtaining the Drive Smart Bay Area promotional price on Automatic devices: online fulfillment and purchase in a Bay Area Best Buy store.

5.1 Online Fulfillment

Automatic developed a page (Exhibit 22) hosted on their website specifically for Drive Smart Bay Area program participants, which went live in early February 2016. Participants could order a discounted device through the webpage. The webpage only allowed shoppers to purchase the device at the discounted price if their shipping zip code was within the nine counties of the Bay Area.

During the campaign (May 2016), Automatic changed

Exhibit 21. Smart Driving Program Automatic Landing Webpage



online purchasing vendors which affected the online shopping platform. As a result of this change, Automatic was unable to sell devices through the program-specific webpage, which eliminated the ability for consumers to take advantage of the discounted Drive Smart Bay Area price online. To try to compensate for this change and provide a venue for online fulfillment, Automatic reached out to Amazon.com to determine if they could offer the discount to customers purchasing the device in the Bay Area, but Amazon was unable to confirm that they could support "geofenced" purchases. Thus, after May 2016, participants could only purchase the discounted devices through the Drive Smart Bay Area program in local Best Buy stores.

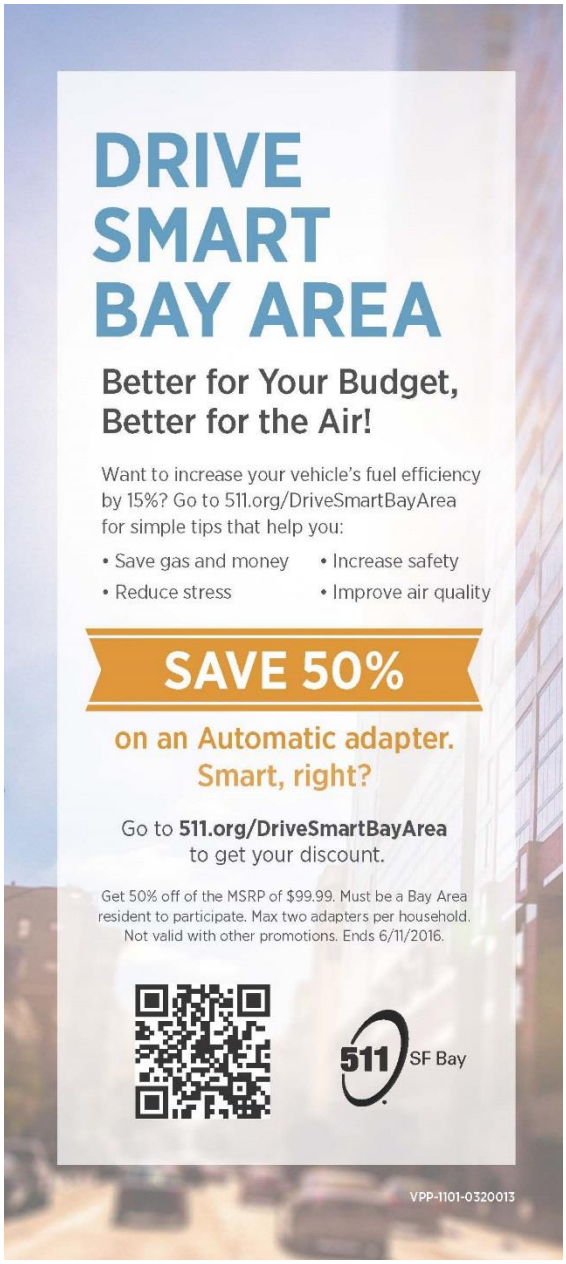
5.2 In-Store Fulfillment

As an alternative to purchasing a device online, Automatic worked with Best Buy to promote the program and to make the Drive Smart Bay Area discount available in their 23 Bay Area stores. Automatic devices were typically available in the automotive section of the Best Buy stores on an Automatic aisle endcap display (Exhibit 22).

The program team developed two Drive Smart Bay Area displays to add to the endcaps:

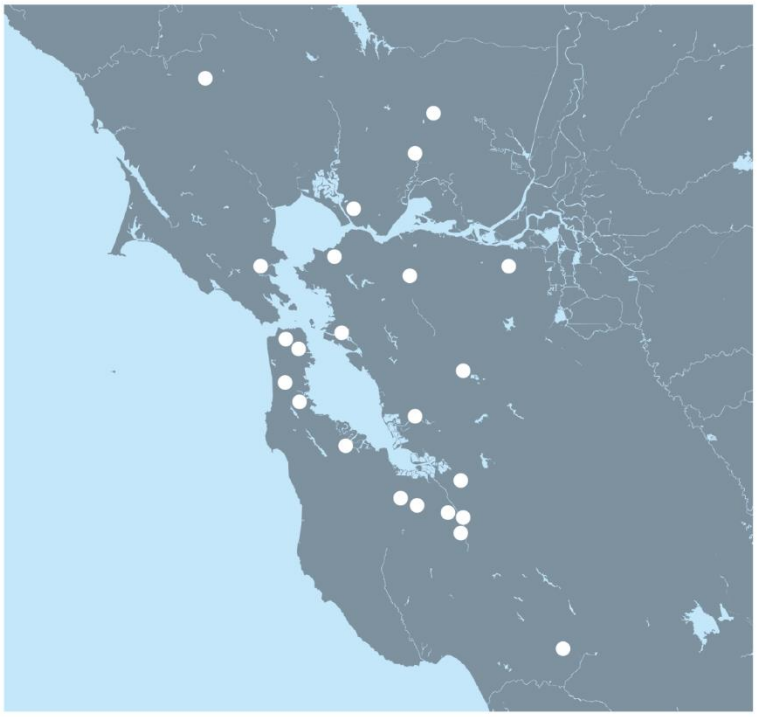
- Hangtag – 3.5" x 8.5" plastic display with a description of the program and promotion hanging from display hooks
- Business card flyer – 3.5" x 2" business card-size flyers for store customers to take, with information on the program, a website listing, and a QR code linking directly to the program website

Exhibit 22. Automatic Endcap Display at Best Buy Stores (upper left), Program Business Card Flyer (lower left), and Program Hangtag (right)



The program display materials were distributed to 23 Best Buy stores in eight counties February 7-13, 2016. Exhibit 23 shows the locations of the participating stores.

