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Law Enforcement Management Institute of Texas

Is Pflugerville Police Department Ready
For a Motorcycle Enforcement Unit

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ABSTRACT

The purpose of this project is to determine the viability of implementing a motorcycle enforcement unit in the Pflugerville Police Department. The City of Pflugerville has experienced dramatic growth in population and geographic size, with continued growth expected. With the growth an increase in traffic congestion has occurred. As a result Pflugerville is experiencing more traffic collisions and traffic violations. Traditional patrol cars are becoming less effective in traffic enforcement due to the increased congestion. Often a traffic violation is observed by a patrol officer and not acted on due to the risk involved in attempting a traffic stop. Increased traffic congestion and a patrol car's lack of maneuverability contribute to the problem. At times, to act on traffic violations presents a more increased risk to the general public than the original violation itself. Motorcycles offer increased mobility and speed providing the officer superior means of safely enforcing traffic infractions.

Data for this research was gathered from archival sources, equipment vendors and city statistics. In addition, a telephone survey of local departments was conducted which examined motorcycle unit utilization. The findings show a comparison of acquisition costs, operation costs and efficiency to a patrol car. The project supports the implementation of a motorcycle unit to supplement the patrol division. Findings indicate a motorcycle unit is more efficient for acquisition and operation. Findings also indicate a motorcycle unit is more efficient for traffic enforcement and response to calls during peak traffic congestion. A motorcycle unit offers increased efficiency in specialized enforcement; it is intended as a supplement to car patrol, not a replacement.

TABLE OF CONTENTS

| | Page |
|----------------------------|------|
| Abstract | |
| Introduction..... | 1 |
| Review of Literature..... | 2 |
| Methodology..... | 7 |
| Findings..... | 8 |
| Discussion/Conclusion..... | 15 |
| References..... | 17 |
| Appendix | |

INTRODUCTION

The City of Pflugerville has experienced dramatic growth in both geographical size and population. This growth has been at an unprecedented rate and is expected to increase. With the positive aspects of growth there have also been growing pains. New residential subdivisions are emerging creating greater traffic flow, with the need to accommodate the volume road construction has begun which further compounds the issue of congestion. One of the most recent topics of concern in Pflugerville has been the increased traffic and safety on the public roadways. Traditional patrol cars are becoming less and less effective in traffic enforcement due to the increased congestion. Due to a traditional patrol cars inability to safely turn or maneuver in heavy traffic to effect a traffic stop, an alternative solution is needed.

This project is an investigation to examine the implementation of a motorcycle enforcement unit into the daily patrol routine of the Pflugerville Police Department and to determine if the implementation is a viable option to address the increasing safety concerns. In order to determine the feasibility, a cost and efficiency comparison to a traditional patrol car was performed. The efficiency comparison includes parameters specific to the geographical area of Pflugerville, Texas with a direct division on capabilities and restrictions relevant to calls for service, accidents and traffic citations handled from January, 1997 to June, 2000.

Additional equipment and training issues were also considered as part of this study in order to present an overall comparison. Data was collected from various sources including books, journals and published periodicals directed to the law enforcement field. Equipment information was gathered from third party vendors to establish a cost comparison. Additional information was gathered from outside agencies that have implemented similar programs into their departments to determine success, personnel issues and statistics for efficiency. Internal

statistics from the Pflugerville Police Department on calls for service, citations and collisions were obtained from the departments computer aided dispatch program and used for the efficiency comparison.

The intended outcome is to gather information that would identify the need of implementing a dedicated motorcycle enforcement unit in the City of Pflugerville. Indicating that a motorcycle enforcement unit would provide a viable solution for the traffic and safety concerns for the City of Pflugerville.

REVIEW OF LITERATURE

Motorcycles have been used in U.S law enforcement dating back almost a hundred years (Caperton, 1996). In the 1800's police patrolled on foot and used horses for larger areas. In the 1890's bicycles began being utilized for patrol. A bicycle could cover a larger distance in a shorter period of time than foot patrol and required less maintenance than mounted patrol. In the late 1800's an inventor attached a motor to a bicycle enabling the bicycle to be propelled at a faster rate than pedaling. This machine was referred to as a motorcycle and was being produced for retail sale to the public by 1903. One of the first formalized police motorcycle units in the United States was in 1911. The New York Police Department formed the unit to address traffic concerns on their busy streets (Green, 1999).

