

# ESTeem's Wireless MDC Systems Helps City in 53% Crime Reduction in Five Years

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**P**olice Chief Denis Austin got off the plane in Pasco Washington in June of 1995. He was starting a new job in a

community he knew little about and as he drove through the streets, he noticed a lot of gang related graffiti. It didn't take long to formulate a new vision for the department, which was "To be a Community Policing Department". His officers needed to be more visible in the community; but they were so busy running to crime scenes, the only visibility they had was negative. Chief Austin also knew they needed to be technologically superior to the criminals if they were going to win the crime battle. Two neighboring cities had implemented Mobile Data Computer (MDC) Systems but they were spending approximately \$11,000 per car. He couldn't justify that much money in a city of only 22,000 people. Chief Austin started researching the MDC Systems that were available and found a company called Electronic Systems Technology (EST) that was located just a few miles from his office. EST had been installing wireless modem systems at industrial sites around the world since 1986, they invented the wireless modem and, in fact owned the US and Canadian patents on the wireless



**Figure 2: Pasco Police Sergeant Allen**

modem. A dialog was established and in September of 1996, Chief Austin readily agreed to become a Beta Test Site for a MDC System that would be developed by EST. That was five years ago. Since then, the City of Pasco went from the third highest crime rate in Washington State to below average for the state. They dropped from 90 incidents per 1000 to 50. Gang related incidents have decreased 71% and they haven't had a gang related homicide since 1997. Today when people drive through the down town streets of Pasco, there's very little graffiti!

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***"We went from having the third highest crime rate in Washington State to below average for the state!"***

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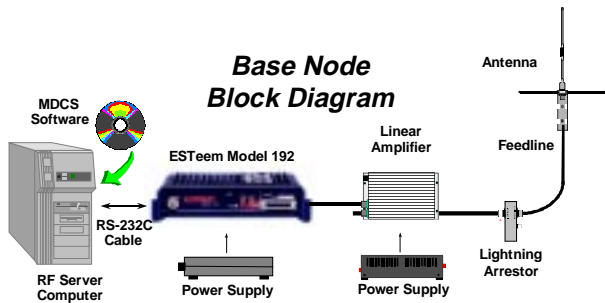
**Here's how MDC helped.**

Customer Support engineers began conducting a formal RF Site Survey. On-site measurements and analysis were conducted to determine factors needed to design the RF data communications system including RF signal levels between systems, co-channel emitter frequencies, signal strengths, and RF data quality. After completion of the analysis, a formal Site Survey Report was prepared to document the findings and plan the installation and hardware requirements for the MDC System. The site survey found that the city would need one base station, an RF repeater to be located on an existing 168' high water tower, and an initial placement of 5 wireless modem/laptop computer systems installed in their patrol cars.