Exhibit 23. Best Buy Stores Participating in Program



Address	City
6600 Lone Tree Way	Brentwood
200 Colma Blvd	Colma
4820 Dublin Blvd	Dublin
1547 Gateway Blvd	Fairfield
7011 Camino Arroyo	Gilroy
63 Ranch Ave	Milpitas
2460 E Charleston Rd	Mountain View
3700 Mandela Pkwy	Oakland
1490 Fitzgerald Rd	Pinole
3260 Buskirk Ave	Pleasant Hill
1250 El Camino Real	San Bruno
1127 Industrial Rd	San Carlos
1717 Harrison St	San Francisco
2675 Geary Blvd	San Francisco
5065 Almaden Expy	San Jose
3090 Stevens Creek Blvd	San Jose
181 Curtner Ave	San Jose
700 Du Bois St	San Rafael
1950 Santa Rosa Ave	Santa Rosa
760 E El Camino Real	Sunnyvale
31350 Courthouse Dr	Union City
1621 E Monte Vista Ave	Vacaville
1182 Admiral Callaghan Ln	Vallejo

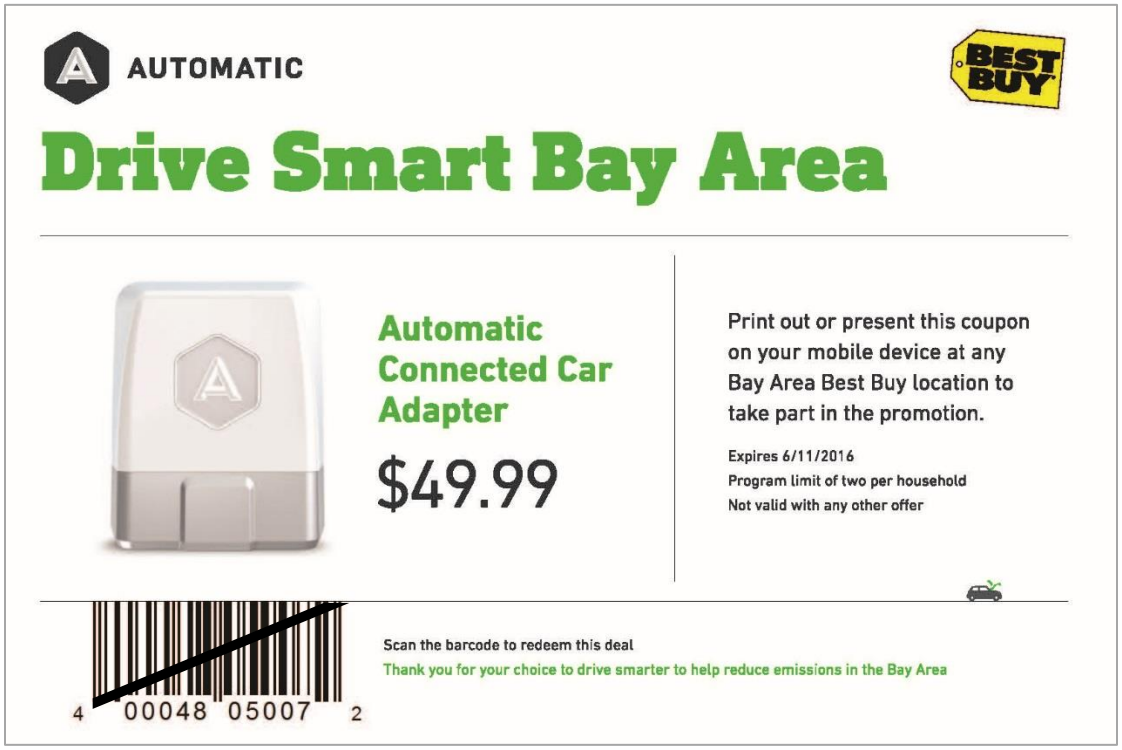
At each store, the distribution team placed two hangtags on the endcap, adhered a business card holder to the top of the endcap, and placed 50 business card flyers in the holders (Exhibit 24). The team found that some endcaps did not have product hooks on which to place the hangtags; in those situations, the hangtags were adhered to the bottom and sides of the endcap display.

Exhibit 24. Program Hangtags and Business Card Flyers on Best Buy Endcap Display

To purchase a device in the store at the discounted Drive Smart Bay Area price, participants had to present a Drive Smart Bay Area program coupon at the point of purchase (Exhibit 25). To

receive the coupon, customers could either request one from a store employee or download a PDF of the coupon from the program website.

Exhibit 25. Program Best Buy Coupon



Because of low participation in the program, the program team tested an alternative hangtag message in five Best Buy stores at the beginning of May. The test hangtag changed the central text from “Save 50% on an Automatic adapter” to “Get an Automatic adapter for $49.99,” to emphasize the discounted price. There may have been a temporary bump in sales as a result (see Section IV.3.2), but not enough to justify producing and distributing new hangtags for all of the stores.

IV. Evaluation

The evaluation of the Drive Smart Bay Area program will help to inform future programs and policies. Specifically, the evaluation seeks to understand:

1. **What audience (how large/broad) was the campaign able to reach?**
2. **How effectively did the campaign encourage people to visit the Drive Smart Bay Area website?** This is measured by the conversion rate from audience reached to people who visited the Drive Smart Bay Area website.
3. **How effectively did the campaign encourage people to purchase smart driving devices?** This is measured by the conversion rate from people who visited the website to people who purchased smart driving devices.
4. **How much did the campaign reduce GHG emissions?**

These questions are explored in the sections below.