Motorcycles evolved by the 1920's from the original bicycle with a motor to more of the traditional motorcycles of today. They became more powerful with multi speed transmissions. In the 1930's emergency equipment such as lights, sirens and radios were added. By the 1950's Harley Davidson dominated the motorcycle market and was the leading police motorcycle manufacturer (Genant, 1999). In the 1960's following the "buy American" policy it was easy for

departments to decide on which motorcycle to buy, Harley Davidson was the only choice. With the introduction of foreign motorcycles into the market place in the 1970's departments were forced to reconsider their prior "buy American" policy due to reduced prices and improved equipment (Lee, 1979)

Today there are three major brands of motorcycles produced for "police" use. They are the Harley Davidson, Kawasaki and Bavarian Motor Werks (B.M.W.). "All have good and bad points based on the environment they are being used in" (Winston, 2000). The police versions from all three manufactures come equipped with specialized equipment for police including emergency lights, siren and bags. Additional equipment such as radios and radars are added aftermarket.

The Kawasaki police motorcycle is the KZP 1000. It was the bike made famous by the hit TV show CHIPS based on the California Highway Patrol (Genant, 1999; Paynter, 1998). Kawasaki is the least expensive model and retains less value on resale. The Kawasaki KZ 1000 has kept its basic design and configuration since it's inception in 1976 (Genant, 1999). With advancements in technology and new designs from other manufactures Kawasaki appears to be becoming less of a standard

While BMW has been supplying police motorcycles for decades overseas it is one of the newest models added to the lineup in America. The BMW model is the R1100 RT-P and it has a sporty design with full fairing giving it the appearance of a sport bike instead of a cruiser. BMW offers state of the art engineering and technology including shaft drive, ABS braking system, fuel injection, liquid cooling system, adjustable seat and windshield, heated hand grips and heavy alternator with dual batteries for emergency equipment. BMW also recommends service intervals every 6000 miles compared to Harley Davidson and Kawasaki at 3000 miles. BMW is

the most costly of the models for the initial acquisition. BMW believes longer service life, lower repair costs and increased safety will offset the increased cost (MotorWorld Online News, 2000). The BMW does come with additional Equipment not included on the Kawasaki or the Harley Davidson as well as a longer standard warranty, which is an additional cost on the others. (Genant, 1999).

Harley Davidson offers three models for law enforcement. The FLHPI Road King, the FLHTPI Electra Glide and the FXDP Dyna Defender that is new for the 2001 model year (Oelhafen, 2000). The Dyna Defender is the most comparable to the Kawasaki KZ 1000 having a carburated fuel system, shorter wheelbase and a tighter turning radius. It is also the most comparable in price to the Kawasaki. The FLHPI Road King and FLHTPI Electra Glide are only available in fuel injected versions starting in 2001 and all the Harley Davidsons are belt driven and air cooled. Harley Davidson has had the reputation for high maintenance and long periods of down time for service. Harley Davidson has made some major quality enhancements and technical refinements including the fuel injected system and serial bus port system that should make the models more reliable and more efficient (Elvidge, 2000). The Harley Davidson has the reputation of being "The American Motorcycle", having more riding clubs and fans than any other manufacturer. This is demonstrated by the amount of clothing and accessory sales of Harley Davidson paraphernalia. Harley Davidson experienced a 20% increase in police sales in 1997 alone (Paynter, 1998). The greatest asset of the Harley Davidson is the extremely high resale value. It is not uncommon for a Harley Davidson in good condition to be sold at, or higher than, the original acquisition price. This makes for lower cost on replacement units (Genant, 1999; Paynter, 1998).

