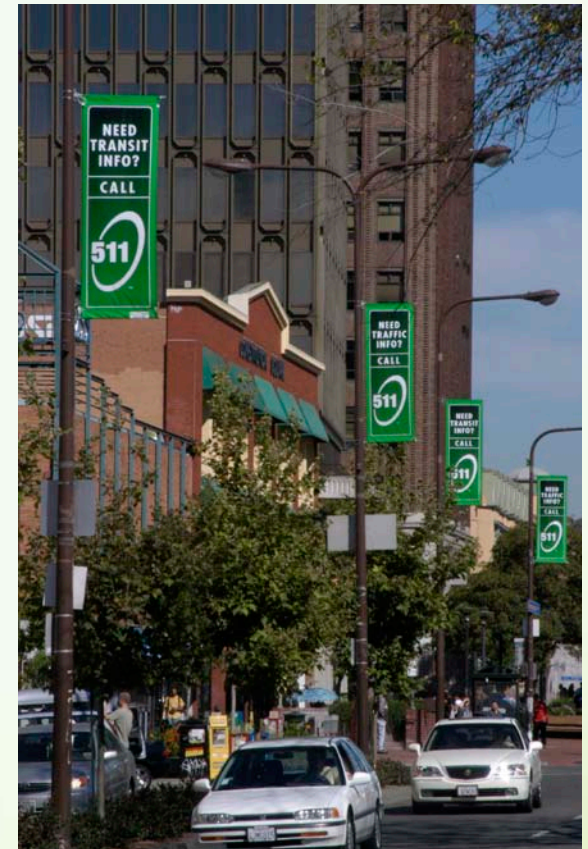


The Promise and Challenges of Creating Intelligent Travelers

Presented by
Melanie Crotty, Director
Traveler Information & Coordination
MTC



Questions to Answer



- 1. What are the impacts of traveler information technology?**
 - Can it improve efficiency & safety?
 - What are implications for mobility & the environment?
- 2. Is traveler information technology cost-effective?**
- 3. How should traveler information be delivered?**
 - What are the best roles for the public and private sectors?
- 4. What are policy considerations?**

Bay Area 511 Services

511

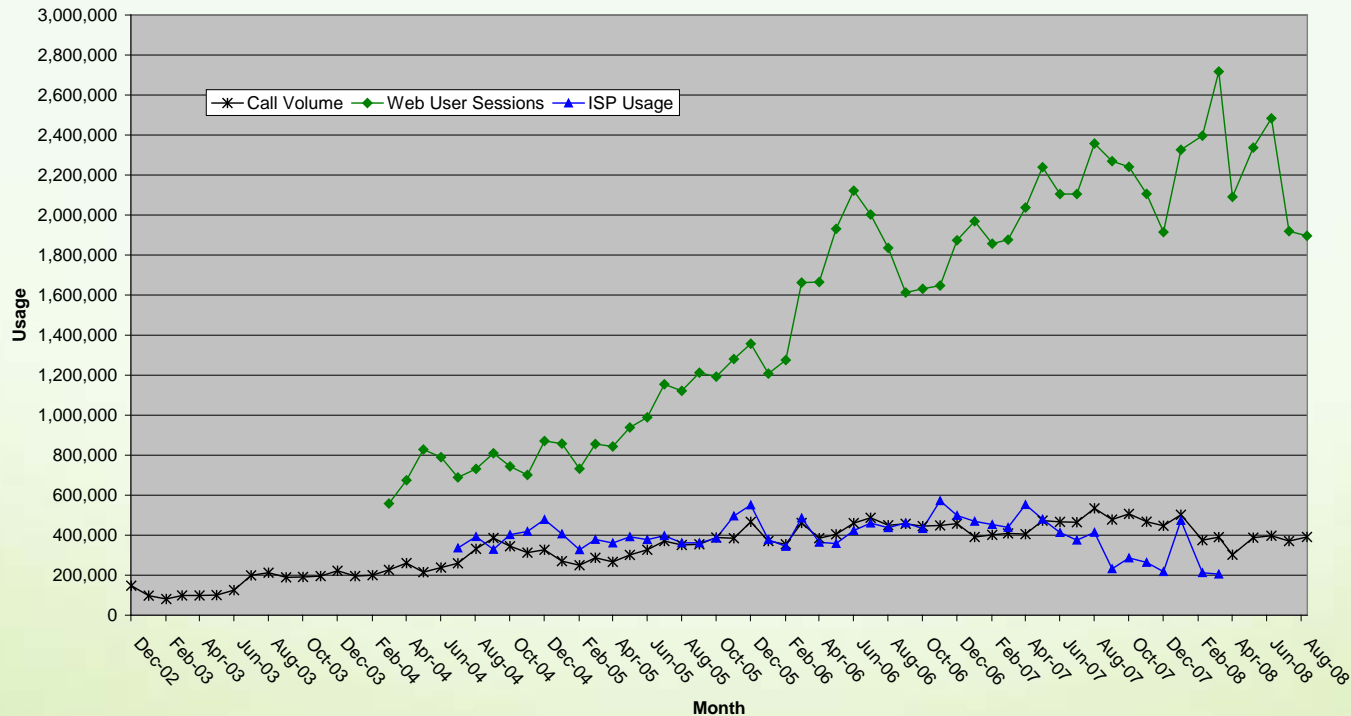
- **Multi-modal Information**
 - Traffic
 - Transit
 - Ridesharing
 - Bicycling
- **Available on the Phone (511) & Web (511.org)**
- **Driving times on CMS**
- **Data feed to ISPs**
- **Innovative 511 Features**
 - Real-time traffic conditions
 - Customized driving times
 - 40+ transit agencies in trip planner
 - Real-time transit info
 - 24/7 TIC Ops in Caltrans TMC
 - MY 511
 - Online ridematch tool



