State of Mississippi

Office of the State Auditor
Executive Division

Phil Bryant
State Auditor

A Limited Report of using Automatic Vehicle Locators (AVL)
A Report for the Mississippi Legislature
AVL Test Project

"The OSA immediately saw the potential for use of the AVL for the management of the state's more than 9,000 vehicles," stated Auditor Bryant.

www.osa.state.ms.us

TABLE OF CONTENTS

Introduction

Purpose

The Office of the State Auditor has been testing (in a pilot project) the use of an Automotive Vehicle Locator (AVL). This pilot project was conducted in partnership with Tri-X, INC, a leader in AVL technology.

Scope

The OSA performed the pilot project by placing Tri-X's 3.0 IVD (In Vehicle Device) on one of our Investigative Division vehicles. The Special Agent was informed of the selection of his vehicle.

Method

Our limited review tested the following options of the AVL:

- Vehicle Location
- Vehicle Tracking
- Remote Road Side Support
- Defined Speed Limit
- Generation of Reports

Background

In May of 2003, a local Jackson television station completed a report titled "*Tracking Your Teen*". The report talked about parents being able to track their children's driving speed, where the car was and where it had been all with the help of an Automatic Vehicle Locator (AVL).

The OSA immediately saw the potential for use of the AVL for the management of the state's more than 9,000 vehicles. We contacted Tri-X, INC., the company profiled in the news story, to test their AVL product on a state vehicle, assigned to the investigative division at the Auditor's Office. We discovered that this device could be extremely helpful to the State of Mississippi. Not only were we able to test the different options that are listed in this report, but the AVL has several features that can be customized to fit a particular agency.

How It Works

The AVL is a small device which is installed under the dash of the vehicle. It uses GPS technology to pinpoint the location of the vehicle and wireless (cellular) data technology to communicate information to data centers and the Internet to give complete vehicle management information, or assistance, from a desktop PC.

- The AVL monitors vehicles 24 hours a day, providing regularly scheduled updates.
- Shows location of any number of a single vehicle on easy-to-view, zoomable maps.
- Provides location of vehicle to an address, landmark or nearest intersection.
- Stores and forwards location information when vehicle is outside the wireless coverage area, if selected.
- Allows vehicle to be easily contacted via digital data or functions or options to be acted upon.
- Records and stores out-of-area vehicle movements.

Testing

The OSA tested the AVL for five months. We wanted to experience first-hand what this product was all about.

After installation, we immediately began testing several different options that this product features.

- Vehicle Location - we could immediately track the location of the vehicle and the speed at selected intervals
- Vehicle Tracking- we were able to view street maps using the zoom feature
- Remote Road Side Support- we were able to remotely unlock the vehicle doors
- Defined Speed Limit- the AVL alerted us when the speed limit that we set was exceeded
- Generation of Reports- we were able to generate activity reports from the computer

Coverage

The company for which we partnered to test this product has nationwide coverage. For use in Mississippi, coverage can be obtained from North, Central to South Mississippi. While testing a product of this magnitude, coverage is the most essential element for successful management of fleet vehicles.

- Please see attachment A-1.

Cost/Savings

- On average, one tracking device unit would cost approximately $600. Monthly air time cost would cost roughly $68.00 per 200 packets.

- Studies have shown that these fleet management devices offer a magnitude of benefits, which would save the State in several different areas.

- Benefits Include:

Security	Someone can help, if in need
Control	Of mobile work force
Productivity	Would increase
Cost	Reduction in operating cost
Reduction	In vehicle abuse
Elimination	Misuse of vehicle
Eventual	Reduction in insurance rates
Accountability	Mileage management
Management	Tools to confront abusers
Knowledge	Vehicle activity is being monitored
History	Vehicle activity up to last three months
Snapshot	Of mobile assets 24 hours a day seven days a week
Secure Access	By multiple locations via password and log in
Streamline	Routing process eliminating wasted time, fuel cost and other expense
Location	Displays location and speed on a zoomable map
Affordability	Lowest cost in the industry
Coverage	The most comprehensive in North America

- Please understand that the State of Mississippi could get the most value for its money by buying in bulk, which would lead to price reductions.