Other equipment concerns of a motorcycle unit besides the motorcycle itself are communications equipment, radar, safety equipment and officer apparel. Communications equipment is the most costly, having special considerations for adaptability for exposure to the elements and integration into a helmet. Due to the limited visibility of a motorcycle some departments opt for additional emergency lighting to help compensate for this. Officer apparel needed are riding pants, often referred to as "britches", boots, gloves, jacket, and helmet. These items are not just for comfort or image, they provide additional safety.

Departments around the country have selected units based on test evaluations, cost of acquisition and operating expense. One of the latest documented tests was by the Las Vegas Metropolitan Police Department in March of 1999 (McDonald, 1999). The test included maneuverability, acceleration and braking. The models tested were the Harley Davidson FLH-TPI, BMW RT1100 and Kawasaki KZ1000. Each model demonstrated superior performance in certain areas. The Harley Davidson had best performance overall and the Kawasaki was superior in handling, while the BMW was superior in braking.

The University of Michigan conducted a survey in 1993 to assess the implementation of motorcycles in the Metro Detroit State Police for freeway enforcement. The survey indicated the following results:

- Increased enforcement action compared to normal car patrol
- Considerably more time on patrol and more miles with reduced operating cost
- Increased maneuverability and visibility with reduced response times
- Positive public relations

There were no adverse effects noted on regular patrol from the project outside of requiring patrol cars for prisoner transports. The Metro Detroit State Police had discontinued motorcycle

patrol in 1941 and they wanted to be certain that if the unit was revived it would be based on effectiveness and not on personal feelings. The survey supported the implementation of the program (Streff, 1994).

The City of Grand Island Nebraska proposed a motorcycle traffic unit to address problems with traffic accidents. Motorcycles were recommended based on cost, maneuverability, community policing aspects and approachability. The city received a grant to implement two motorcycles into their patrol function during 1997-1998 fiscal year. The City of Grand Island reported during the 1998-1999 fiscal year a 10.1% decrease in total traffic accidents and a 17.6% decrease in personal injury accidents. There was also a 75% reduction in traffic fatalities. The unit has been so successful that it was increased to a total of four motorcycles (Collins, 2000)

Other emergency services have seen the benefits of motorcycles as a response vehicle. The City of Pittsburgh has implemented a motorcycle medic program putting first responders on motorcycles and equipping them with defibrillators, oxygen and ALS trauma kits. The unit is useful at special events and during traffic congestion when traditional medic units cannot get through. (Pittsburgh's Motorcycle Medics, 2000).

Departments nationwide are reviving their motorcycle units or implementing new motorcycle units due to increased traffic congestion and traffic accidents. (Howze, 1998). With traffic jams and limited room for patrol cars to safely maneuver it makes good sense to utilize a motorcycle. Motorcycles can navigate through congestion with ease, reducing response time to critical calls (Morrison, 1993). Safety is often increased during motorcycle responses due to a higher degree of maneuverability and reduced speeds. Motorcycles can utilize smaller areas like splitting lanes, driving on improved shoulders or using sidewalks to avoid other hazards (Sandwick, 2000; Yates, 1993)

Motorcycles can also play an effective role in community policing. Citizens often approach motorcycle officers to talk about the motorcycle and later voice their concerns about crime and other relevant issues (Sandwick, 2000). The Linden, Missouri Police Department implemented a Harley Davidson Motorcycle into their patrol fleet utilizing community policing funds. They have found it to be an excellent public relations tool making officers more approachable and leaving a positive impression on the community (Brohman, 2000).

METHODOLOGY

Would the City of Pflugerville benefit by having a motorcycle enforcement unit added to the daily patrol routine of the Police Department? It is hypothesized that this research project will support implementation of a motorcycle unit to address the increasing traffic and safety concerns in the community. Information on local population and growth was gathered from The City of Pflugerville's official records to show past growth, present population and the projected population of the city. Statistics on calls for service of the police department were compiled showing the number of citations issued, accidents and calls responded to from January 1997 – June 2000 in order to illustrate the increased demand for police services.

Figures from the Pflugerville Police Departments 2000 budget for new patrol vehicles were used to conduct a cost comparison to address equipment acquisition. The cost of additional necessary equipment will be analyzed based on third party vendors and local police department experience.

