



Smart

The East San Francisco Bay Area's SMART Corridors program is changing the way that drivers think about buses

In early 2003, the Alameda County Congestion Management Agency (ACCMA) turned 14 miles of San Pablo Avenue into a SMART corridor using an inventive mix of technological tools and relationship building with stakeholders. "Our approach was to generate consensus among jurisdictions so that emergency and transit services, planning agencies and other governing bodies would work together because each could see how the program met their interests," said Cyrus Minoofar, principal transportation engineer for ACCMA. "Institutional trust, along with traffic management technologies put the SMART Corridors Program on a successful path."

The results speak for themselves. Bus ridership increased nearly 78 per cent during peak transit periods. Overall line run time was reduced 17 per cent. 18 per cent of bus

riders were formerly driving their cars alone. A vast majority (84 per cent) rated the service as "good" or "excellent." The solution supports better incident management and emergency response.

TECHNOLOGY WITH A TWIST

The SMART Corridors project applied a host of tools to deliver Rapid Bus service. Key factors included:

- Transit Signal Priority (TSP) to give designated buses a green-light advantage;
- Improved signal coordination;
- Pedestrian push buttons to recognize their presence;
- Loop detectors to efficiently detect traffic at crossing streets;
- Far side stops and queue jumper lanes;
- Fewer stops at wider intervals;
- Real-time 'next bus' information;



SMART CORRIDORS ALLOW
EMERGENCY SERVICES TO
RESPOND MORE RAPIDLY

results

- Low-floor vehicles to accommodate easier, faster passenger movement.

These technological enhancements, built on a foundation of stakeholder trust, helped overcome the institutional barriers that can dominate ITS (Intelligent Transportation Systems)-styled multijurisdictional endeavors.

"The sum of all these improvements and refinements produced the final outcome," said Minoofar. "The success of the program is the accumulation of all of them."

PRODUCTIVITY INCREASED

Jon Twichell, Transportation Planning Manager for AC Transit and project manager for Rapid Bus, is pleased with the results. "A 17 per cent reduction in actual travel time is a significant improvement in system efficiency that was produced within the existing infrastructure," he said. "This boost in productiv-

ity allows us to do more within the established urban area."

To be 17 per cent quicker means that AC Transit can provide that much more service with the same amount of vehicles, or provide current service with 17 per cent fewer vehicles. For transit, which is a quite traditional industry, to have a productivity increase of this magnitude and attract riders is a head-turning achievement.

A GREEN-LIGHT ADVANTAGE

The Transit Signal Priority element of the program uses Opticom™ Priority Control devices mounted on buses (which are also on emergency vehicles) to momentarily request and receive a green light. "Green lights are extended for approaching buses, allowing them to efficiently cross to a far-side stop," said Twichell, "Or in some cases buses get an

early green." Surveys indicated that bus passengers felt the travel time seemed even faster than it was, magnifying their positive experience. "We knew, and candidly expressed, that allowing momentary flexibility to provide green lights could slightly shift some of the travel burden to crossing traffic," said Minoofar. "But that was more than mitigated by calibrating better signal timing along the route. And that helped everyone, private vehicles as well as buses."

FROM CAR DRIVERS TO BUS RIDERS

Conventional wisdom has held that commuters cannot be enticed out of their cars. Survey results showed that attitude can be changed; 18 per cent of bus passengers left their cars behind for the first time to take the Rapid Bus. "If you make it attractive enough, people will use the service," says Minoofar. "You



BETTER TRAFFIC FLOW MANAGEMENT RESULTS IN A FASTER EMERGENCY RESPONSE

don't have to make them feel guilty or say that it's the environmentally right thing to do. Make it convenient for them and you reduce their auto dependency."

Twichell concurred, "I prefer to think in terms of trends, rather than only in survey snapshots. Time is important to people. By making the ride fast and convenient, you give commuters a viable choice, and many will choose the bus over their car."

BETTER INCIDENT MANAGEMENT

The SMART Corridor program focused on arterial roadways because all trips start and end there, not on freeways. Just as buses leverage intersection signals along the route, emergency services are equipped with Emergency Vehicle Preemption (EVP) technology. The parallel priority control system helps emergency response services reach incidents promptly to mitigate the traffic delays they cause. According to the FHWA (US Federal Highway Administration), crashes, disabled vehicles or road debris cause a quarter (25 per cent) of all congestion problems – more than any reason except insufficient capacity. The more quickly emergency services reach an incident, the sooner the recovery. Clearing a single blocking vehicle from a three-lane (one-direction) roadway increases capacity by 50 per cent.

"The Opticom equipment serves a dual purpose, by not only enhancing rapid bus transit but to support emergency vehicles on their way to reach and manage incidents and

accidents," says Minoofar. Fire apparatus equipped with Mobile Display Terminals (MDT) receive wireless, real-time information to view traffic levels and avoid congestion areas. "We gather real-time information from 511, from our own cameras on surface streets, and from California Highway Patrol incident data, which is presented on the SMART Corridors website." This, too, demonstrates how the core strategy of bringing together technology and relationships for better efficiency.

"Response is both faster and safer using this system," he continued. "Faster because you have a green light changing in your direction. And safer because responders have the green light, and other motorists are reacting naturally to their green and red signals."

A CASE FOR HOMELAND SECURITY

"I think this is also a compelling case for use in evacuation routes. The interagency relationships nurtured by the SMART Corridors program are ideally suited for mutual aid responses during a natural or man-made disaster." SMART Corridors provides a venue for this vital capability. One program tool, the AVL (Automatic Vehicle Location) system, lets fire departments view the location of all their emergency vehicle assets whether dispatched to another agency or in their own jurisdiction. "Having the interagency agreement for working together gives us a more regional perspective for dealing with these issues," said Minoofar. "If terrorists strike or

A BRIEF HISTORY

The SMART Corridors program was initiated in 2002 as a coalition of 25 parties representing federal, state and regional agencies, transit and emergency services groups. It includes 14 communities in Alameda and Contra Costa counties – all of them share an interest in the I-80 (San Pablo Avenue) corridor. ACCMA successfully brought together the diverse interests of these parties to increase the efficiency and safety of existing arterial roadways networked to the San Pablo Avenue corridor.

Building on that success, ACCMA and AC Transit are currently deploying SMART/Rapid Bus on the International/Telegraph corridor. 18 miles long, this corridor carries 30,000 riders per day and should be ready for use in mid 2006.



SWAPPING THE CAR FOR THE BUS AND THE BIKE

an earthquake hits, we have the mutual aid capabilities in place for a more coordinated and effective response."

MOVING FORWARD

In a 2003 interview when SMART Corridors was just getting underway, Minoofar predicted, "This could be a model for the future for many counties in the Bay Areas...and, anywhere else...making anything possible." His early confidence is well founded. The success of Rapid Bus on the San Pablo Avenue corridor has stimulated the start of three more SMART Corridor-styled projects in the Bay area, each of equal or greater size.

"Whenever transportation or business is disrupted, it has economic impact. With one unified Operations and Management agreement we are able to expand into new corridors with better ideas." One would surmise that as transportation professionals like Cyrus Minoofar and Jon Twichell continue to extend the Rapid Bus solution, the communities served will continue to benefit from greater transit productivity, emergency responsiveness and traffic safety.

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