1. Audience Reach

In under seven months, the Drive Smart Program was able to make more than 10 million regional impressions. Exhibit 26 provides a breakdown of the impressions by source and other key metrics.

The majority of the impressions (7,429,112 impressions of 10,769,700) were made via banner campaign ads on desktops and mobile phones/tablets. While these two marketing outlets provided the lowest cost per impression (CPM is the cost per thousand impressions) and the lowest cost-per-click, they did not produce the most effective click-through rate (CTR). The Pandora radio ads produced the highest CTR with 0.28% of impressions resulting in a click-through to the program website. The Google Ad Words campaign produced the poorest results in terms of cost-per-impression and cost-per-click.

One difficulty with the Google Ad Words campaign was ensuring that the marketing dollars for this campaign were not competing with preexisting marketing campaign dollars being spent by Automatic. Since similar search terms and key phrases were being used for the two campaigns, it is possible that this was driving up the bidding price for displaying banner ads and diluting the message about the DSBA discount. In the future, it would be preferential to either invest more in other mediums or to better coordinate campaigns so that Automatic's Bay Area ads also alerted the public about the DSBA discount.

Exhibit 26: Audience Reach by Marketing Strategy

ONLINE NETWORK BANNER CAMPAIGN - Desktop		
Description: Behavioral/Contextual Targeted Banners		
	Start Date	2/15/2016
	End Date	8/31/2016
	Impressions	**3,666,724**
	Clicks	2,289
	CTR	0.06%
	CPM	$2.83
	CPC	$4.53
	Page views	1,123
	Net Cost	$10,374.13
ONLINE NETWORK BANNER CAMPAIGN - Mobile/Tablet		
Description: Behavioral/Contextual Targeted Banners		
	Start Date	2/15/2016
	End Date	8/31/2016
	Impressions	**3,762,388**
	Clicks	3,962
	CTR	0.11%
	CPM	$4.03
	CPC	$3.83
	Page views	1,819
	Net Cost	$15,171.33
INTERNET RADIO - Pandora		
Description: Behavioral/Contextual Targeted Banners		
	Start Date	3/1/2016
	End Date	7/31/2016
	Web/Mobile Audio Impressions	503,237
	Web/Mobile "Clickable" Impressions	679,790
	Total Impressions	**1,183,027**
	Clicks	1,889
	CTR	0.28%
	CPM	$8.88
	CPC	$5.56
	Page views	677
	Cost Per Session	$15.51
	Net Cost	$10,499.70
SEM: Google AdWords- Search Text Ads		
Description: Search engine marketing (Google)		
	Start Date	3/1/2016
	End Date	8/31/2016
	Impressions	**893,461**
	Clicks	1,355
	CTR	0.15%
	CPM	$9.88
	CPC	$6.51
	Page views	741
	Net Cost	$8,826.45
Broadcast Radio		

:10 and :15 Second Weather and Traffic Sponsorship	
Start Date	3/1/2016
End Date	8/31/2016
Impressions	**1,264,100**
CPM	$6.44
Net Cost	$8,136.00
Campaign Summary	
Start Date	2/15/2016
End Date	8/31/2016
Impressions	**10,769,700**
CPM	$5.01
Net Cost	$53,007.61

CTR: Click-through rate | CPM: Cost per thousand impressions | CPC: Cost-per-click

2. Website Visits

The website analytics associated with the Drive Smart Bay Area website on 511.org provide insights on the effectiveness of various marketing strategies and demonstrate how many people were exposed to smart driving educational information and resources.

2.1 Website Page Views

Exhibit 27 summarizes the number of page views and unique page views for the Drive Smart Bay Area website during the campaign. The page views metric counts each visit to the website, whether or not the viewer visits the website multiple times in the same session. The unique page views metric only counts one visit per session from the same person—if the viewer clicks away from the website and then returns the same day, it still only counts as one unique page view.

Exhibit 27. Drive Smart Bay Area Page Views by Month

Month*	Page Views	Unique Page Views
Feb 2016**	1,464	1,269
Mar 2016	3,507	2,357
Apr 2016	4,721	2,077
May 2016	3,621	1,629
Jun 2016	9,082	5,529
Jul 2016	4,384	3,556
Aug 2016	7,006	5,829
TOTAL	**33,785**	**22,246**

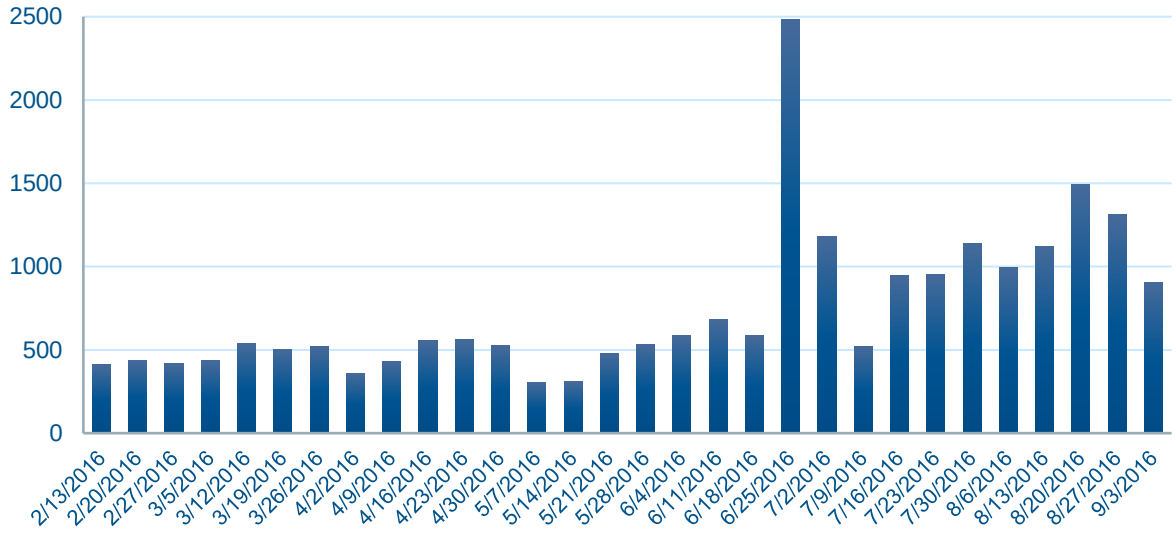
** Page views were recorded by week; thus, some monthly counts include days that fall in another month*
*** Partial month; website launched February 5*