To determine the trends in the utilization of motorcycles in local law enforcement a telephone survey was conducted. The telephone survey was used to ensure that a response was received from all targeted police departments. A total of five agencies were interviewed. All

agencies are within a twenty mile radius of Pflugerville. Agencies interviewed ranged from the largest with over 1100 officers to the smallest with 49 officers. The survey was conducted to determine the following:

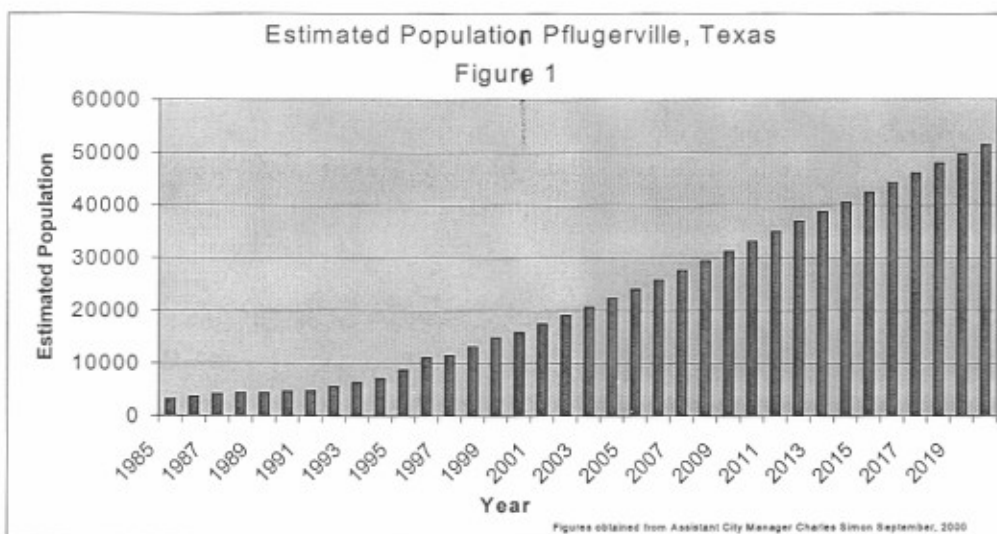
- If agencies are utilizing a motorcycle units or planning on implementing one in the future.
- If motorcycle units are efficient enforcement units in our local demographic setting,
- Additional necessary equipment needed for a motorcycle.
- Training and personnel considerations encountered by the departments using motorcycles.
- Concerns for repair, operation and life expectancy of equipment.
- Community policing benefits and effects on regular car patrol.
- Safety concerns and job tasks performed by motorcycles.

FINDINGS

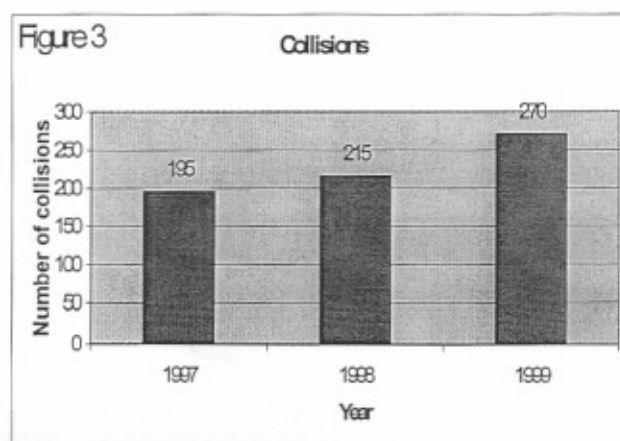
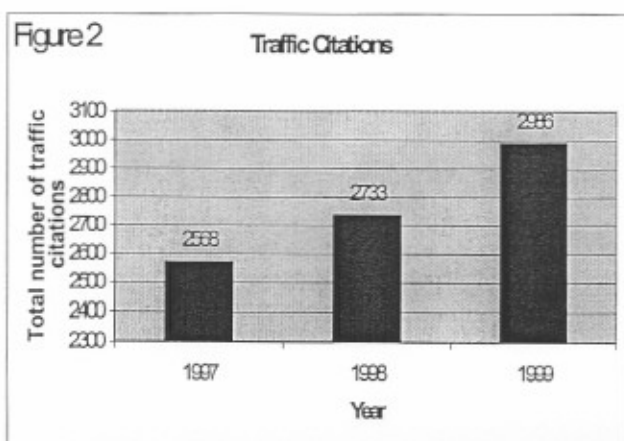
The City of Pflugerville has experienced unprecedented growth both in geographic size and increased population. The City borders on the north side of Austin and the south side of Round Rock. The primary composition of the city is single family dwellings with small degrees of commercial business and multi-family structures. The primary employment for the area is based in the city of Austin making it necessary for the working population to commute. The city also supports commuting traffic into Austin from the surrounding cities that are to the Northeast of Austin including Hutto, Round Rock, Taylor and Manor. Motorist pass through Pflugerville to get to the interstate and main arterial access roadways that lead into Austin. This creates a large amount of traffic congestion during peak hours. The city also has several schools in the area, which add to traffic, including a major high school with an open campus lunch program.