- Please see attachment A-2.

Findings

Currently more than 9,000 vehicles make up the State of Mississippi's fleet. Think of the AVL as a safety feature with potential cost saving to the taxpayer. Obviously, the vehicle management uses are numerous and real. Anyone who has managed a fleet of vehicles knows the frustration of not knowing where a vehicle is, where it has been and what it is doing. AVL's have been designed to reduce this frustration. With the use of such a system along with a wireless modem and computer, a vehicle's location (within 10 feet), direction and speed can now be tracked from the office.

An interesting effect of installing similar devices in fleets for experimental purposes - mostly police and government agencies- found that the incidence of crashes dropped significantly. Apparently, once the driver's behavior can be monitored, he/she tends to drive more responsibly. In science, this is sometimes referred to as experimental bias: the act of observation affects the results.

Money can be saved in two ways:

An unscientific survey of various manufacturers indicates that most users see a significant reduction in fuel costs after installation, typically resulting in 20 to 25 percent savings. This can translate into savings of $325.00 per month for a typical vehicle driven 500 miles per week. If you figure this time only one half of the state's vehicles, it would be a fuel savings of over $1.5 million per year.

The other way the AVL can save money is through reduction of improper use. This includes reducing after-hours use, personal trips during business hours and theft. The speed in which the vehicle is driven and even the ability to determine if safety belts are being used, greatly reduced the potential of injury in the event of an accident involving a government owned vehicle. This would ultimately be seen in lower insurance, premiums and tort claims. In many instances, insurance or accident claims made against state owned vehicles could be defended using the AVL's data.

