

# TELEMASP BULLETIN

## TEXAS LAW ENFORCEMENT MANAGEMENT AND ADMINISTRATIVE STATISTICS PROGRAM

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### Motorcycle Patrol

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Depending on one's own perception, a motorcyclist may be portrayed as the stereotypical tattooed gang member clad in leather gear roaring down the highway in large groups or as one or two single riders signaling friendly greetings to other bikers they pass along the way. Similarly, the public has become accustomed to watching as mounted motorcycle police escort political dignitaries or funeral processions as well as patrol America's highways in either reality or fiction as depicted in the iconic 1970s television hit "CHiPs." Despite their public image, motorcycles have served a variety of purposes ranging from simple transportation to racing to wartime messengers to routine police patrol since their initial design in the late 19th century (Walker, 2006).

Although motorcycles have been used by the police as early as 1909, few studies have examined their role in law enforcement (McCord, 1991). The purpose of this *TELEMASP Bulletin* is to examine the use of motorcycles by law enforcement agencies in the state of Texas. In particular, the frequency with which they are used, how they are utilized, specific makes or models, equipment carried, and training required for motorcycle officers is discussed.

#### Police Use of Motorcycle Patrol

Renowned for his innovations during the early professional era of American policing, August Vollmer began to use motorcycle patrols in 1911. As public

automobile transportation became more commonly used, state governments recognized the need to develop state level law enforcement agencies devoted to traffic control. As such, in 1916, Maryland became the first state agency authorized to appoint "motorcycle deputies" (Bechtel, 1995, p. 40). These early police motorcycles were produced by American manufacturers, namely Indian and Harley-Davidson (McCord, 1991), and within ten years, their use became well-known with Harley-Davidson motorcycles alone serving more than 2,500 city and county law enforcement agencies (Berkeley Police Department, 2004).

According to McCord (1991), although law enforcement agencies were attracted to motorcycles for their assistance in traffic enforcement and their ability to maneuver through congested areas, not all police managers, however, were convinced that motorcycle patrol was beneficial. For example, August Vollmer (Chapman, 1970) noted that their only utility was for traffic management. He believed automobiles to be safer and more valued for their all weather availability. In 1968, Skousen (Chapman, 1970) advocated the disbanding of police motorcycle units because of their reputation as a "fair weather vehicle," inability to transport prisoners, restrictions on the amount of equipment that officers could carry, and the increased risk to officer safety. Despite limitations, motorcycle patrols remain popular for a variety of reasons. Given their inherent maneuverability, they are well suited

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for managing parades and official processions and are able to control crowds during circumstances involving strikes, disasters, sporting events, and, of course, traffic enforcement (Chapman, 1970).

## Models and Costs

According to Dall'au (2007), U.S. law enforcement agencies currently use motorcycles manufactured by Harley-Davidson, BMW, Honda, and Kawasaki, although a fifth manufacturer, Thunderworks, also provides off-road motorcycles (Thompson, 2005). Harley-Davidson ranks among the first American manufacturers to provide motorcycles for law enforcement and currently supplies them to over 3,300 U.S. police departments, including the widely popular FLHTP Electra Glide Police model (Dall'au, 2007; McCord, 1991). BMW began producing motorcycles designed for law enforcement agencies in 2000 and has since become Europe's largest provider. Additionally, beginning in 2000, over 400 U.S. police agencies converted to BMW R1200 RT-P motorcycles due to standard equipment ABS brakes that provide increased officer safety. As of 2006, Honda, the most recent producer of police motorcycles, offers the ST1300PA model featuring optional, rather than standard, ABS brakes and improved steering controls (Dall'au, 2007; Thompson, 2005). Finally, the most easily recognized police motorcycle is the Kawasaki KZP Police Special

that was featured in the 1970s television show, "CHiPs." However, Kawasaki ceased production of police motorcycles in September 2005, due to rapidly losing market share to BMW (Dall'au, 2007).

Considerations when selecting a particular brand of motorcycle involve the availability of ABS brakes and differing power systems for emergency lighting systems. For example, BMW and Harley-Davidson come with a spare battery for extra equipment operation while the newer Honda motorcycles are equipped with an LED lighting system designed to handle the extra power needs of police motorcycles. Other equipment considerations include choices of clutch systems, heated hand grips, cooling system, and officer preference (Thompson, 2005).

In addition to the purchase price that varies between \$16,734 (Honda ST1300PA) and \$22,046 (BMW R1200 RT-P), another concern for departments utilizing motorcycle patrol is the cost of maintenance which can exceed that of standard patrol vehicles. These costs range from \$2,784 every three years for the newer Honda ST1300PA to \$5,475 every three years for Harley-Davidson's. Required maintenance includes valve adjustments every 3,000 miles, tire replacement every 6,000 miles, regular fluid service (every 1,000, 16,000 and 32,000 miles for Honda ST1300PA), and oil changes every 4,000 miles (Thompson, 2005).