For the first half of the campaign (through May), unique page views held relatively steady at around 2,000 views per month. February was likely smaller because the website was not live until February 5 and the marketing campaign did not begin until the following week.

As shown in Exhibit 27, there was a significant increase in views in June. This was likely related to the rollout of MTC's new website the night of June 17, 2016. As shown in Exhibit 28, there was a significant jump in views the week following the rollout. Several reasons could have contributed to this sudden increase, such as:

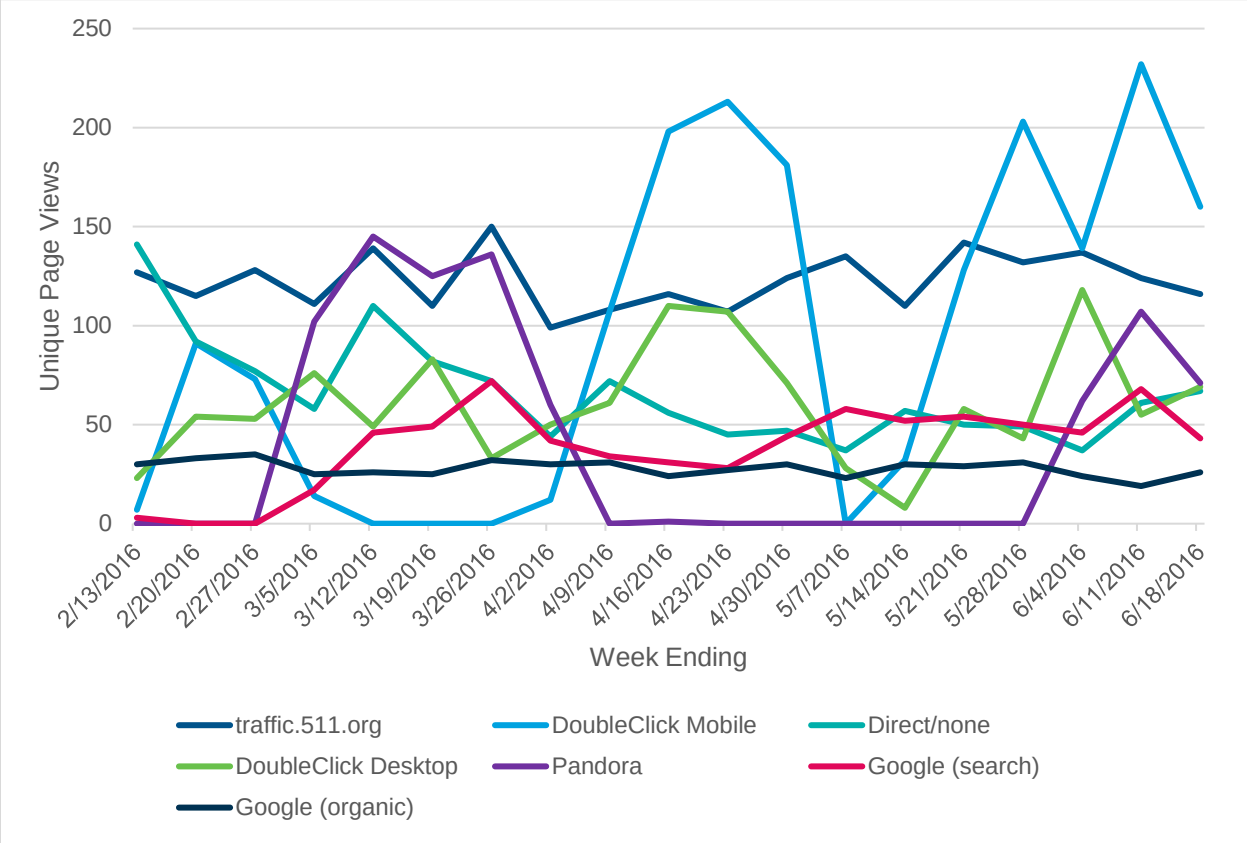
- A particularly effective marketing strategy
- Curious visitors exploring the new website
- A change in the setup of the new 511 website that drove more visitors to the program page
- A shift in the counting methodology due to a switch to a new analytics providers

Exhibit 28. Drive Smart Bay Area Unique Page Views by Week



Before the rollout of the new 511 website, unique page views were also recorded based on the referral source; that is, it was possible to track which paid marketing source or search source visitors were using to get to the program website. Exhibit 29 shows the unique page views based on the top seven referrals.

Exhibit 29. Unique Page Views by Top Online Referral Source



Online paid media sent significant portions of users to the website. It is possible to see the effectiveness of certain ad types based on spikes in page views. Pandora ads led listeners to the program website in the months they were running (March and June). DoubleClick ads, particularly mobile ads, seemed to be especially effective.

2.2 Video Views and Watch Time

In addition to counting page views, analytics were available for the Drive Smart Bay Area video through YouTube. Analytics were collected from the beginning of the campaign until April 23, 2016. Exhibit 30 shows the number of views, the total amount of time watched, and the average length of time visitors watched the video.