Phone and Web Usage Summary

511

- **3 Million Calls/Sessions Per Month**
 - +400,000 calls/month
 - +2.5 M web sessions/month
- **Cumulative usage**
 - 23 M calls and 85 M web sessions



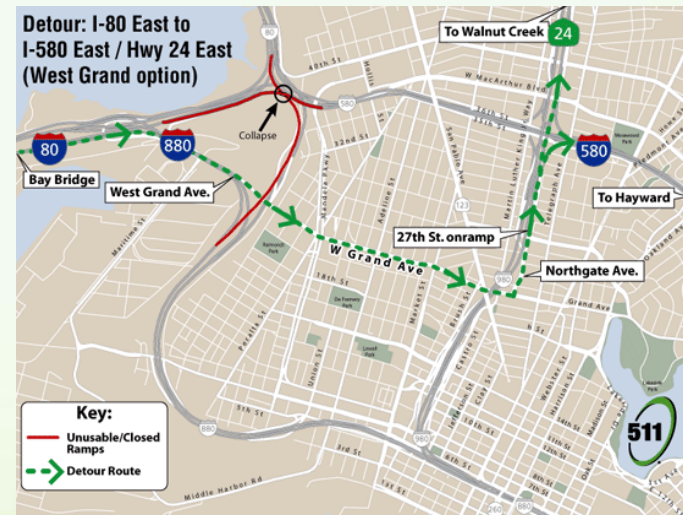
511 in Emergencies

511

- 511 is recognized as an important public outreach tool by partners & media
- During an emergency, 511 is expected to provide:
 - Breaking news for traffic & transit
 - Detour maps, directions and driving times
 - Public transportation information
 - Rideshare and park & ride lot information

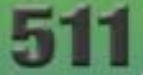


Photo: Caltrans



1. Impacts of Traveler Information

Improve Efficiency and Safety?

The logo for 511, featuring the number '511' in a bold, black font, enclosed within a white, stylized oval shape that resembles a road or a path.

- **Unclear how many drivers would need to use 511 and alter their trip to alleviate congestion**
 - During MacArthur Maze closure, a 17% decrease in traffic volume caused a 23% travel time reduction on impacted corridors.
 - 511 provides tools for drivers to find alternatives to driving alone. Most users do not switch modes. In a 2007 survey:
 - 4% changed from a car trip to transit trip
 - 1% changed from a transit trip to car trip
 - 1% canceled trip
- **Safety benefits are “soft” (i.e. alerting drivers of congestion ahead)**
- **511 Focus: Providing traveler information**
 - Maximizes efficient use of the transportation system
 - Plays an important role in emergency management