## The Survey

Data were collected through a survey responded to by 59 Texas law enforcement agencies to determine: (1) the size of motorcycle units, (2) selection of motorcycle officers, (3) training requirements, (4) specific motorcycles and equipment used, (5) patrol scheduling including consideration for inclement weather, and (6) motorcycle safety issues. A total of 39 responding agencies reported that motorcycle patrols are used in some capacity while seven units have been in existence for a number of decades. For example, the Houston Police Department's motorcycle unit is among the oldest in the United States established as early as 1902, followed by El Paso (1910), Amarillo (1930s), Longview (1930s), Grand Prairie (1950), Tyler (1950), and the Pasadena police departments (1965). Although most of the existing motorcycle units were begun in the 1970s and 1980s, others were



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initiated during the current decade. With the exception of Farmers Branch, Greenville, Texas City, Victoria, and Waller, of the remaining 20 surveyed agencies, respondents indicated that they have no future plans to launch a motorcycle patrol unit.

### Unit Size, Selection and Training

Seventy-four percent of the agencies reported that their motorcycle patrol units are small, consisting of ten or fewer regular duty officers. Notable exceptions include the Austin Police Department (48 officers), Houston Police Department (44), Dallas Police Department (42), and El Paso Police Department (35). In most cases, agencies have more officers who wish to join the motorcycle units than are available positions; therefore, a variety of selection methods and criteria are considered in filling vacant positions. Sixty-seven percent of the respondents indicated that their agencies allow open competition among officers while the remaining agencies use either direct selection (31%) or accept volunteers (2%). The number of years of experience varied as indicated in Figure 1.

As depicted in Figure 2, other selection criteria taken into consideration include qualitative evaluation of patrol experience (74% of agencies), years of patrol experience (64%), prior motorcycle experience (56%), physical fitness (38%), seniority (36%), and medical clearance (18%). Agency respondents also indicated that prior to application, officers must complete a

basic motorcycle operator's course or already possess a motorcycle endorsement on their driver's license; however, 17 agencies provide a basic motorcycle operator's course as part of initial training.

In addition to basic motorcycle operation knowledge, 82% of the agencies require a police specific motorcycle training course, and 44% stated that their motorcycle patrol unit officers must complete a basic rider's course (see Figure 3). Only five respondents (13%) indicated that motorcycle patrol unit officers must complete an advanced rider's course, and one agency did not require special training.

The most widely utilized motorcycle patrol officer training is sponsored by the Northwestern University Center for Public Safety. Partnered with Harley-Davidson's Police and Fleet Sales Division, the Evanston, Illinois-based Police Motorcycle Operator program has trained officers for motorcycle duty over the past 15 years (Northwestern University Center for Public Safety, 2008). Training consists of a two-week, 80-hour operator course of which eight hours are spent in classroom instruction, and the remaining is hands-on motorcycle training provided by Harley-Davidson that includes slow-speed and traffic negotiation skills, braking and evasion techniques and parade and dignitary escort formation skills. Operating concurrently with the operator course is a three-week instructor's course where students spend their first week in intensive lessons on teaching and demonstrating