Exhibit 30. Drive Smart Bay Area Video Analytics

Week Ending	Video Views	Total Watch Time (min)	Avg Watch Time (min)
2/13/2016	277	414	1:30
2/20/2016			
2/27/2016			
3/5/2016			
3/12/2016	48	105	2:11
3/19/2016	31	67	2:10

3/26/2016	35	89	2:33
4/2/2016	21	45	2:09
4/9/2016	28	65	2:19
4/16/2016 4/23/2016	62	145	2:20
5/9/2016- 12/5/2016	667	Unknown	Unknown
TOTAL	**1,169**	**930***	**1:51***

**Total Watch Time and Average Watch Time only encompass February 2016-April 2016.*

Visitors watched the video 502 times over 11 weeks (February through April 2016), or approximately 6.5 times per day. With 5,175 unique page views during the same period, **the video was viewed roughly one out of ten times the website was visited by a unique visitor.**

On May 9, 2016, a new version of the video was posted which removed the promotional link to Automatic's website at the end of the video. This was done because users could no longer purchase the Automatic device at the discounted price online (see Section III.5.1 for more information on online fulfillment over the course of the campaign). Since the posting of the new video, it has been viewed a total of 667 times which brings the total video views up to 1,169.

2.3 Educational Resources Accessed

As described in Section III, various resources were available for download from the program website. Before the page was adapted to MTC's new website, analytics on the number of times each resource was downloaded were available.

Between March 20 and June 18, the following two device-related PDFs were downloaded a total of 94 times:

- Automatic Promotion FAQs
- Best Buy Coupon

During the same period the two educational PDFs were downloaded a total of 31 times:

- Driving Tips Flyer
- Driving Tips Resource Guide

In addition, visitors accessed links to other websites with smart driving information and resources 47 times during this period.

Downloading the additional resources or visiting external sites is not necessary for a member of the public to understand and start using smart driving strategies in their day-to-day lives. While these resources were available for additional information, there were also smart driving tips on the website and in the animated video. These "quick guides to smart driving" provided enough educational information to get a driver thinking about their actions.

3. Device Purchasing

In addition to educating drivers about smart driving techniques, a key element of the campaign was to distribute smart driving devices to interested Bay Area drivers.

As described in Section III.5, visitors could purchase a device online at the promotional price from Automatic's program website through May 2016. During the whole campaign, visitors could also download a coupon from the Drive Smart Bay Area and Automatic webpages to purchase a discounted device in local Best Buy stores. The metrics summarized below measure the Automatic website visits and device sales, both online and in-store.

3.1 Automatic Program Webpage Analytics

Automatic provided weekly counts of page views for their program-specific smart driving landing page. Exhibit 31 summarizes the page views from the beginning of the campaign until the webpage was removed in May.

Exhibit 31. Automatic Program Webpage Analytics

Week Ending	Page Views
2/13/2016	62
2/20/2016	20
2/27/2016	24
3/5/2016	6
3/12/2016	15
3/19/2016	3
3/26/2016	18
4/2/2016	22
4/9/2016	24
4/16/2016	20
4/23/2016	332
4/30/2016	250
5/7/2016	
TOTAL	**332**

As shown, only a small portion of the Drive Smart Bay Area website's 500 weekly visitors visited the Automatic page (approximately 4%). While this conversion rate sounds low, it is not uncommon in marketing. Some potential reasons for the low click-through rate include:

- Initially, potential customers had to watch the entire 4 minute animated video on smart driving techniques before they could access the Automatic website. Visitors could have:
  - Not understood what was required to access the discount
  - Lost interest over the course of the video (most viewers only watched the first two minutes)
  - Been in locations where watching a video with sound was inappropriate

- Determined that the number of steps to obtain the discount (watching a video and clicking through to another website) was more than they were willing to do

- After developing a better understanding of smart driving, users determined that they did not need or were not interested in purchasing a smart driving device.
- Visitors decided to purchase the device at their local Best Buy store and therefore did not need to access the Automatic website.

In March, Automatic page views dropped from the previous month even though visits to the Drive Smart Bay Area website did not show a significant decline in the same month. To address the low conversion rate of Drive Smart Bay Area website visitors, MTC provided a direct link to Automatic's landing page at the end of March; previously, the link was only provided after watching the educational video. The increase in Automatic page views at the end of March may be a result of this change.

Notably, there was a significant increase in views in the second half of April. As discussed previously, Automatic sent an email promoting the program to existing Bay Area customers. **This highlights the advantage of mobilizing an existing base of supporters.**

3.2 Automatic Device Sales

Exhibit 32 summarizes sales by month through local Best Buy stores and Automatic's program-specific webpage. Total Best Buy sales shows the number of devices purchased in Bay Area stores, with or without the program discount. Coupon activations shows the number of coupons that were used and thus the number of customers who purchased a discounted device as part of the program.

Exhibit 32. Sales of Automatic Devices by Source

	Best Buy Sales		
Month*	Total	Coupon Activations	Automatic.com Sales
Feb 2016	27	7	6
Mar 2016	50	17	3
Apr 2016	42	30	45
May 2016	48	19	**
Jun 2016	30	8	**
Jul 2016	25	5	**
Aug 2016	30	10	**
TOTAL	**252**	**96**	**54**

** Sales were reported by week; thus, some monthly counts include days that fall in another month*
*** Device not available for purchase on program website*

Program sales were lower than desired for many of the campaign months. April was a notable exception and corresponded to Automatic's email to their customers to promote the program. Overall, 150 devices were sold as part of the program. However, throughout the campaign, the conversion between Automatic page views and device purchase was only 6% to 7%. While this is low, it is slightly higher than Automatic's standard website conversion rate of 4%. It would

have been useful to understand how low this conversion rate typically was before developing the campaign strategy in order to set expectations for the outcomes and narrow the focus of the outreach.