Benefits for Travelers

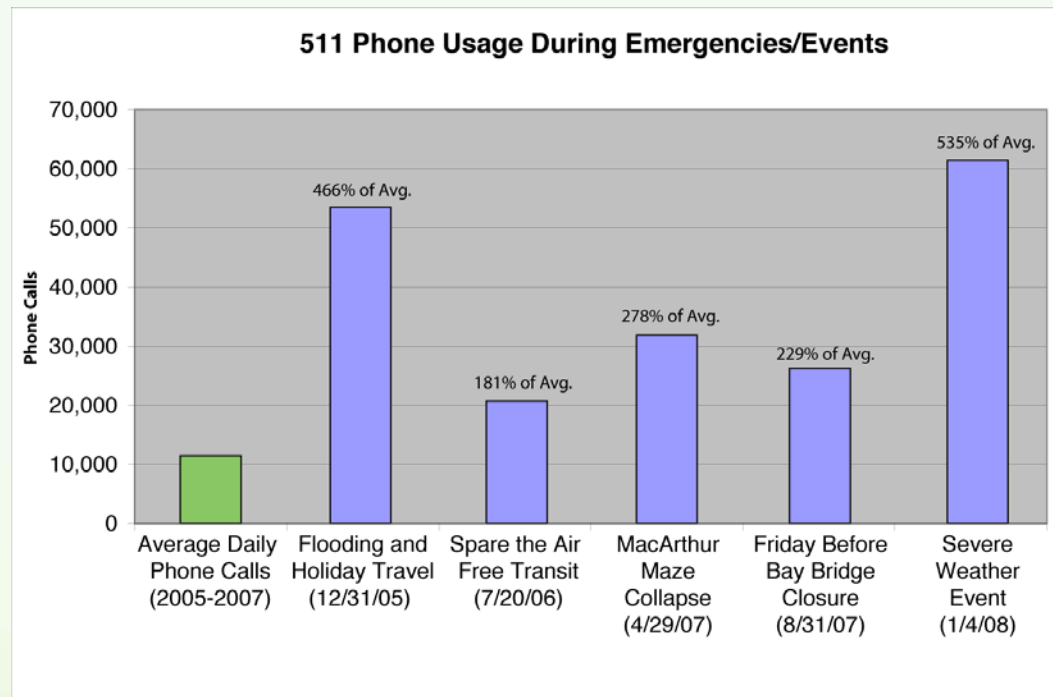
511

- **Benefits for travelers more easily defined**
 - Time savings
 - ✓ More than 80% say that 511 helps them save time
 - Reduced stress/greater control
 - ✓ More than 80% say that 511 helps them reduce stress and anxiety

- **Benefits greatest during emergencies and incidents:**

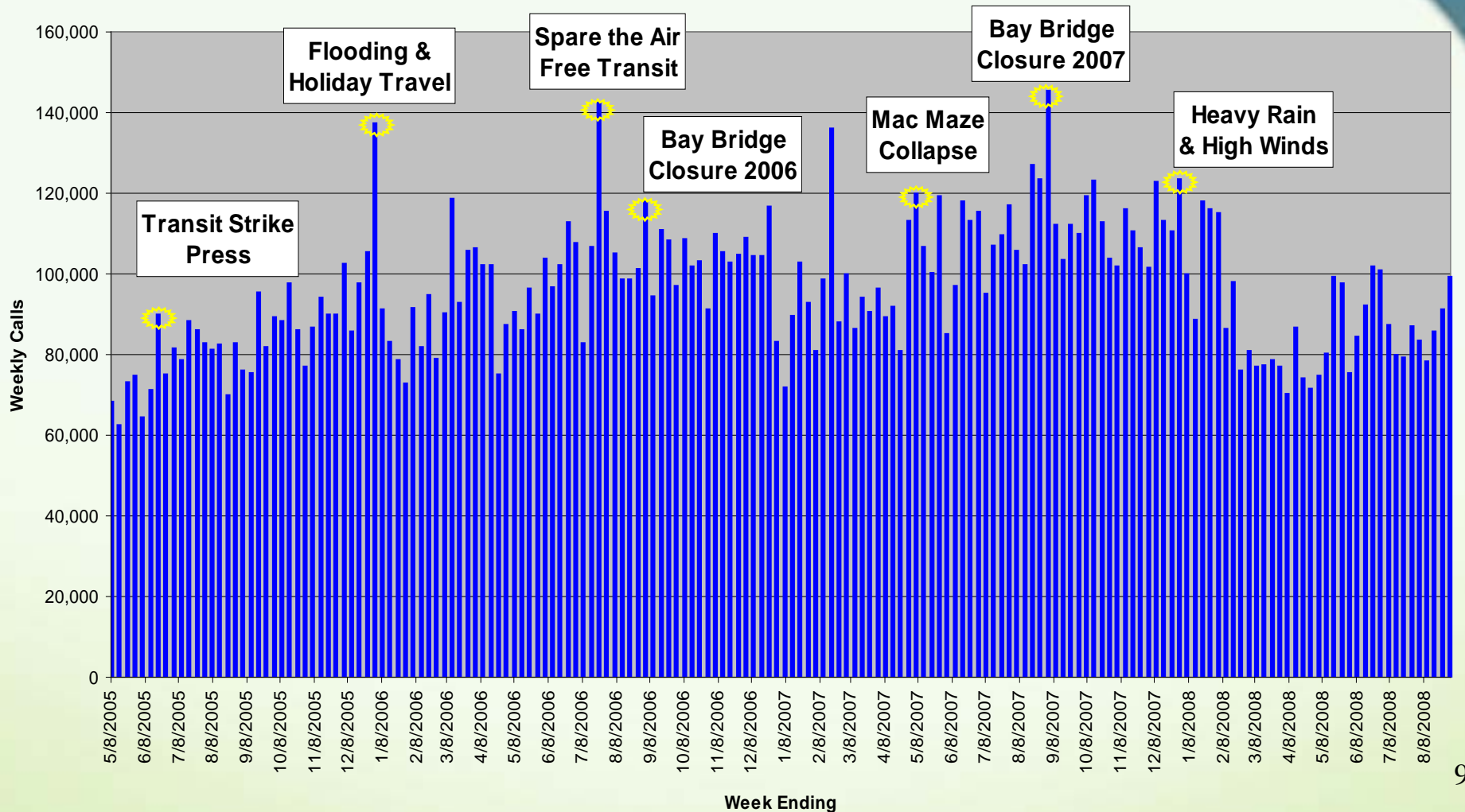
- ✓ 70% of non-users likely use 511 to get emergency and traffic conditions information

- ✓ 511 usage spikes



Call Spikes Due to Incidents

511



Impacts on Mobility and Environment?