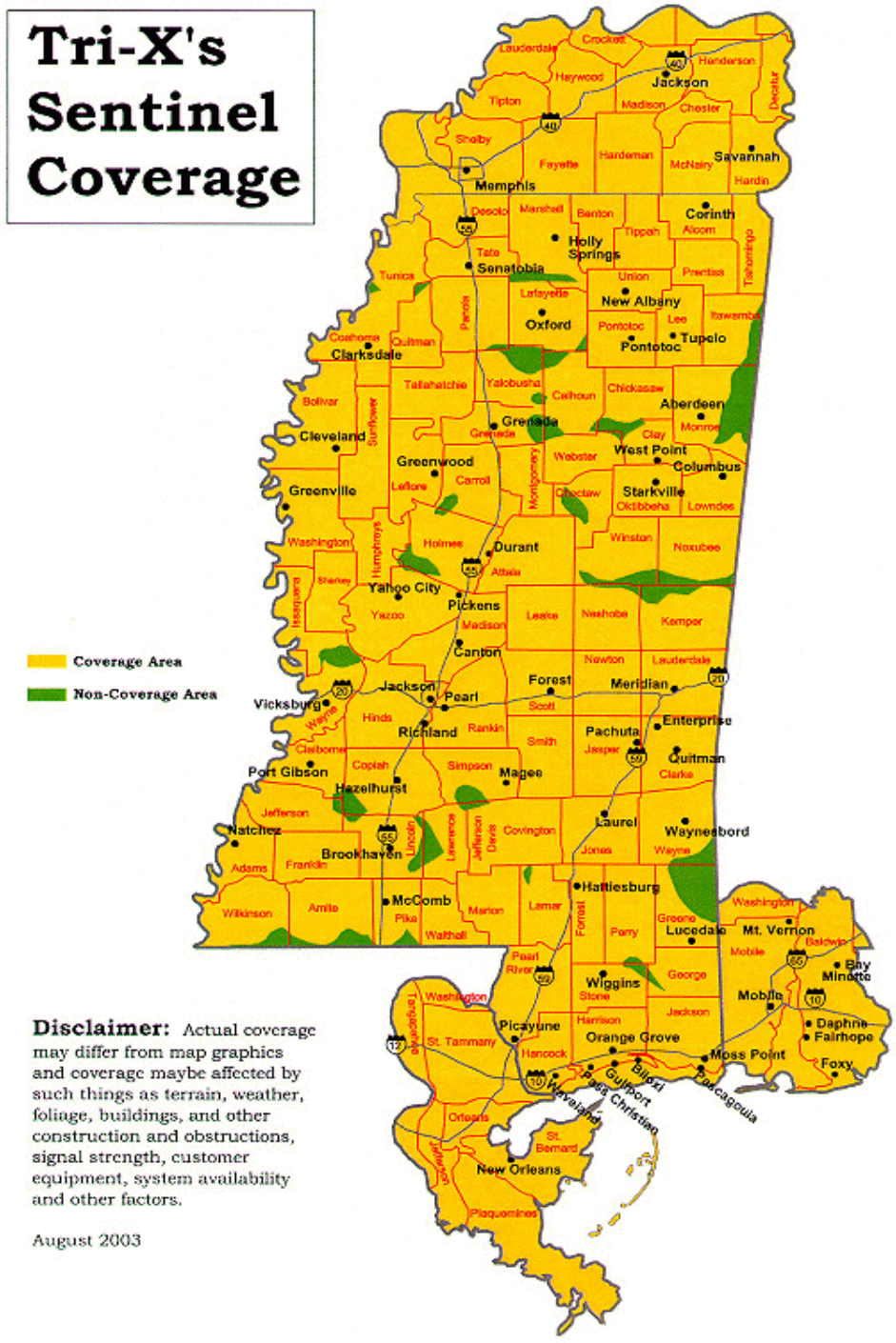
Recommendations

The AVL installed on the Office of the State Auditor's vehicle has proven to work in the manner claimed by the company.

Therefore, the Office of the State Auditor recommends that a more expansive pilot-program be conducted by a state agency with a larger fleet. This agency believes that significant savings will occur through the installation and use of the Automatic Vehicle Locator.

Although the OSA does not endorse companies, Larry Blackwell, President of Tri-X stated, "Tri-X will build a State web-site for tracking vehicles with branches for each department (pass word protected) and sub section for smaller groups within each department (also pass word protected).