During the campaign, the program team noticed that a large number of devices were being sold without the program discount. In fact, less than half of the devices sold in Best Buy stores during the campaign were purchased using the program discount, even though there were program hangtags and flyers on the in-store displays and customers simply had to ask Best Buy employees for a pre-printed coupon (see Section III.5.2 for more information on the displays). Based on this issue, the program team tested out new language on the hangtags to highlight the discounted price in five stores starting in May. There was a relatively high number of coupon activations in May, but it is unclear whether that was a remnant of Automatic's email blast or if the new hangtags were more effective. Regardless, the uptick in activations did not extend beyond May. It would have been preferential to have the discounted price listed on the actual price tag of the device rather than just on the hangtag. This may have been a source of confusion and the brightly colored discount tags are something that consumers are accustomed to looking for when they are searching for deals.

4. Greenhouse Gas Impacts

As mentioned in the program overview, MTC implemented the Drive Smart Bay Area program to help achieve the region's GHG emissions reduction targets, as required by SB 375. To do that, the design of the program focused on widespread distribution of smart driving tips and devices, rather than on creating a program where GHG emissions reductions could be rigorously analyzed. Therefore, the estimates of program GHG benefits rely on a series of assumptions.

4.1 Methodology

The Drive Smart Bay Area program uses the same GHG emissions reduction methodology as the Plan Bay Area smart driving strategy. This sections provides an overview of the methodology and assumptions.

4.1.1 Marketing Campaign

Although the marketing campaign recommended a full suite of smart driving behaviors, the analysis assumes that residents adopt several core smart driving strategies. For the purposes of this analysis, the strategies are grouped into the following three buckets:

1. Smoothly accelerate and decelerate, and stay at or below the speed limit.
2. At least once per week, link several trips together that you would normally make separately, such as going shopping and to the post office.
3. Use trip planning applications that plan your trips to ensure that you use the shortest routes and avoid traffic.

These activities are consistent with responses to the Baseline Climate Initiatives Survey that MTC conducted in February 2011. As part of the survey, MTC asked Bay Area residents about the ease of adoption of various emission reducing behaviors.[5]

In the survey, 55% of participants stated that it would be Very Easy or Easy to practice "smooth acceleration and deceleration and staying at or below the speed limit." The U.S. Department of Energy reports on their website that rapid acceleration and deceleration, and speeding can lead to fuel economy reductions from 5% on city streets to 33% on freeways.[6] This analysis assumes an average fuel economy reduction of 10% for this behavior.

In MTC's Baseline Climate Initiatives Survey, 60% of participants stated that it would be Very Easy or Easy to practice "at least once per week, link several trips together, such as going shopping and to the post office, which you would normally make separately." For purposes of this analysis, that statement is interpreted to mean that due to the smart driving educational campaign, the driver will link three shopping trips per week (effectively eliminating two trips for a total reduction of 8.4 miles per week based on MTC's travel model outputs).

In MTC's Baseline Climate Initiatives Survey, 57% of participants stated that it would be Very Easy or Easy to practice "Using trip planning applications that plan your trips to ensure that you use the shortest routes and avoid traffic." By avoiding congested routes and eliminating idling in traffic, Plan Bay Area assumed that drivers can improve their fuel efficiency by 5%, which is on the low end of research conducted by Facanha.[7]

The program team understands that not everyone who heard or saw the Drive Smart Bay Area campaign would automatically adopt smart driving behaviors. The public needs to see or hear an advertisement multiple times before recognizing the message and being able to practice the requested behavior change. The team assumes that 12 views are needed before the resident would internalize the message.[8]

After a message is internalized, the viewer must decide if this behavior is consistent with their lifestyle and/or self-image. The team assumes that the same percentage of the population that stated in the MTC Baseline Climate Initiatives Survey that the given behavior would be "easy" or "very easy" to adopt could adopt the behavior after internalizing the campaign message. This pool of residents who internalize the message and find the behavior easy to adopt are the potential adopters.

Finally, to adopt the desired behavior, a resident must not only view the campaign and find the behavior easy to adopt but also be motivated to make a change (assuming that they were not practicing the desired behavior before viewing the campaign). This analysis assumes that 10%

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[5] MTC conducted a Baseline Climate Initiatives Survey in February 2011. It was a 15-minute random digit dial and cell phone sample of Bay Area driving age residents. It was offered in English, Mandarin, and Spanish and had an overall margin of error of ±3.5%

[6] US Department of Energy, Office of Energy Efficiency and Renewable Energy, US Environmental Protection Agency, Model Year 2005 Fuel Efficiency Guide, DOE/EE-0302

[7] Cristiano Facanha, "Effects of Congestion and Road Level of Service on Vehicle Fuel Economy", Transportation Research Board's 88th Annual Meeting, Paper 09-0268, Washington, D.C. National Academy of Science, 2009.

[8] The estimated number of views needed for the target audience to engage with the message varies dramatically by the medium and quality of the creative, but 12 views is seen as relatively standard conversion rate by marketing firms such as RHDG and Wit Media.

of people who viewed the campaign and stated that the behavior adoption would be easy actually adopt the behavior.

For this assessment, the team assumes that the smart driving behaviors will persist for one year without additional reminders from a continued education campaign.

4.1.2 Automatic Devices

In Plan Bay Area, MTC used a National Renewable Energy Laboratory (NREL) theoretical study to estimate the benefits of smart driving in-vehicle devices. Based on this study, MTC assumes a 5.6% emissions reduction potential from the use of in-vehicle smart driving devices. The team also assumes that residents will continue to use their device for four years.

4.2 Findings

Using the methodology and assumptions outline above, the Drive Smart Bay Area program is estimated to have reduced GHG emissions by 73 tons over the seven months of the campaign. Almost all of the emissions reductions can be credited to the educational components of the campaign with minimal contributions from the in-vehicle devices. This is due to the low success of device sales and the higher success with creating media impressions with the advertising.