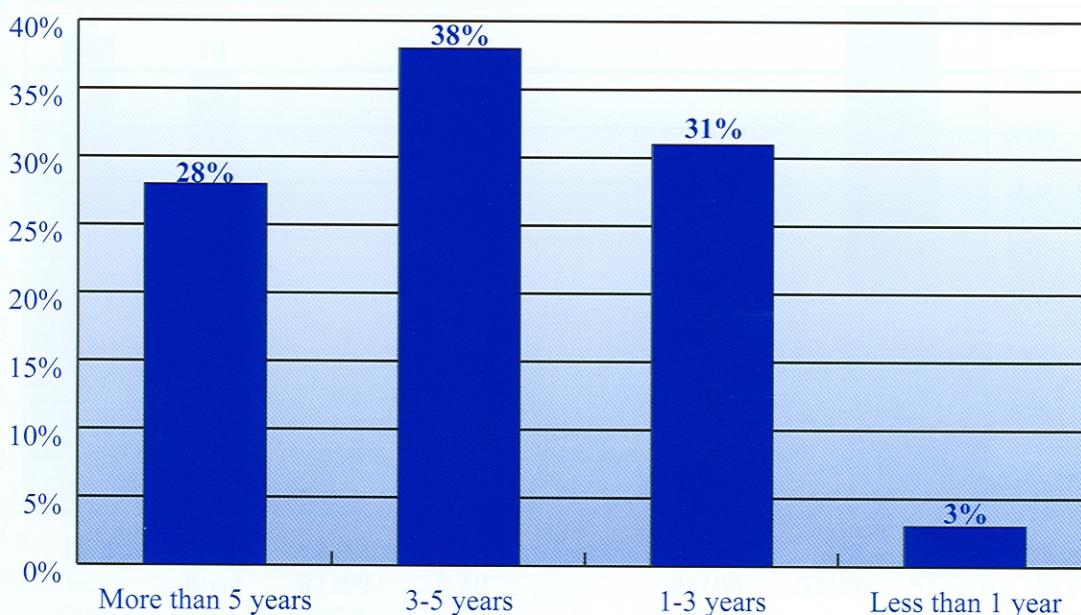


Figure 1. Required patrol experience



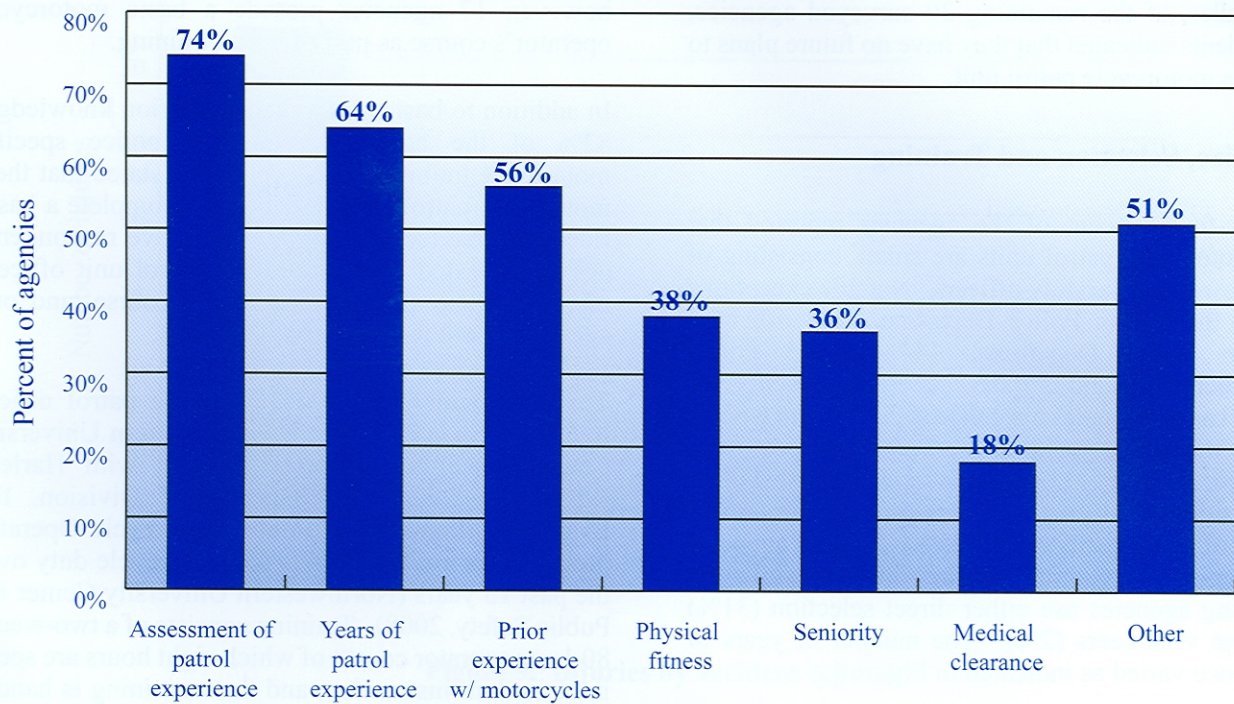


Figure 2. Selection criteria

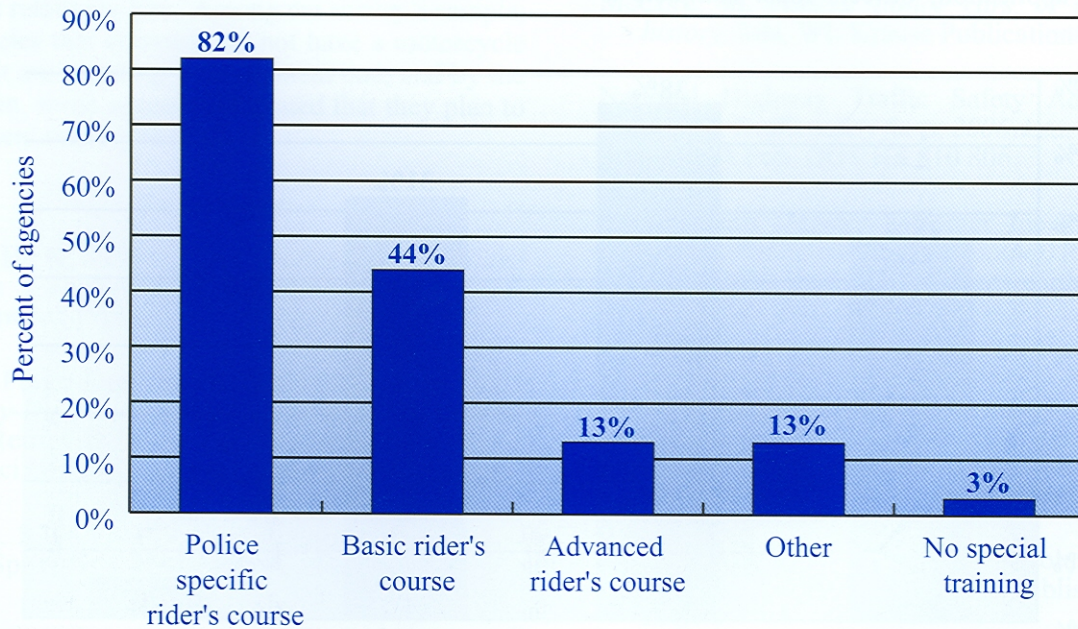


Figure 3. Required motorcycle training



motorcycle techniques while the last two weeks are spent actually teaching the operator's course. While developed and operated at Northwestern University's Illinois campus, the course is taught at a number of locations around the United States. Typically, in exchange for complimentary seats in the course, a single law enforcement agency will "host" the course by furnishing classrooms and enough parking spaces to accommodate the on-road instruction. Northwestern University generally provides two instructors depending on how many "instructor students" are enrolled in the course, and Harley-Davidson supplies the motorcycles. Although agencies may choose to allow their officers to ride department-owned motorcycles, this is uncommon since the bikes usually accrue \$1,400-\$2,000 in cosmetic damage throughout the course (Northwestern University Center for Public Safety, 2008).