Tri-X's Sentinel Coverage



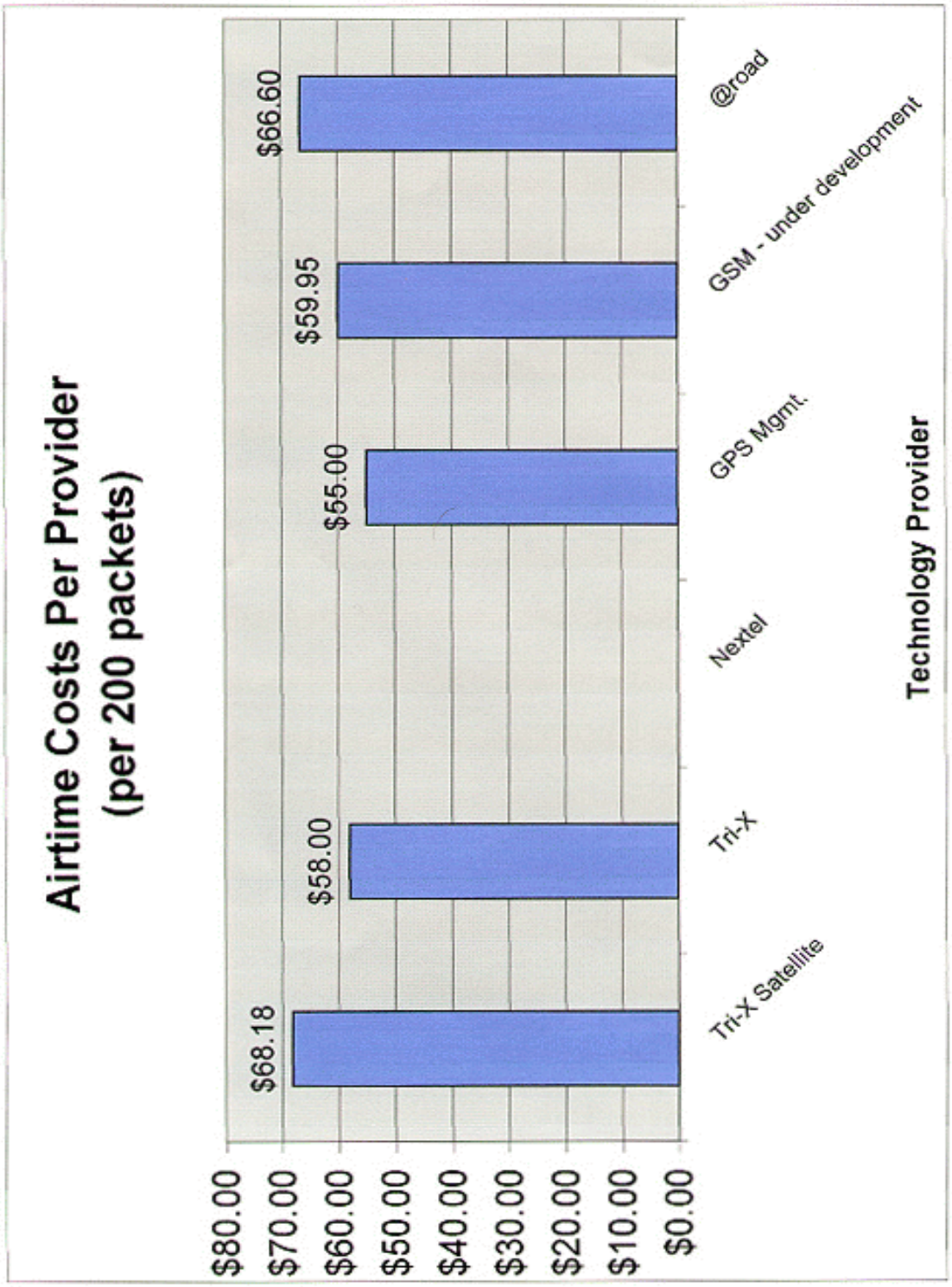
Disclaimer: Actual coverage may differ from map graphics and coverage maybe affected by such things as terrain, weather, foliage, buildings, and other construction and obstructions, signal strength, customer equipment, system availability and other factors.