511

- **Only one piece of the equation, but enables travelers to make**
 - Travel and commute plans
 - Real-time decisions about routes and modes
- **Web tools support housing/commute planning**
 - Transit Trip Planner
 - Predict-a-TripSM
 - 511 RideMatch Service
 - 511 Bike Mapper
 - Commute Calculator
- **Real-time trip decisions**
 - Travel times, transit & traffic conditions (phone)
 - MY 511 alerts via e-mail & text messages
 - Dynamic ridematching

511 Rideshare
On the phone, 511. On the web, 511.org. On your way.

MFRT TRASH TRAFFIC RIDESHARE BICYCLING 511 HOME LINKS

511 Rideshare Service
Commute Rewards and Incentives
Carpooling
Bicycling
Carpooling
Carpooling (CPOV) Lower cost of life
511 Rideshare
Car, Street
Commute Calculator
Rideshare or Transit
511 Home
511 Bike Mapper

COMMUTE COST AND EMISSIONS CALCULATOR
Cost and Emissions Calculator Input

How much do you spend on your commute? How much does your commute affect the environment? It may be more than you think. Use the calculator below to find out.

Enter average number of miles you commute roundtrip each day: 95

Enter average number of days you work per month: 22

Enter average miles per gallon of your automobile: 23

Enter average cost per gallon of fuel you pay: 1.43

Enter your daily parking costs (if any): 75

Estimated cost per mile for maintenance and tires: 0.00

Calculate Print

* Cost estimate based on the AAA "Your Driving Costs 2006"



COMMUTE COST AND EMISSIONS CALCULATOR

What does your commute cost?

Driving solo can really add up—not only in fuel costs, maintenance, and repair—but on the toll it takes on our earth. The changes you make in your daily commute will not only impact your wallet but the effects on global warming too.

Commute Cost:

Based on the data you provided, your financial cost when driving alone is:

Source: AAA "Your Driving Costs 2006"	Daily Cost	Monthly Cost	Yearly Cost
	\$26.10	\$574.28	\$6,891.41

How can you save?

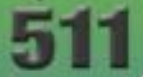
Ridesharing can cut your monthly commute costs by half or more.

Your expenses are reduced when you carpool—check it out!

Your solo commute costs:	\$574.28
Carpooling with 1 person:	\$287.14
Carpooling with 2 people:	\$191.43
Carpooling with 3 people:	\$143.57

2. How Cost-Effective is Traveler Information Technology?

How Cost-effective is Traveler Information Technology?

The logo for Bay Area 511, featuring the number '511' in a bold, black font inside a white oval shape with a green outline.

- **Cost to deliver Bay Area 511**
 - Combined cost of current services is \$11m/year
- **Meeting user demands requires commitment**
 - High level of accuracy required, frequent changes to traffic & transit data
 - Must stay abreast of/take advantage of new technologies on multiple platforms
 - Marketing/informing users of new features
- **Expectation that private sector will help defray cost has not materialized**

3. Traveler Information Delivery: What are the Best Public & Private Sector Roles?

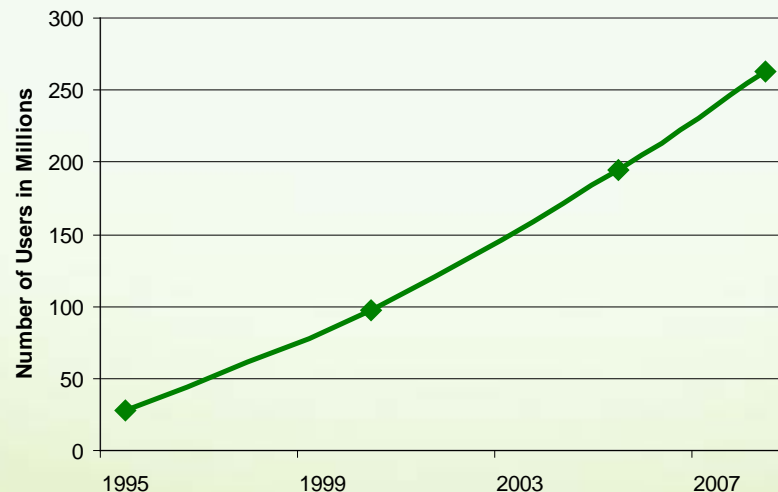
*What are the
emerging trends for
the private sector?*



Trends in Cell Phone Ownership



- **Cell phone usage continues to increase**
 - 89% of US adults have a cell phone (77% in 2006)
 - One in seven adults now uses only cell phones
- **Text messaging overtakes calls**
 - In Q4 2007, first time more text messages than calls. Text messaging growth continues, while avg #calls has dropped slightly.
- **Adoption from low income groups**
 - 61% of Americans who make \$30,000 or less have cell phones.
 - “Cell phone only” users more likely to earn under \$15,000
 - 44% of lower income cell users do a non-voice data activity on a typical day.