In addition to initial motorcycle training, a majority of Texas agencies surveyed require refresher courses on a regular basis. Overall, the agencies average 21 hours of training annually; however, there is a wide variety in the number and frequency with some agencies requiring monthly, quarterly, biannual, or annual training. For example, the Pasadena and Longview police departments require only four hours of annual training while the Carrollton, College Station, Frisco, Killeen, and Plano police departments require 120

hours. The remaining motorcycle unit officer training requirements range from 16 hours being the most common (El Paso Police Department and Sheriff's Office, Harris County, Houston, and Irving) to 96 hours (Arlington, Colleyville, Haltom City, Lubbock, and Richardson).

### The Motorcycles and 'Biker Gear'

Currently, there are three major police motorcycle manufacturers that produce multiple models: Harley-Davidson, BMW and Honda. Harley-Davidson is the most widely chosen brand with 29 responding Texas agencies using either the Harley-Davidson Electra Glide FLHTP (15) or the Road King FLHP (14). See Figure 4. Although only nine agencies use either the BMW R1100 RT-P (3) or the BMW R1200 RT-P (6), with its rapid expansion into the police motorcycle market, BMW's popularity is expected to increase. Honda motorcycles were reported to be used by eight agencies in its various different configurations: ST100 (3), ST1300 PA (3) and the ST1300 ABS (2). As agencies replace their older motorcycles, most probably Honda's ST1300 ABS will quickly become the most preferred model since it features anti-lock brakes. Five respondents indicated that their agency makes use of modified motorcycles not originally designed for law enforcement patrol. These motorcycles include the

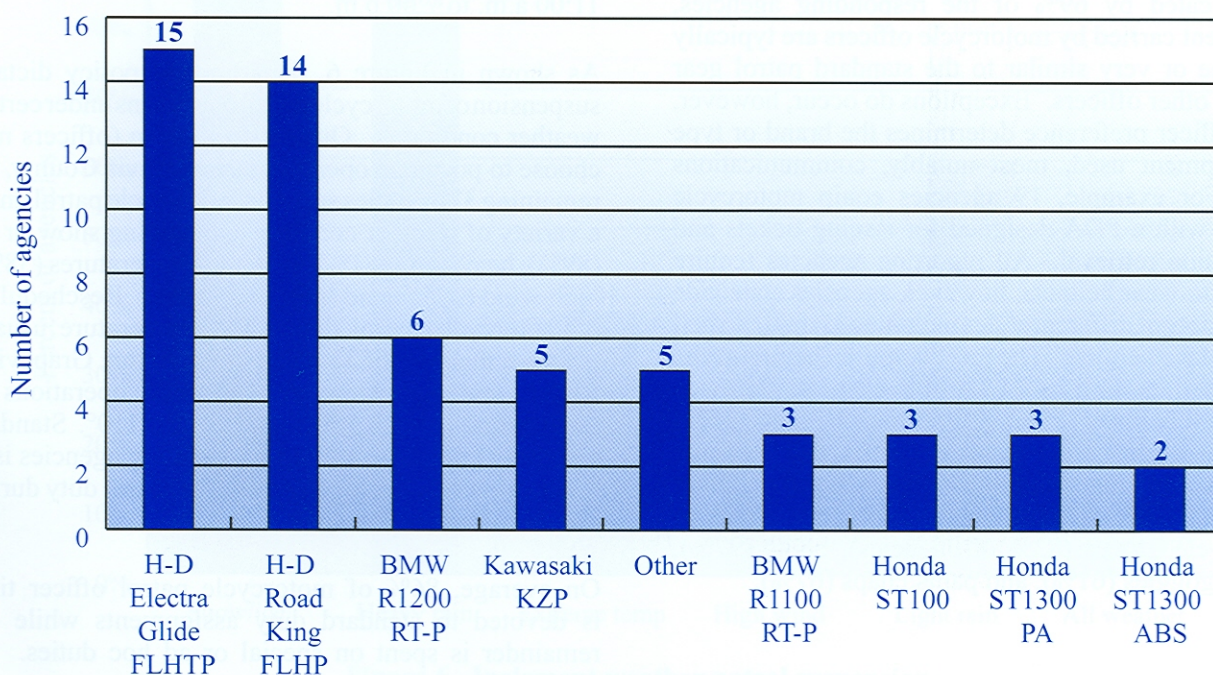


Figure 4. Police motorcycle models



Honda Goldwing (Bexar County, Harris County and Pasadena), Harley-Davidson FXDP (El Paso) and the Honda R1150 RT-P (Allen). Finally, although five agencies continue to use the out-of-production Kawasaki KZP (Dallas, El Paso, Houston, Richardson, and San Angelo), others are already in the process of transitioning to another model or multiple models of police motorcycles. The Harley-Davidson Electra Glide appears to be the most preferable choice with exception of the Richardson Police Department which is converting to the Honda ST1300 and the Houston Police Department that currently uses a combination of Harley-Davidson and Honda motorcycles in addition to the older Kawasaki KZP model.