August 2003

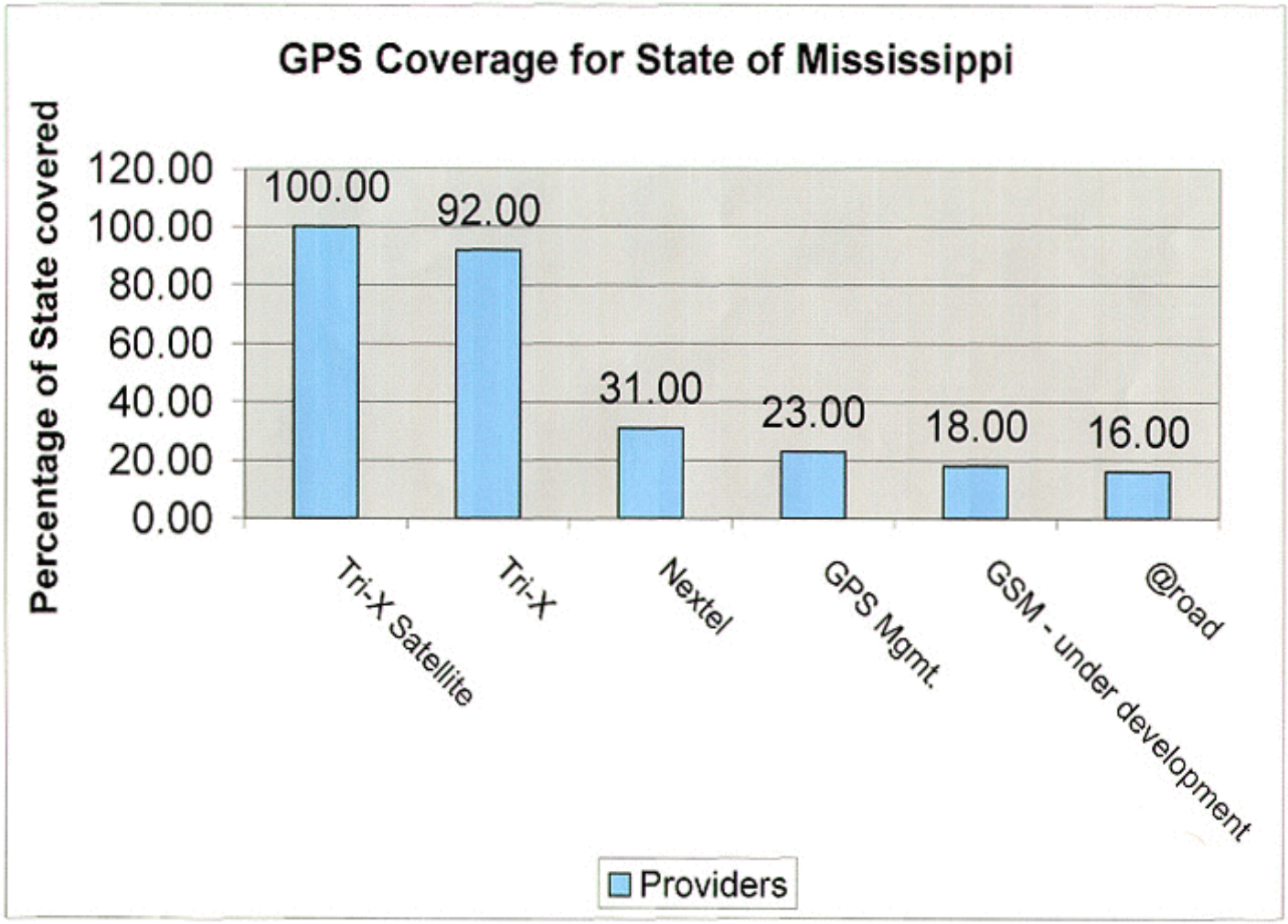
Parent Check, Inc

Mississippi Wireless Coverage

Technology	Provider	Data Coverage (Percentage of state)	Hardware Cost (Per Unit)	Monthly Airtime Costs (per 200 packets)	Roaming Charges	Installation Charges
Satellite	Tri-X Satellite	100.00	$600.00	$68.18	No	Yes
AMPS	Tri-X	92.00	$595.00	$58.00	No	Yes
iDen	Nextel	31.00	$650.00		Yes	Yes
CDMA	GPS Mgmt.	23.00	$600.00	$55.00	Yes	Yes
GSM	GSM - under development	18.00	$695.00	$59.95	Yes	Yes
CDPD	@road	16.00	$550.00	$66.60	Yes	Yes