If the campaign had run for a full year with similar tactics and outcomes, it is estimated that the annual GHG emissions reductions would have been 124 tons.

The achieved levels of GHG emissions reductions falls significantly short of the approximately 1,400 tons of GHG emissions needed from Smart Driving in 2020 and 2035 to achieve the Plan Bay Area program objectives. However, the Plan Bay Area program includes a total investment level of $161 million in Smart Driving education and device distribution between 2013 and 2035. By comparison, the current Drive Smart Bay Area program only ran for approximately seven months (with online sales only available for three months) with a total cost of $266,000. From a cost effectiveness perspective, Drive Smart Bay Area has thus far been more cost effective at reducing GHG emissions than the overall Plan Bay Area smart driving program was projected to be.

5. Summary of Impacts

In summary, Drive Smart Bay Area achieved the following metrics:

- **More than 10 million impressions** through online and offline media.
- **22,246 unique page views** for the Drive Smart Bay Area website over the course of the campaign.
- **1,169 video views** for the Drive Smart Bay Area animated video.
- **Approximately 1 in 10 site visitors** viewed the animated video when it was required for purchase.
- **125 document downloads** of device-related and educational PDFs.
- **332 page views** for the Automatic Program webpage.

- **150 devices sold** at a discounted rate as part of the program. An additional 102 devices were sold at full price in Bay Area Best Buy stores during the campaign.
- **73 tons of GHG emissions avoided** over the 7 month campaign (estimated to be 124 tons if the program had run for one year) with almost all of the emissions reductions stemming from the educational component of the campaign.

V. Recommendations

This section expands upon the lessons learned throughout the program and provides recommendations for future smart driving programs. The program team encountered multiple barriers and challenges during program development and implementation, and learned lessons to address these challenges.

Set Realistic Expectations

Selling a product is difficult. While getting hundreds of unique visitors to the program website was significant and indicates that many drivers learned about fuel-efficient driving habits, only a fraction of those visitors clicked through to Automatic's website. During the latter part of the campaign, the staff at Automatic explained that it can take millions of page views to translate into hundreds of purchases. In fact, Automatic staff see only about a 4% conversion rate from website hits to purchases. Without understanding this conversion rate from the beginning, the Drive Smart Bay Area team began the program with unrealistic expectations about the number of devices they would be able to distribute under the program.

Timing of Campaign

Various factors affect the success of behavior change campaigns, including the timing of the campaign. Sometimes seasons can affect a campaign's success (e.g., summer vs. winter) or, in this instance, the variable price of a necessary commodity (e.g., variable price of fuel). During the course of the Drive Smart campaign, the price of gas hovered around $3 per gallon (low by Bay Area standards) with little change in that price throughout the course of the campaign. This could have impacted the low sales of the Automatic device and the lower viewing of the Drive Smart video. Higher fuel prices may motivate drivers to look for alternatives to save money, including using smart driving devices and practices. Thus, implementing a smart driving campaign may be more successful if it can be timed with a higher price of fuel in the Bay Area.

Determine How to Educate the Public and Promote Devices

Selling a new technology product while also educating about smart driving is even more difficult. Since the general public is not familiar with connected vehicles and tools that plug into the OBD port of a car, the marketing team had to develop materials to describe the device and educate the public about the device, instead of focusing on the fuel-efficient driving tips. In general, there was tension between using small online ads and short radio reads to educate the public about smart driving strategies and promoting the Automatic device. Future campaigns striving to do both would be well served by thinking through this tension and determining the resources to be allocated towards educating the public versus promoting in-vehicle devices.

Incorporate More Direct Marketing from Fulfillment Partners

Nearly all marketing of the device discount was implemented by the program team rather than by Automatic or Best Buy. However, as was seen by the spike in discounted device sales from Automatic's Earth Day email blast, direct marketing from Automatic had a much larger impact on sales than any broad marketing channels the program team used. While implementing general marketing strategies such as Google ads are still recommended, it is advised to also

engage sales partners to use their existing channels to promote this type of program. For example:

- Automatic could market the program on their homepage, advertising the discounted price for Bay Area residents and directing them to their purchasing options.
- Best Buy could mark the discounted price directly on their sales tag to both attract shoppers' attention to the sale and to ensure that everyone understood the discounted price. This also would ensure that Bay Area residents automatically received the discount.
- Automatic, Best Buy, and MTC could all advertise the discounted device price in the Bay Area. This would ensure that consumers aren't receiving mixed messages by seeing one price in an Automatic advertisement and another price in an MTC sponsored advertisement.

Minimize the Steps to Purchase a Discounted Device

Initially, participants had to get to the program website, watch a four-minute animated video, and then follow a link at the end of the video to reach Automatic's program landing page before they could purchase the discounted device. Website analytics showed that many visitors were getting to the program website but not to the Automatic landing page, which may be due to the multiple steps that were required for purchasing. This issue was exacerbated when online sales were not possible and participants had to take the additional steps of downloading a coupon and then going to a local Best Buy to purchase the device. Ideally, a participant would be directed by marketing media to a single simple webpage where they could view the driving tips and product information *and* purchase the device.

Test Consumer Price Sensitivity

Consumers are price sensitive. Early in the campaign development, the Automatic device price was set at the promotional price of $50, half off the retail price. This price was based on the desire to ensure consumers still understood the value of the device (which may have been diminished if the price was too low) and Automatic's comfort level with offering discounts. It would be useful to test the effectiveness of lowering the device price to drive up sales. It could even be helpful to give the devices away for free and survey those who received them to determine if and how they were being used. This information could be used to determine the best price point for this type of program, which may be different than the price for the general consumer market that Automatic pursues.