**Figure 1: Pasco Police Chief Denis Austin**

# 53% Crime Reduction In Five Years

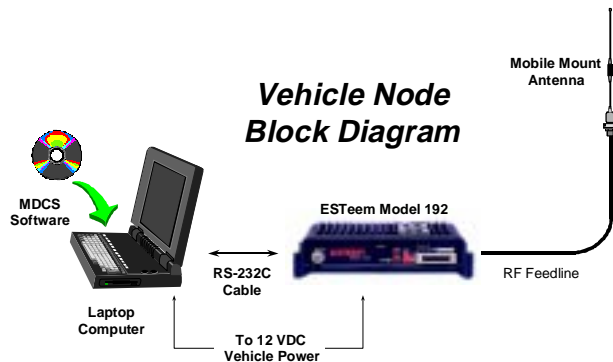


**Figure 3: Base Station Diagram**

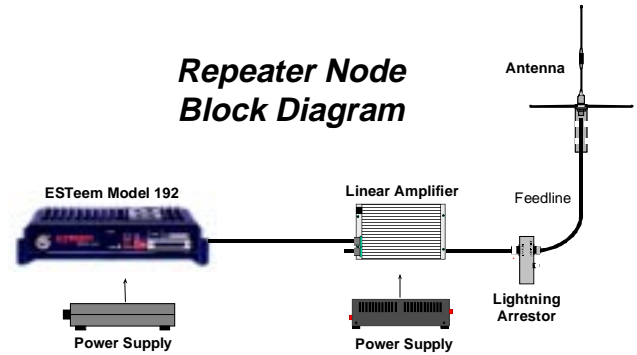
The modem that was chosen is affordable, has completely secure packet burst encrypted transmissions, and it has a very high data rate of 19,200 bps while maintaining a data accuracy of greater than one part in 100 million. All of the modems can operate as a master or repeater node simultaneously which is a tremendous cost advantage over conventional systems that require leased hard wires from repeater sites to base stations. The base station, located in the Police Department building, (Figure 3) consists of a modem with power supply, base station servers, linear amplifier with power supply, lightning arrestor, and antenna. The linear amplifier boosted the power output to 25 watts, which was necessary to reach outlying areas.

The modems were initially mounted in the patrol car trunk and later re-mounted behind the passenger seat of the patrol cars (Figure 4) along with a laptop computer that was docked next to the drivers seat for easy access. Instead of using an expensive MDC designed laptop, an over the counter laptop was chosen and installed for about half the price. Each laptop is the responsibility of the assigned officer.

The repeater modules (Figure 5) include a modem with power supply, a linear amplifier with power supply, a lightning arrestor and an antenna. These four components were installed in a weatherproof enclosure providing protection from the elements and installed on an existing



**Figure 4: Vehicle Diagram**



**Figure 5: Repeater Diagram**

city owned water tower.

Once the MDC System infrastructure was in place, engineers verified the results of the site survey. This critical re-evaluation of the RF system insured the MDC system would provide coverage in every corner of the city.

The software package is a state-of-the-art, Microsoft® Windows®-based, mobile data software solution that provides public safety personnel with real-time wireless access to NCIC, NLETS and state and local databases

***“Over the past five years the MDC system has saved officers 7.8 man-years of time or about \$367,000!”***

using advanced radio technology. The software also delivers access to legacy systems and other applications, CAD/RMS integration and messaging. Two information specialists from the City of Pasco were assigned to the MDC project and worked very closely with the engineers during the entire process. A gang member database was also initiated and is accessed through the MDC system.

Instead of paying \$11,000 per unit, Chief Austin spent about \$4800 per unit saving a significant amount of money. An initial time estimate of saving 3.8 officers time over the year was underestimated. Over the past five years



**Figure 6: Repeater Site Diagram**

## 53% Crime Reduction In Five Years

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**Figure 2: Franklin County Dispatch**

the MDC system has saved officers 7.8 man-years of time or about \$367,000!

The City of Pasco shares dispatch with Franklin County and it wasn't long before the county wanted an MDC System too. Customer support engineers performed another site survey and added an RF repeater on top of Rattlesnake Mountain, which is about 3000' high, plus a repeater at a tower in Mesa about 20 miles to the North of Pasco. (Figure 6). This enabled the county to have an MDC System at a reduced cost, by tying into the central backbone that was already established by the city plus it gives both agencies a redundant back-up system. The initial five vehicles have expanded to sixteen cars and 26 officers and recently the Washington State Fish & Game Department installed mobile computers in their vehicles that works with the City/County system as well!

Chief Austin is working toward having all dispatch come through the MDC System. This would eliminate crooks listening to police scanners and targeting crimes based on knowing where the police are at any given time. It's voiceless, bilingual, accurate, and frees dispatcher time to perform other important tasks.

The low cost MDC System has been instrumental in reducing crime, its given Pasco police officers a real time communication source with a local, state and national database at their fingertips. MDC has saved the local

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taxpayers a lot of money, and the agency has a more positive visibility in their community. Every officer is a "Community Policing Officer". Instead of specializing in one area of crime, everyone in the department can track criminals with the MDC System. Using an MDC System over the past five years has really paid off for Pasco's Police department.