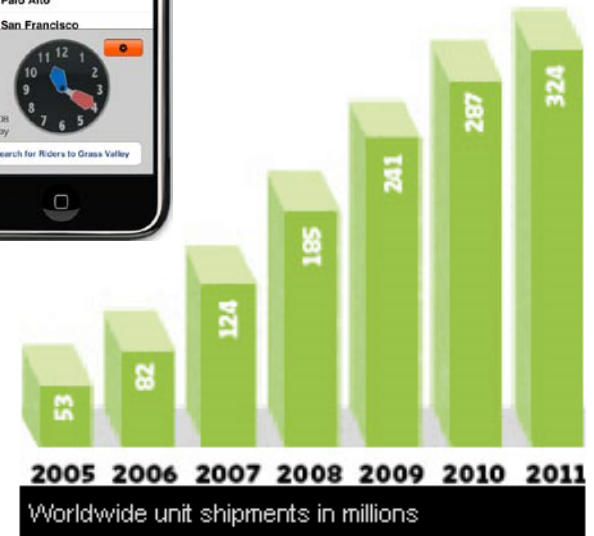
Smartphones

511

- GPS receiver allows for real-time position tracking
- Open platform application programming for mobile internet
 - Google Android Market
 - I-Phone App Store



- GPS market penetration expected to continue rapid increase

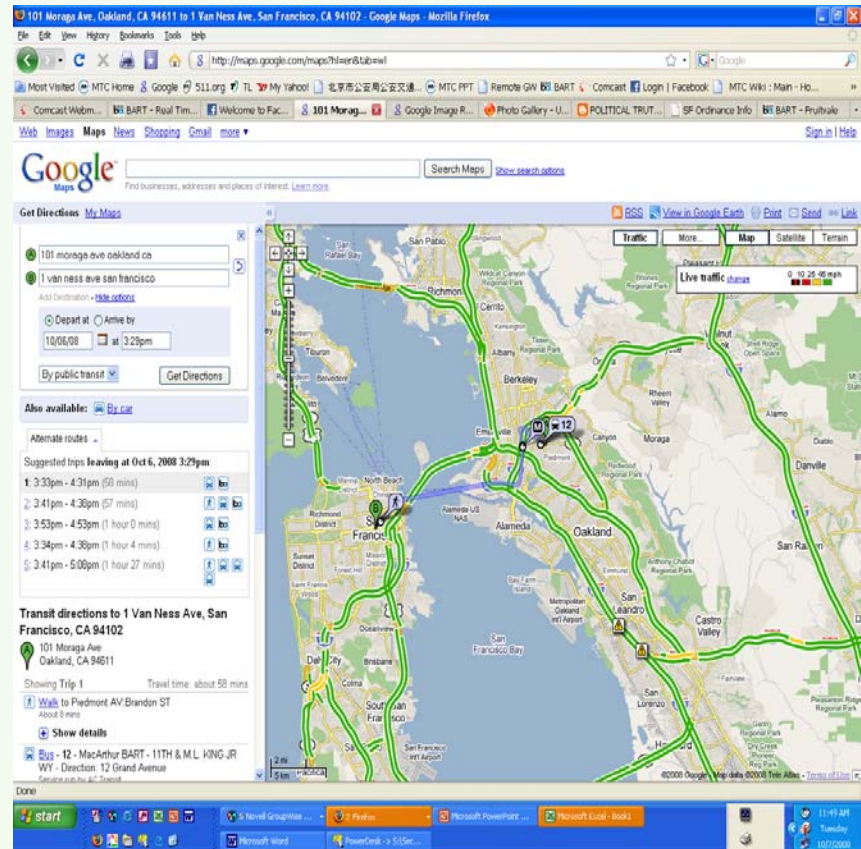


Synergy with transportation information....