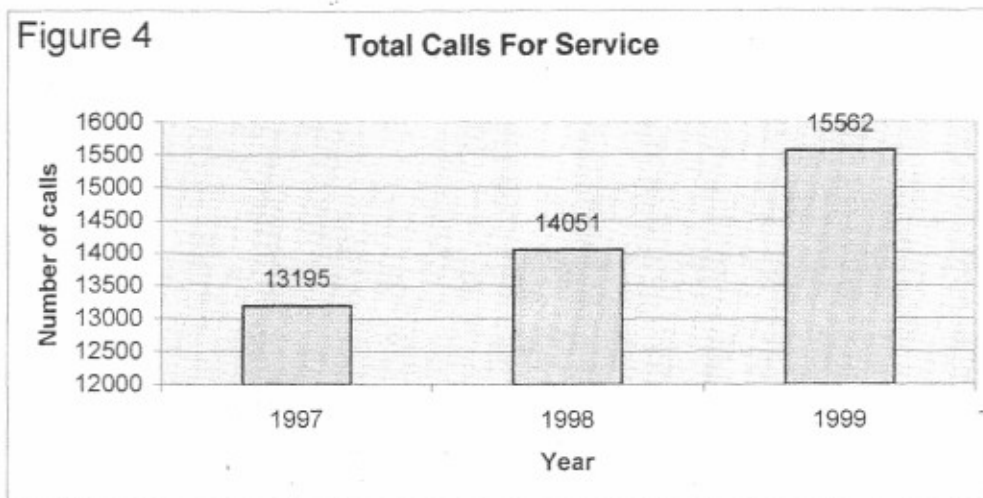
Another high school is scheduled for construction. The major roadway for east and west travel is a four-lane roadway that reduces in downtown to a two-lane road. Other means of traveling east and west are cutting through residential neighborhoods or circling around the northern city limits. There is a large apartment complex currently under construction with more multi family projects expected in the future.

Figure 1 below illustrates the past growth of The City of Pflugerville and projections for future population. The current population is approximately 16,000 and it is expected to increase by 8,036 (50%) over the next five years.



Statistics reviewed from the Computer Aided Dispatch Program (CAD) utilized by the Pflugerville Police Department indicated that calls for service and police enforcement have increased with the population growth as shown by figures 2 - 4 below.





In 1998 collisions increased 10.25%, traffic citations 6.4% and total calls for service 6.4% compared to a 14.8% increase in population. In 1999 collisions increased 17%, citations 9.2% and total calls for service 10.7% compared to a 13% increase in population. The estimated 2000 population is a 6.6% increase and statistics gathered during the first 6 months of 2000 indicate that police calls for service will be much higher than previous years. During the first 6 months of 2000 totals calls were approximately 60% of 1999 figures. A possible explanation for the increased numbers is four new officers that were added to the patrol staff coupled with city growth. There are plans for hiring four new police officers in 2001.