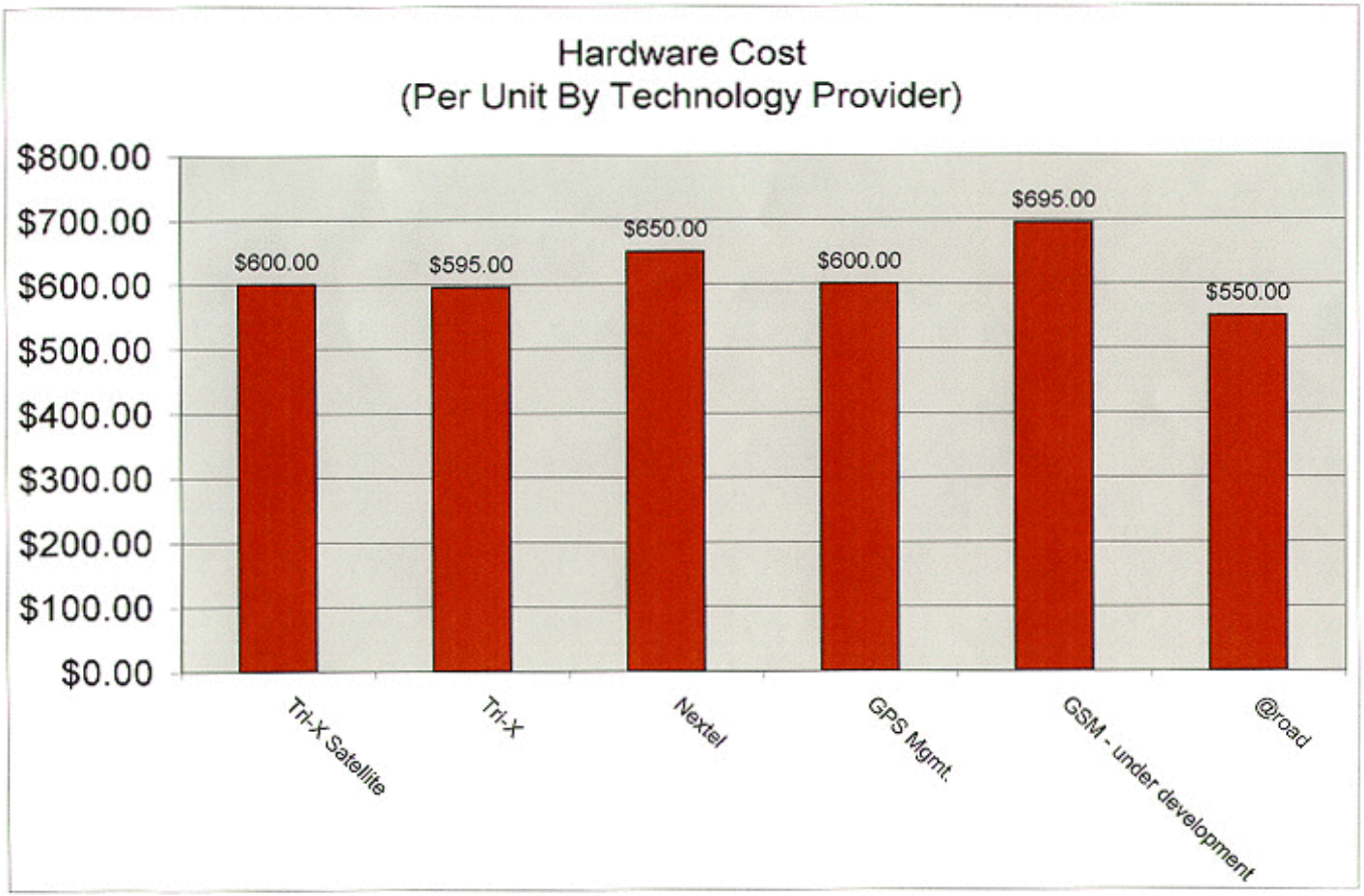

Airtime Costs Per Provider
(per 200 packets)
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
$68.18
$58.00
$55.00
$59.95
$66.60
Tri-X Satellite
Tri-X
Nextel
GPS Mgmt.
GSM - under development
@road
Technology Provider

GPS Fleet Monitoring Devices



Data provided courtesy of Parent Check, Inc.

GPS Fleet Monitoring Devices



Does not include installation costs, which can vary according to the installing dealer