Google Maps

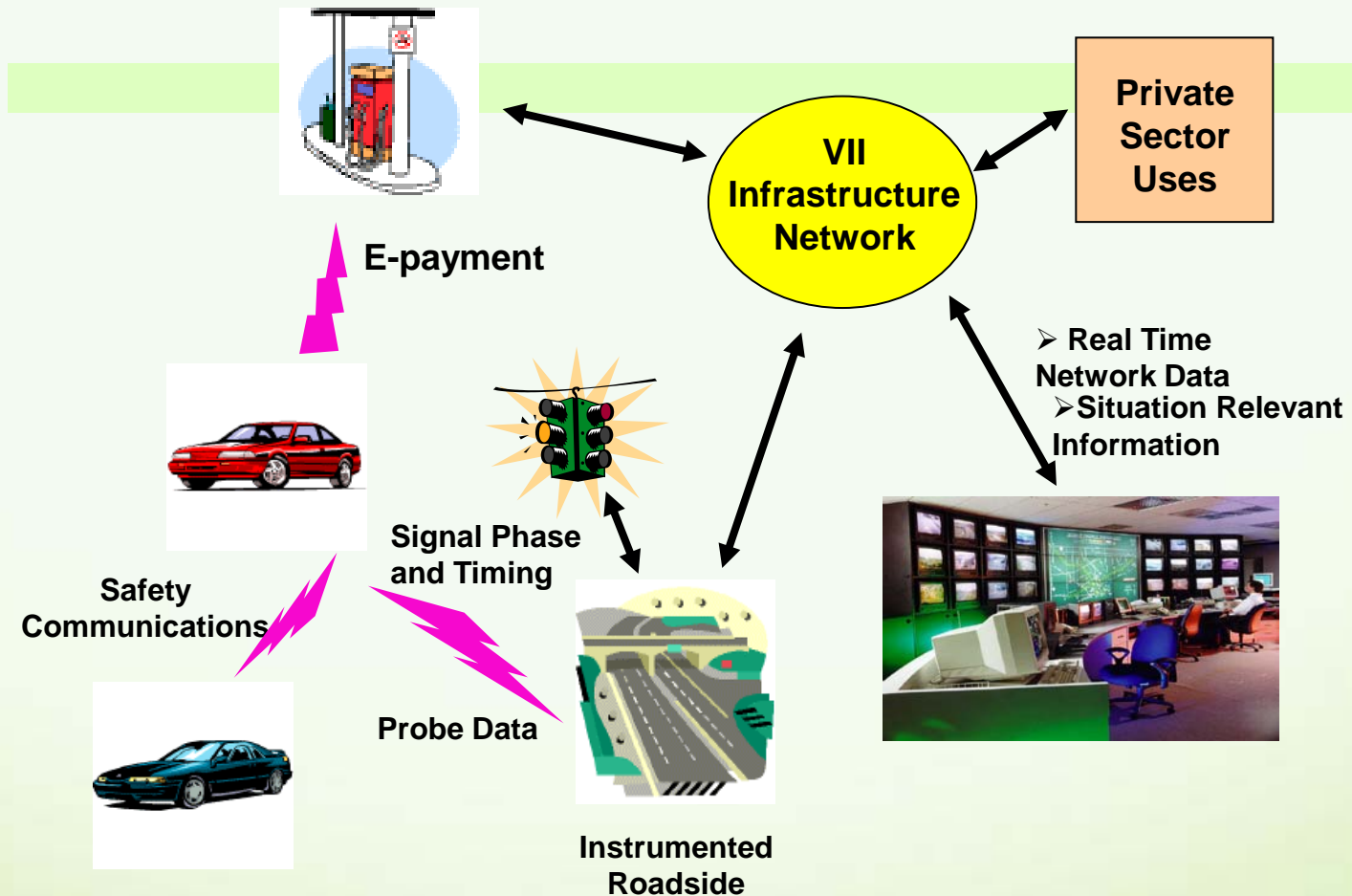
511

- **Multi-modal trip planning through Google Maps**
 - Driving directions, traffic conditions & predictions, , cameras
 - Transit trip planning for 20+ metro areas (54 systems)
 - Interest in bike planning, dynamic ride share, real time transit
 - “Maps for Mobile”
- **Duplicates publicly provided traveler info. But Google wants to be 2^{ry} distribution channel, not primary.**
- **Other competitors...**



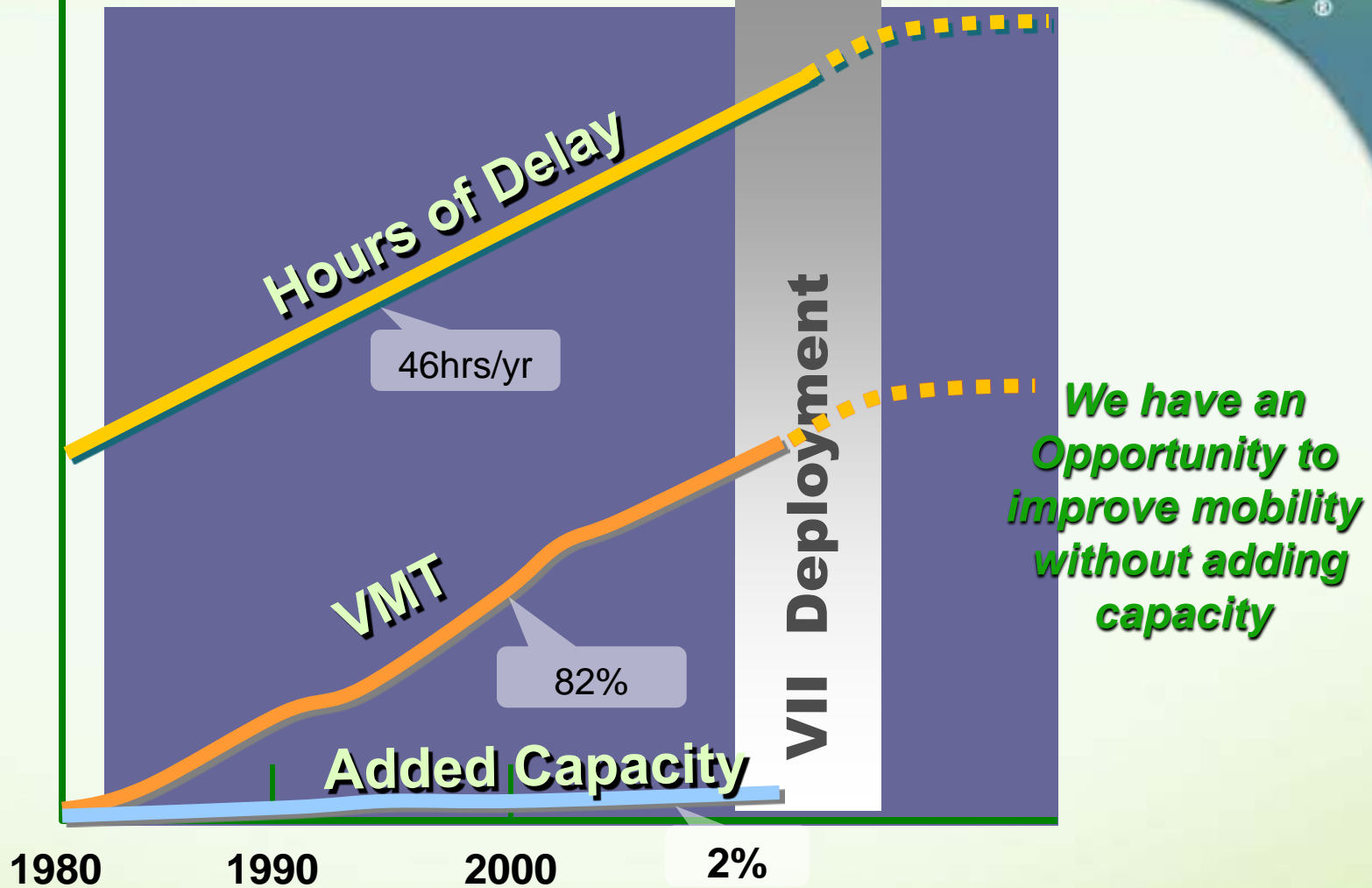
VII: Mobility Through Better Information