A telephone survey (see appendix) was conducted of the major police departments in the area surrounding Pflugerville, which included Austin Police Department, Travis County Sheriffs Department, Williamson County Sheriffs Department, Round Rock Police Department and Cedar Park Police Department. All but Round Rock reported that they currently utilize motorcycles as enforcement units.

Sergeant (Sgt.) Bruce Lutringer of Austin Police Department (APD) advised that APD has 50 officers assigned to motorcycle patrol with 55 motorcycles in their fleet. The department just ordered 14 new Harley Davidson Roadkings. The average life expectancy of their motorcycles is four to five years or 60,000 – 70,000 miles. There is currently not a set policy

for replacement. Officers are required to attend a 40-hour initial training class on the motorcycles and a 10-hour refresher twice per year. The motorcycle units take calls, perform back-ups and perform preventative patrol. When asked if there were any community policing benefits Sgt. Lutringer advised "yes, there is PR written all over it". In response to efficiency over car patrol for traffic enforcement Sgt. Lutringer advised that for a normal month officers assigned to cars write 20 – 30 traffic citations per month while it is easy for a motorcycle officer to turn in 200 citations per month. Sgt. Lutringer stated that APD has not experienced any increased frequency of accidents in the motorcycle unit compared to cars when you compare the number of units and miles driven. The one downside noted was that when there is an accident the officers on motorcycles are more susceptible to injury. APD currently uses the Harley Davidson Roadkings, primarily due to high retention of value. They have 22 Kawasaki KZ1000's that are being phased out. Sgt. Lutringer advised that the Kawasakis have not been updated in twenty years and they will not support more than four emergency lights on the electrical system. He advised that he would like to see the department switch to BMW's due to its features making it a more practical vehicle for patrol application (R. Lutringer, personal communication, September 18, 2000).

Lieutenant (Lt.) Rick Whitehead with Travis County Sheriffs Department (TCSO) advised that TCSO has 6 officers and 6 motorcycles assigned to their unit. The unit was established in 1986 with two motorcycles and has grown since. TCSO has a replacement policy of 5 years or 60,000 miles for their motorcycles. The motorcycle units respond to calls, perform back-ups and perform preventative patrol. They also function as advanced accident investigators for the department. Lt. Whitehead estimated that motorcycle officers were approximately 25% more efficient than cars on the same shift for traffic enforcement. He noted that there is a significant community policing benefit to the motorcycles that they are great for special events

and that the motorcycles become a main topic of conversation. On duty accidents within the unit were reported to be much lower than car patrol. Lt. Whitehead advised that he would like to see the Harley Davidson's currently used replaced by the BMW for the 2001 – 2002 budget year, due to repair issues (R. Whitehead, personal communication, September 15, 2000).

Corporal (Cpl.) Fred Pitcher with Williamson County Sheriffs Department (WCSO) advised they have two Harley Davidson motorcycles currently being utilized for patrol. The motorcycles were implemented in 1993. The department plans on increasing the number of motorcycles but they are waiting on 2000 census figures to determine how much. The motorcycles are in the traffic unit, which also has 2 cars and 2 license and weight officers. The life expectancy of the motorcycles is undetermined and they do not have a set policy for replacement. The motorcycles respond to calls, perform back-ups and perform preventative patrol. Cpl. Pitcher advised they have received very positive feedback from the community on the motorcycles and that they are a useful tool for community policing. When asked about accidents Cpl. Pitcher advised that motorcycles are "much safer" than cars. There were no statistics to show efficiency and Cpl. Pitcher advised it depends on the officer's motivation. He advised that motorcycles are much more effective in school zone enforcement (F. Pitcher, personal communication, September 15, 2000).