Estimating the purchase and annual maintenance costs of an agency's motorcycle fleet is often difficult. For example, although the average price for a police motorcycle is approximately \$15,725 with an annual maintenance fee of \$2,915, some agencies do not purchase motorcycles but rather lease them on an annual basis. The Keller Police Department leases Harley-Davidson Electra Glides for \$3,400 per one-year rental fee, and the Beaumont Police Department expends \$3,600 per year to lease Harley-Davidson Road King motorcycles. Accordingly, the annual replacement of motorcycles appears to be the norm whether they are leased or purchased. The Longview Police Department trades its motorcycles in each year and pays an additional \$2,000 trade-in value for new motorcycles.

As indicated by 69% of the responding agencies, equipment carried by motorcycle officers are typically the same or very similar to the standard patrol gear used by other officers. Exceptions do occur, however, when officer preference determines the brand or type of equipment used, most notably, communications gear. For example, 19 agencies equip motorcycle officers with a PDA designed for issuing tickets and information retrieval. All reporting agencies require officers to wear helmets; however, agencies statewide use a variety of different styles including  $\frac{1}{2}$  shell,  $\frac{3}{4}$  shell and full face helmets. The most common helmet style, the  $\frac{3}{4}$  shell, is used by 74% of the agencies followed by  $\frac{1}{2}$  shell helmets (35%) and full face helmets (15%) (note: percentages do not total 100% due to some agencies allowing officers a helmet choice). Other motorcycle-specific patrol unit equipment consists of motorcycle gloves (82% of agencies), boots (97%), glasses/goggles (61%), and pants/chaps (67%).

## Deployment of Motorcycle Patrol

Officers assigned to motorcycle patrol units are almost exclusively issued a motorcycle for their own use. None of the responding agencies reported having a motorcycle pool from which officers are randomly allotted vehicles. Motorcycle patrol officers deploy directly from their homes as indicated by 22 agencies and from the police station by 16 agencies. The Beaumont Police Department is unique in that it maintains a separate facility for the storage and maintenance of their patrol unit's motorcycles.

While 79% of agencies employ their motorcycle units between eight to twelve hours each day, none use the 24-hour-per-day patrols. Three agencies (Corpus Christi, Dallas and Houston) operate motorcycle patrols 13-16 hours a day, while the Longview Police Department has the greatest daily use at 17-23 hours each day. Shift lengths also vary between agencies with the majority (22) reporting eight hours or longer (15), and Amarillo being the only agency that utilizes a shorter shift (7 hours). Overall, the majority (69%) of motorcycle patrol time is accomplished on the day shift (typically 7:00 a.m. to 3:00 p.m.) followed by 20% occurring on alternate shifts, 12% on the evening shift (typically 3:00 p.m. to 11:00 p.m.) and 1% on the "jump" shift (typically 6:00 p.m. to 2:00 a.m.) (see Figure 5). Alternate shift times vary by specific agency. For example, College Station and North Richland Hills utilize a 7:00 a.m. to 5:00 p.m. shift, and Grapevine's motorcycle patrol shift operates from 11:00 a.m. to 7:00 p.m.

As shown in Figure 6, departmental policy dictates suspension of motorcycle patrol operations under certain weather conditions. Other than Killeen (officers may choose to postpone operations) and Travis County, the remaining 37 agencies suspend motorcycle patrol under a variety of weather conditions, including snow or ice (89%), heavy rain (81%), extreme temperatures (38%), high wind (32%), and light rain (30%). Rescheduling of motorcycle patrol due to the temperature usually involves the lows of 32-35°, but Arlington, Grapevine, Keller, and Longview also suspend operations in temperatures above 100°, specifically 110°. Standard operating procedure among all reporting agencies is to assign motorcycle officers to regular patrol duty during periods of inclement weather.

On average, 86% of motorcycle patrol officer time is devoted to standard duty assignments while the remainder is spent on special or ad hoc duties. As