Vehicle Infrastructure Integration (VII)



VII: Mobility Through Better Information

511



Source: FHWA

Technology and Market Trends

511

- **Cell phones**
 - Adoption at all income levels
 - Text messaging overtakes calls
- **Personal devices**
 - Sharp growth in GPS enabled devices
 - Open platform application programming for mobile internet
- **Google/other web based applications**
- **2008 Vehicles**
 - 25% equipped with in-vehicle navigation system
 - 55% equipped with satellite radio

Private sector is poised to deliver traveler information in a huge way



APPLE INC. / NYT



4. Policy Considerations

Public and Private Roles?



- **Today's Model:**

- Public sector collects, processes and disseminates data
- Public sector provides data free of charge; private firms collect and sell data
- Private data disseminators (broadcasters, Google, etc.) integrate both public and purchased data into their tools

- **Alternative Models:**

- Public sector collects, purchases, & fuses data
- Private sector disseminates

- **Further Evolution**

- Private sector takes over all collection and dissemination.

- **Caveat**

-market is notoriously difficult to predict

Public Willingness to Use



	Private	Public
Technology Nimbleness - responds to consumer preferences		
Keeps up with technologies	●	◐
Ability to innovate	●	◑
Quality/coverage of data -accurate, reliable, comprehensive		
Traffic	●	◑
Transit	◐	●
Universal access - equity, availability in emergencies		
Service is available to 100% of population	◑	●
long term stability	◐	●
robust redundancy	●	◐
Public awareness - need to know, to use	●	◑

Challenges of Relying on Private Sector

511

- **Road Pricing Policy Initiative.**

- HOT lanes, parking fees, variable tolls on bridges, transit peak-period pricing
- To be effective, it must be in real-time and ubiquitous
- Charging users for information that is better than what they get elsewhere is not good systems management.