Assistant Chief Butch Dempsey with Cedar Park Police Department advised they have 2 motorcycles and 2 officers assigned to their unit that was established in approximately 1998. The department utilizes Harley Davidson's in their unit and they have ordered 2 more Harley Davidsons to increase their unit to four. The life expectancy is 100,000 miles for their units. The motorcycle unit performs preventative patrol but does not respond to calls. They work all traffic accidents and perform advanced accident investigation for the department. Assistant

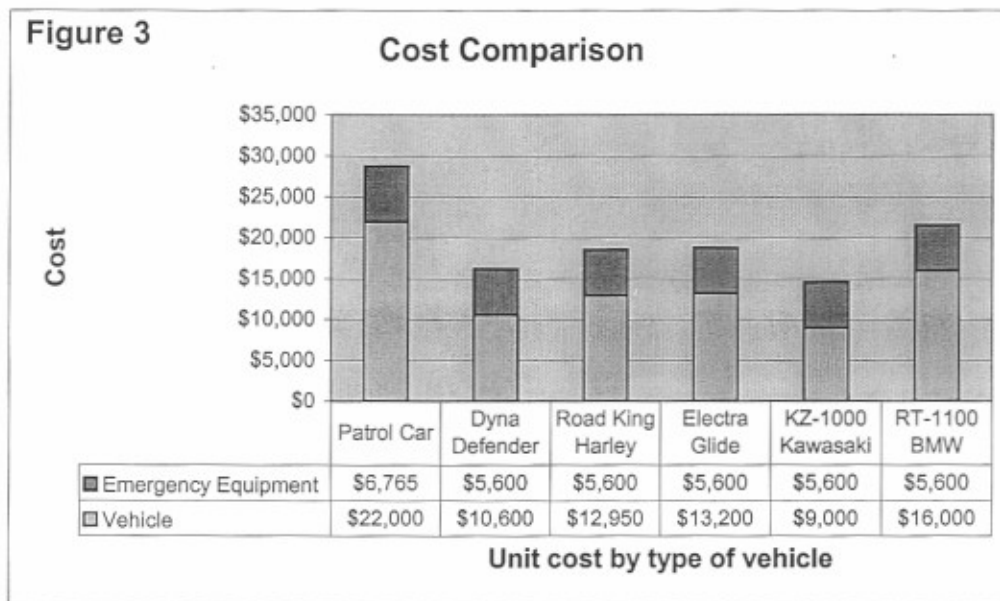
Chief Dempsey advised they rely more heavily on their bicycle patrol for community policing efforts than the motorcycles. Assistant Chief Dempsey advised on average an officer on car patrol issues 5 citations per day where a motorcycle officer issues approximately 50 citations per day. Cedar Park has not experienced any on duty accident involving their motorcycle units (B. Dempsey, personal communication, September 11, 2000).

Sergeant (Sgt.) Robert Lloyd with Round Rock Police Department advised that Round Rock does not currently have a motorcycle unit. Sgt. Lloyd advised that the city council did approve a motorcycle in the budget, but due to administrative changes the monies were reallocated (R. Lloyd, personal communication, September 11, 2000).

All the departments in the local area that utilize motorcycles for patrol purposes supply department owned motorcycles and necessary equipment to the officers. All the units operate year round and it is left to officer discretion on when not to utilize motorcycles for patrol. All the departments utilize The Austin Police Department for motorcycle training. APD has six motorcycle instructors and offers training to outside agencies for approximately \$120 per person. The class is 40 hours and requires each department to furnish their own equipment for the class.

Additional equipment concerns are individual officer equipment, radios and additional emergency lighting. Individual officer equipment consists of a helmet, a radio harness for the helmet, a jacket, gloves, boots, and pants (Pilant, 1994). The average cost to equip a single officer is approximately \$2,000 (R. Lutringer, personal communication, September 18, 2000). A specialized radio for a motorcycle unit averages \$4,000. Police specific motorcycles come with emergency lighting but if additional lighting is added for increased officer safety and visibility the cost is approximately \$1,600 per unit (B. Dempsey, personal communication, September 11, 2000).

Figures obtained from the 2000 – 2001 Pflugerville Police Budget indicate a patrol car costs \$22,000 and emergency equipment is \$6,765. Average cost of emergency equipment for a motorcycle, including additional emergency lighting, is approximately \$5,600. The life expectancy of a motorcycle in years is comparable to a patrol car while life expectancy in miles is slightly less. Figure 3 below shows a comparison of the currently budgeted patrol cars to the varying models of police motorcycles.