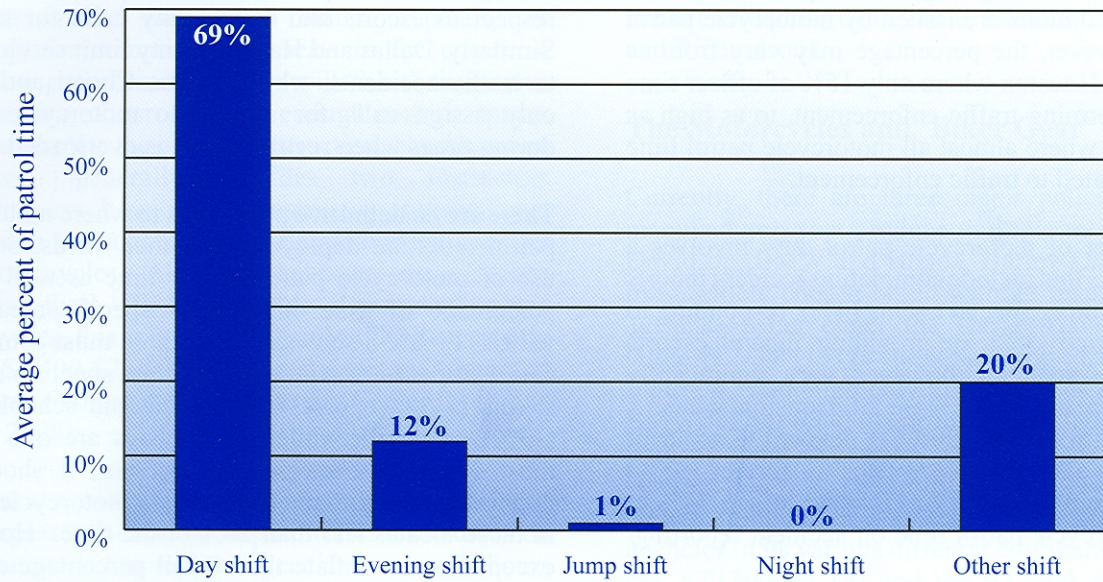


Figure 5. Patrol shifts

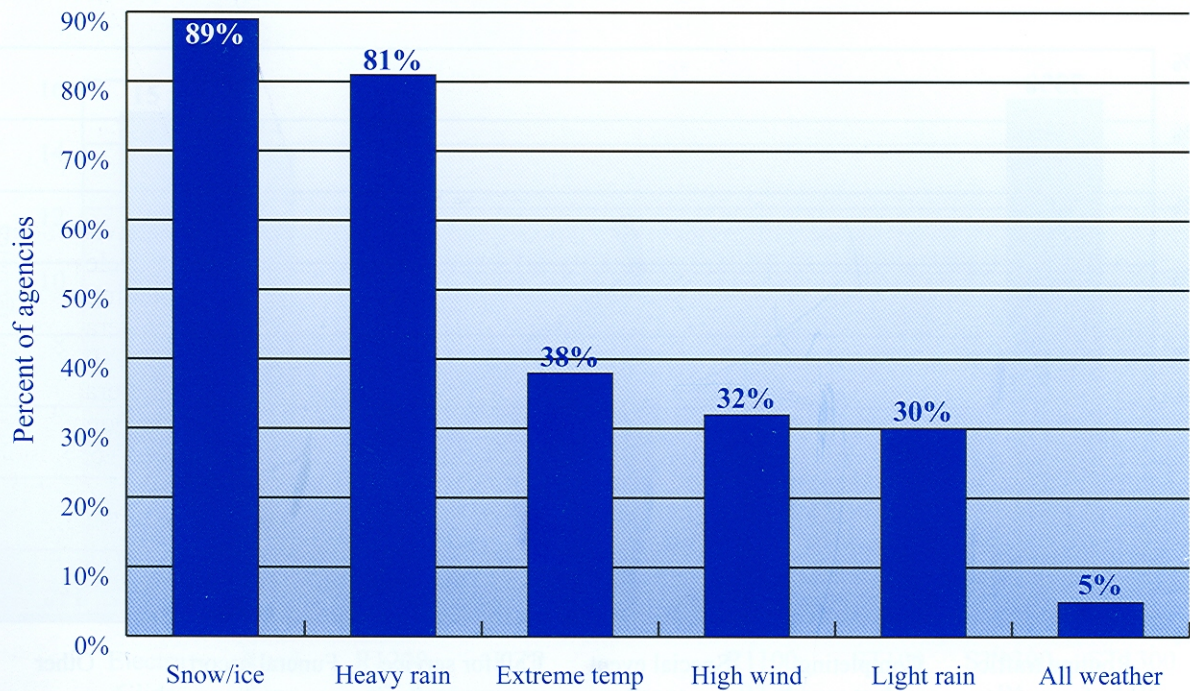


Figure 6. Inclement weather patrol suspension



depicted in Figure 7, the most common responsibility consists of routine traffic enforcement (73%) that is often reflected in the percentage of citations issued. For example, on average, agencies reported that 45% of all traffic citations are issued by motorcycle patrol officers. However, the percentage may vary from as low as 5% in Houston where only 15% of officer time is spent performing traffic enforcement, to as high as 95% in Tyler where almost all motorcycle patrol time is directly related to traffic enforcement.

The remainder of motorcycle patrol duty involves a variety of tasks that include completing accident reports (18%), performing special events (4%), responding to calls for service (3%), or providing funeral escorts (2%). A few agencies, however, vary significantly from the norm as in the case of Houston where a majority of officer time (30%) is devoted to accident report writing and response to calls for service (35%) or Harris County and San Angelo that utilize 75% to 80% of motorcycle patrol time on accident reporting/investigation.

Regarding routine calls for service, motorcycle officers are seldom assigned during the course of their shift, and some agencies place restrictions on the types of calls that they are permitted to handle. Only three agencies—Haltom City, Houston and San Angelo—report

that routine calls for service are regularly assigned to motorcycle officers, and other agencies use their services only under certain circumstances. For example, Lubbock assigns motorcycle patrol with respect to escorts and traffic duty calls for service. Similarly, Dallas and Harris County limit service calls to traffic accidents, while Corpus Christi and Plano only assign calls for service to motorcycle patrol during times when regular patrol is overloaded.