- **Addressing Equity**

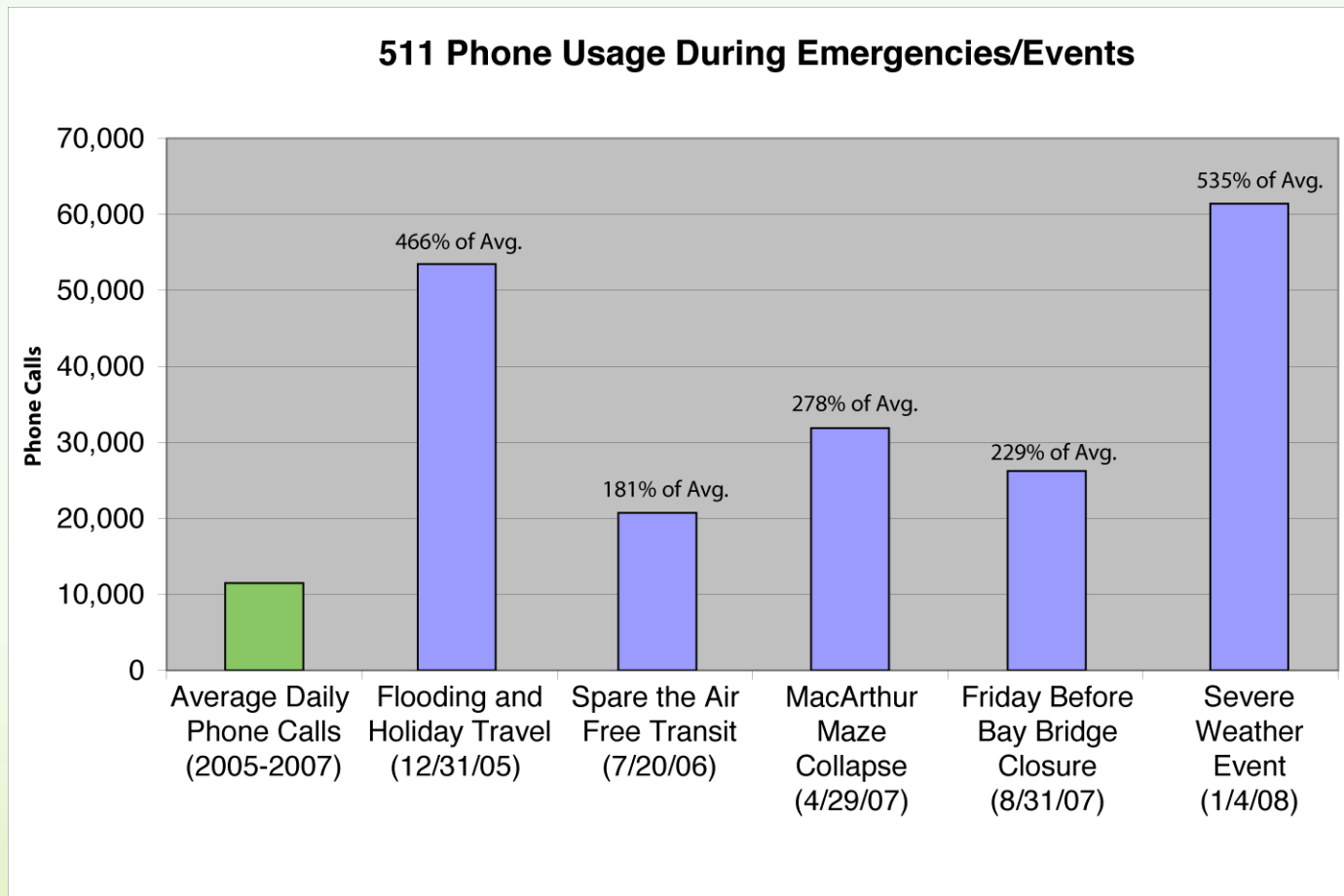
- Will information be available to all? Vehicle-based solutions have serious equity issues, mobile apps/PDAs to a lesser extent.



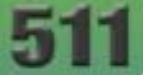
Challenges of Relying on Private Sector

511

- Need to guarantee message channel to public during emergencies



Conclusion – Technology Tipping Point?!

The logo for 511, featuring the number '511' in a bold, black font, enclosed within a white, stylized oval shape that resembles a speech bubble or a signal icon. The background of the logo is a light green color.

- **Monitor long term prospects in context of limited resources**
 - Stable operations while continuing development to meet user expectations
 - Technology trends, stability/continuity of private sector
 - Assess “skimming the cream”. Will companies be comprehensive? Provide transit info as well as traffic? Exclusive focus on info that is profitable?
- **Reduce public sector responsibilities, as private sector demonstrates excellence and market dominance**
 - Likely to be evolution, revolution
 - Start by reducing dissemination channels; refocus to data collection
 - Over time, re-assess data collection
- **Protect the public interest, while ensuring cost efficiencies (System Manager, Emergency Responder)**

Thank You!

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510-817-5880

511 Data Feed

511

- **Provide data feeds:**
 - **traffic information** (1996) – 12 registered disseminators, 345,000 user sessions monthly
 - **transit information** (2007) – 12 registered disseminators, 3 applications in development
- **Both public sector and private sector usage.**
- **SF Gate frames the 511 traffic map, and credits 511 (“powered by 511”).**

The screenshot shows a portion of the SF Gate website. On the left is the SFGate.com navigation menu with links for Quick Search, Advanced Search, SF Gate Home, Today's Chronicle, News (NEW!), Sports, Business, Entertainment, and Food & Dining. The main content area features an Extended Stay Hotels advertisement for suites starting at \$46.99/night. Below the ad is a 'Traffic' section with a live traffic map of San Francisco and its surrounding areas (East Bay, Peninsula, Marin, North Bay, South Bay, and Transit). The map is powered by 511.org and includes a link to see traffic conditions and check drive times. The page also shows a 'Last updated: Friday 02:50 PM' timestamp and links for Live Views, Weather, and Maps.

GPS-enabled Devices



- **Market Penetration is Expected to Increase**

- Of those who have cell phones, 15% are interested in getting GPS service on their next cell phone
- One in six (17%) of adults currently own or use a GPS device
- Among GPS owners, 13% use GPS-enabled cell phones