Analysis associated with maintenance and gasoline consumption show that a motorcycle is more cost efficient to operate than a patrol car. Average maintenance per mile driven for a motorcycle is \$0.0742 per mile driven compared to a patrol car at \$0.081 (Streff, 1994). Gasoline consumption is far superior for motorcycles which average 38.79 miles per gallon compared to a patrol car at 14.69 miles per gallon (Streff, 1994)

DISCUSSION/CONCLUSION

The research was conducted to investigate if a motorcycle enforcement unit would be a viable tool to address increasing safety concerns brought to the community by growth and increased traffic. With area growth the police department is experiencing more calls for service and responding to more traffic accidents. Figures compiled during the research indicate that growth and demand will increase even more in the future. The problem needs a more efficient answer than simply placing more officers on the street. The findings of the study indicate that a motorcycle unit would be a useful tool to address concerns in the community. A motorcycle unit can be more efficient at enforcing traffic laws and reducing response times to calls. A motorcycle unit can respond faster traveling at lower speeds than patrol cars reducing liability to the department and risk to the community. Implementation of a motorcycle unit would also benefit the community by increasing proactive community oriented policing, as seen by other departments in the local area.

Statistics compiled coupled with data from other departments in implementing similar response units show that the cost to the community would be less. The initial acquisition of equipment would be less than a standard patrol car and the cost associated with operation would be less. This would effectively maximize tax dollars spent while increasing efficiency of the police department to better serve its community. As with any new program there are negative aspects. Motorcycle operators are more susceptible to injury when involved in an accident and there are limitations due to the equipment. Prisoner transports are one limitation. Motorcycles have a heightened awareness on the roadway created by increased visibility of the roadway and agility to respond defensively to threats. By providing regular training to officers within the unit the possibility of accidents can be reduced. Given the size of the department and current

administrative structure the addition of two motorcycles to the patrol division would provide continuous day shift coverage. Given the climate and local demographics the unit could operate year round. During times of inclement weather or unit maintenance a pool car could be utilized. It is clear that The City of Pflugerville would benefit by implementing a motorcycle unit within the patrol division.

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APENDIX

APENDIX
Questions For Telephone Interview

DATE: _____

Police Department: _____

Name: _____

Title / Position: _____

Demographics

- 1) City Population? _____
2) Department Size? _____

Motorcycle Unit

- 3) Does the Department have a motorcycle unit? _____
 a) Has the department considered implementing one? _____
4) When was it established? _____
5) How many officers assigned to Motorcycle detail? _____
6) How many motorcycles in fleet? _____
7) Average number of miles per year/month used? _____
8) Average life expectancy of unit? _____
9) Is the unit year round? _____
 a) What is policy for determining use of motorcycle in inclement weather? _____

Equipment

- 10) What brand and model used in fleet? _____
11) Department owned or Officer Owned? _____
 a) If Officer owned what type of compensation used? _____
12) Specialized equipment issued by department. _____

13) Equipment concerns for unit and avg. cost i.e. radio, radar, etc. _____

Training

- 14) Specialized training received? _____
 a) Who from _____
 b) Cost _____
 c) Length _____

15) Continuing education? _____

a) Who from _____

b) Cost _____

c) Length _____

16) Equipment used during training Department provided / Institute provided? _____

a) Associated cost and accident rate from training _____

17) Does unit serve as AI for shift? _____

Effectiveness / Use

18) Is the unit strictly traffic, or do they respond to calls for service? _____

19) Does the unit work preventative patrol in neighborhoods? _____

20) Any Community policing benefits? _____

21) Limitations noted over regular patrol? _____

22) Any increase in enforcement efforts? _____

23) Any On-Duty accidents? _____

a) Minor _____

b) Major _____

c) Comparison to On-Duty car accident frequency _____

24) Citations issued compared to regular patrol _____

Comments