There are no definitive patterns as to where motorcycle patrol units are deployed. In other words, both the use of motorcycle patrol officer time as well as the percentage of time engaged in specific areas also varies. Figure 8 shows that the three most commonly assigned patrol districts include time spent on arterial streets (21%), expressways (18%) and school zones (17%). Overall, while expressways are one of the most common areas for deployment, it should be noted that most jurisdictions utilize motorcycle patrol in these locales less than 20% of the time. However, exceptions that inflate the overall percentage of time assigned to expressways include Austin, Houston and Lubbock (50%, respectively) and Roanoke (65%) whose motorcycle patrol assignments most probably vary due to the particular jurisdictional boundaries and specific missions assigned. For example, Harris County's motorcycle patrol unit responds to traffic

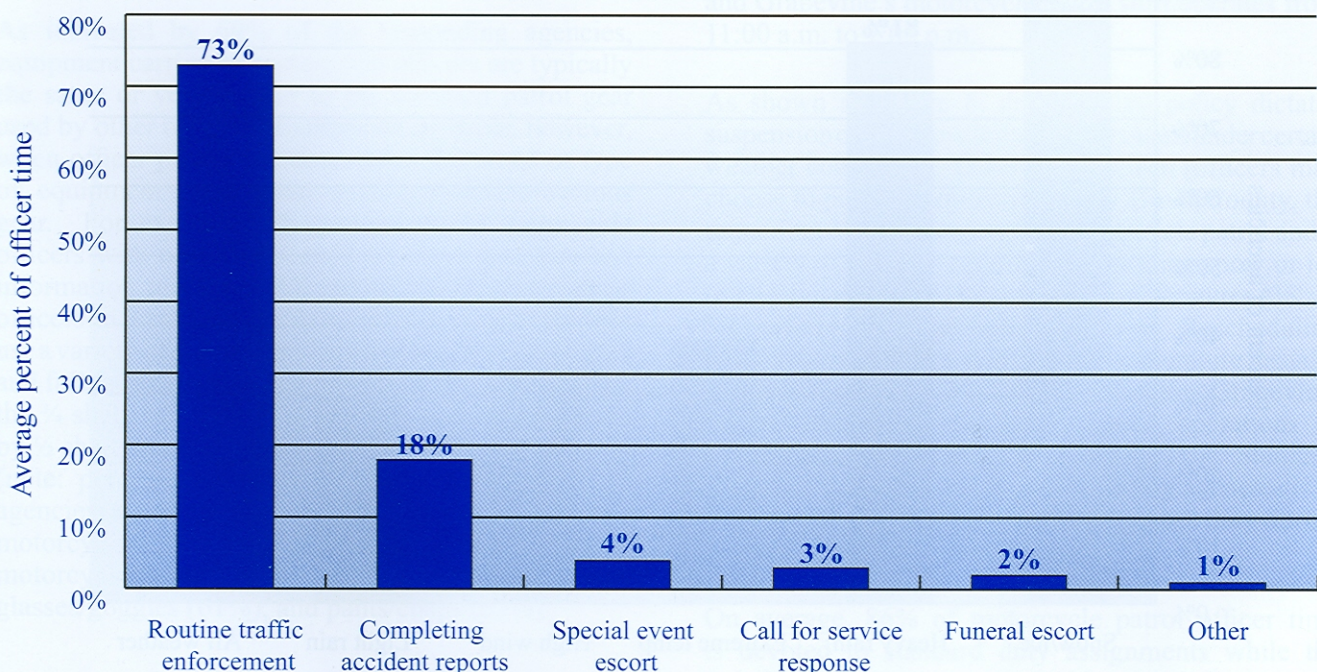
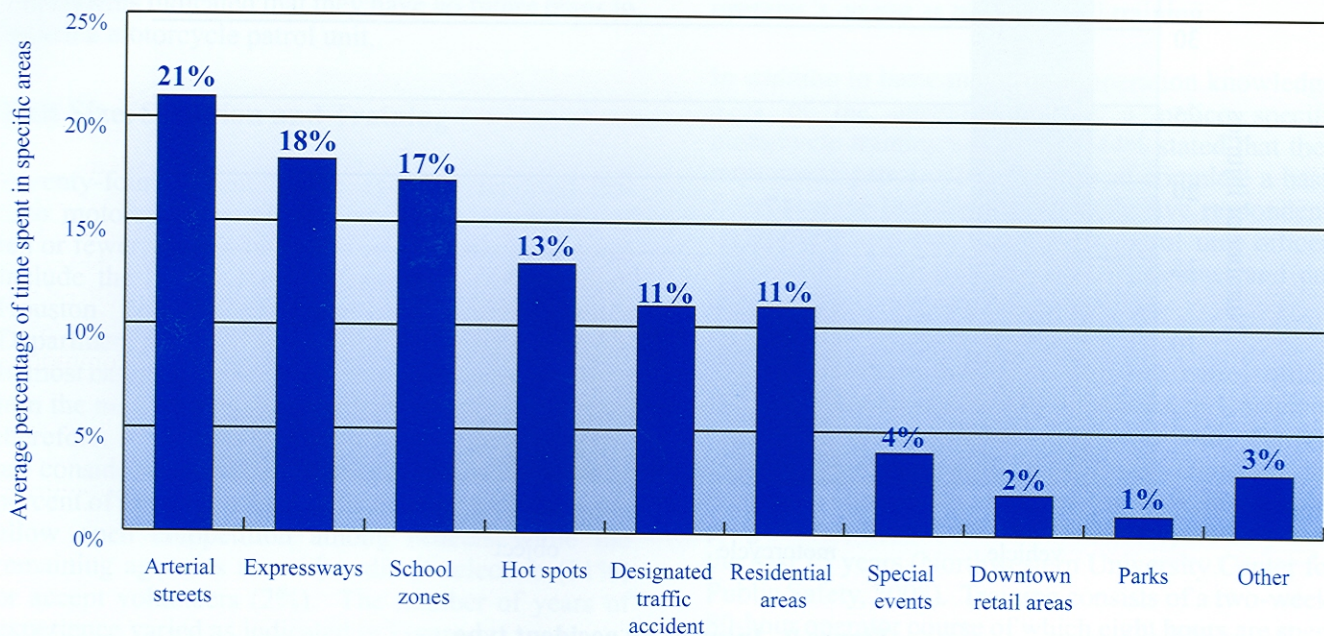


Figure 7. Use of motorcycle time





**Figure 8. Motorcycle patrol deployment**

accidents 75% of the time rather than patrolling specific areas. This is in sharp contrast to Bexar County where most of its motorcycle patrol time is allocated to routine traffic enforcement; therefore, officers are deployed to “hot spots,” school zones (30%, respectively) and residential areas (20%).