Consider Alternative Marketing Ideas

Throughout the campaign, the program team developed additional marketing and outreach ideas to address low device sales. These approaches focus on the value add that MTC could bring to promoting smart driving education and device purchasing. This is distinct from the original campaign strategy that employed the same marketing channels that Automatic was already using to promote their device (e.g., Google Ad Words, banner ads). This duplication of media may have oversaturated existing populations and potentially confused customers due to inconsistent messaging about the product price. In the future, MTC or other public agencies

should focus on connecting with local residents through more on-the-ground or locally engaging channels. These approaches represent a significant shift from the original efforts. New outreach ideas include:

- **Bay Area Drive Smart Week** – Declare the first week of summer to be the Bay Area's "Drive Smart Week" to generate awareness for driving smart and Automatic using both digital and physical outreach. Engage with media and influencers with an associated event such as a ride-and-drive to demonstrate the smart driving device and tips.
- **Quiz: Are You Really a Smart Driver?** – Partner with a local outlet that has national recognition such as Thrillist SF or SFist, to create a custom quiz that tests each person's knowledge of smart driving tactics. The quiz could engage media and consumers' emotional side with a fun, yet informative way to learn about smart driving tips.
- **Infographics** – Bring the benefits of smart driving with Automatic to life using themed infographics to be used in outreach to consumers, businesses, and local media. Examples of themed infographics include:
  - Consumer Savings Infographic: How quickly does an Automatic pay itself off? How much money on average can a driver save per year when driving smart?
  - Lifestyle Infographic: Pull data from Automatic's database to address pressing "lifestyle" topics (e.g., on what Bay Area freeways or bridges are drivers being smart or not?).
- **Drive Smart with Ayesha & Riley** – Take Drive Smart Bay Area's tips on the road with the Bay's most loveable mother-daughter duo, Ayesha and Riley Curry (or other local celebrities/influencers). Riley could help Ayesha in sharing the smartest ways to drive efficiently with the help of Automatic. Videos could be shared through Ayesha's social channels:
  - Instagram: 2.7M Followers
  - Twitter: 289K Followers
  - Facebook: 98K Likes
- **Gamification** – Keep in touch with program participants by creating a competition for the most improved or overall highest in-vehicle device drive score. This competition might both encourage people to buy the device AND get consumers to really internalize the smart driving tips.
- **Increase Social Media –** Smart driving tips can be summarized in a short statement that is easy to share via social media. MTC can take advantage of their existing social media base by regularly tweeting or posting smart driving tips.
- **Advertise at Park & Rides and Casual Carpool –** These Bay Area locations attract commuters that are generally interested in saving money or reducing their environmental footprint, making them key targets for smart driving tips and devices.
- **Use Existing Consumer Bases –** When Automatic emailed previous Bay Area purchasers, it drove the largest jump in sales. Ideally, other networks of potentially interested consumers could be targeted. For example, MTC could better leverage their connections with county level Congestion Management Agencies (CMAs), their

involvement with the Commuter Benefit Ordinance program, and/or their ride match database to target more consumers.

Appendices

Appendix A

Exhibit 33. OBD Devices, Apps, and Services Reviewed for Inclusion in Program Campaign

Device/Service	Product	Price	Service Fee	Compatible Operating System	Fuel-Efficient Driving Feedback	Features
Audiovox Safe Driver Car Connection	Both (OBD port and app)	$50	$100/yr	Android, iOS	Summary only	Driver behavior scoring; Diagnostics; Trip tracking; Phone safety restrictions
Automatic	Both	$100	n/a	Android, iOS	Real-time with efficiency focus	Real-time audible feedback on driving behavior; Diagnostics; Automatic accident notification; Trip tracking
BAFX Bluetooth OBDII Scan Tool	Device only	$24	n/a	Android	n/a	n/a
Battelle VITAL	Both	unlisted	unlisted	Android, iOS	Real-time with efficiency focus	Driving behavior feedback; Diagnostics; Trip tracking
Craven OBDII Connector	Device only	$45	n/a	Android, iOS	n/a	n/a
Dash	App only	$0	n/a	Android, iOS	Real-time with efficiency focus	Real-time audible feedback on driving behavior; Diagnostics; Trip tracking; Typical maintenance costs
DashCommand	App only	Android $0 iOS $10	n/a	Android, iOS	Real-time	Real-time MPG; Diagnostics; full features partly depend on device
Delphi - Verizon	Both	$249	2 years included	Android, iOS	None	Diagnostics; Trip tracking; Geofencing; Key fob
Efficiency, Free	App only	$0	n/a	Android	Real-time with efficiency focus	Real-time driving behavior feedback; Diagnostics; Trip tracking
Harry's Lap Timer	App only	$20	n/a	iOS	None	Diagnostics; Performance metrics; Trip tracking
Kiwi 2 Bluetooth/Wifi	Device only	$100	n/a	Android, iOS	n/a	n/a

Device/Service	Product	Price	Service Fee	Compatible Operating System	Fuel-Efficient Driving Feedback	Features
Mojio	Both	$150	$5/mo after 1st year	iOS	Summary only	Driving behavior summary; Diagnostics; Trip tracking; Trip log; Communication w/others
OBD Car Doctor Pro	App only	Android $3 iOS $4	n/a	Android, iOS	Summary only	Driving behavior summary; Diagnostics; Performance metrics
obdCANex	App only	$5	n/a	Android	None	Diagnostics
OBDLink MX WiFi/LX Bluetooth Scan Tool	Both	$120/$70	n/a	Android, iOS	Real-time	Real-time MPG; Diagnostics
ScanMaster	App only	$0	n/a	Android	None	Diagnostics
Torque Lite	App only	$0	n/a	Android	Real-time	Real-time MPG; Diagnostics
Zubie	Both	Included in service fee	$100/yr	Android, iOS	Summary only	Driving behavior summary; Diagnostics; Trip tracking

Appendix B

[insert Marketing Materials PDF in final PDF version]