### Motorcycle Safety

According to the National Highway Traffic Safety Association (2006), in 2005, there were 4,810 fatal and 88,000 non-fatal motorcycle accidents in the United States. Despite the fact that approximately 3% of registered vehicles are motorcycles, their accidents account for 11% of all traffic fatalities in the United States. The majority (51%) of fatalities involved collisions with other vehicles. At the same time, fatalities from collisions with fixed objects occur at a higher rate among motorcyclists. Notwithstanding injury statistics and the presumed dangerousness of operating a motorcycle, Texas law enforcement agencies reported few injuries. In this *TELEMASP* survey, only the Plano Police Department reported having a motorcycle officer killed in the line of duty, and out of the 39 agencies with a motorcycle patrol unit, 15 respondents stated that they had no injuries to

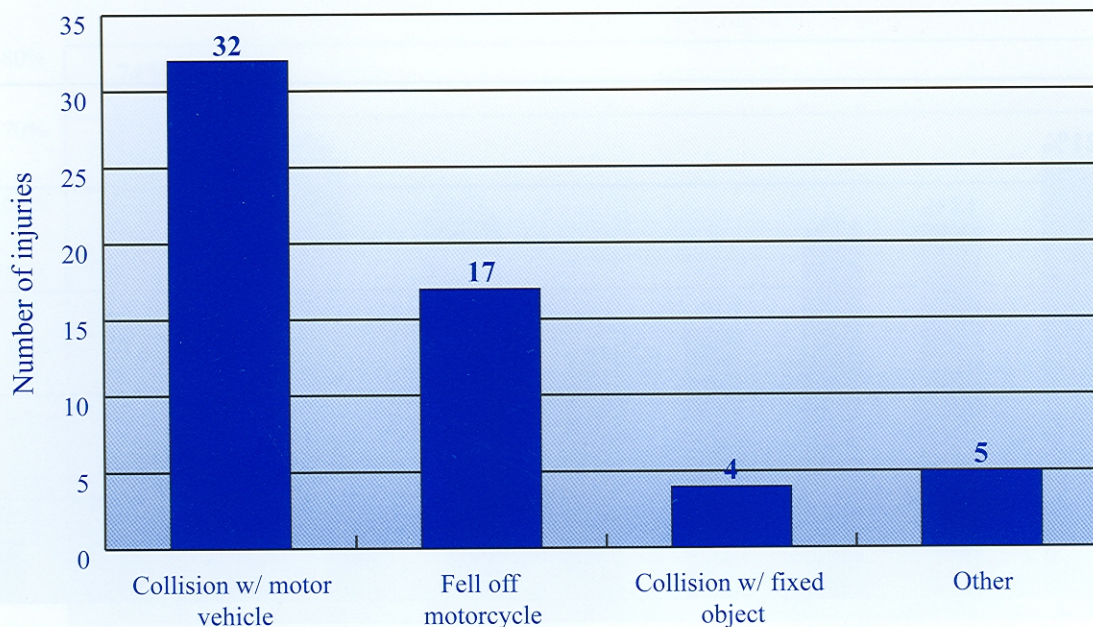
motorcycle officers. Furthermore, as shown in Figure 9, there were only 58 total motorcycle officer injuries, or approximately 13% of all motorcycle officers, across all agencies.

Similar to general U.S. motorcycle operation data, the most common injury occurs when motorcycle patrol officers collide with another vehicle (59.3%) followed by falling off their motorcycles (31.5%). Of serious accidents, 4+ lost duty days, 15 were the result of a collision involving another vehicle, seven officers fell off their motorcycles and five were injured in various other ways.

### Conclusion

Motorcycles have been and remain a long-time fixture of American roadways. In recent years, their ownership has sharply increased, and motorcycle registrations have almost doubled from 3,871,599 in 1996 to 6,227,146 in 2005 (National Highway Traffic Safety Administration, 2006). Likewise, beginning in the early 1900s with Houston’s initial motorcycle patrol units, utilization of motorcycles by Texas law enforcement has a long tradition. In addition to a motorcycle’s inherent quick acceleration and maneuverability that makes it





**Figure 9. Injuries by accident type**

an effective tool in traffic enforcement on congested highways and in downtown areas, the motorcycle has also proven to be an excellent vehicle for escort duty by affording its rider with greater visibility. Furthermore, despite the presumed dangerousness of operating a motorcycle, lost duty time injuries among motorcycle officers is relatively low. Among the survey's sample, five agencies that currently do not have a motorcycle patrol unit are planning to implement one, and by the same token, some agencies indicated that they plan to expand their existing units.

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