SURVEILLANCE CAMERAS IN CINCINNATI: AN ANALYSIS OF THE IMPACTS ACROSS THREE STUDY SITES

Submitted to the Planning Section
of the
Cincinnati Police Department

By

Lorraine Green MazeroIIe, Ph.D.,
David C. Hurley, M.S.
and
Mitchell Chamlin

Division of Criminal Justice
University of Cincinnati

August, 1999

TABLE OF CONTENTS

LIST OF TABLES

LIST OF MAPS

LIST OF DIAGRAMS

L BACKGROUND

In 1996 the City of Cincinnati installed a surveillance camera at the Five Points area in Evanston. This technology was installed under trial conditions in an attempt to control street drug activity. After a one year trial period, police and city officials claimed that the surveillance camera reduced crime and disorder. Following the claimed success of the Evanston surveillance camera, the City of Cincinnati installed four additional surveillance cameras in late 1998 and early 1999 throughout various locations in the city including Race and Elder Streets (Findlay Market), Fergus and Chase (Northside), Dorchester and Auburn Streets (Hopkins Park), and Madison and Whetsel (Madisonville).

This report presents the results of an evaluation of three of the Cincinnati surveillance cameras. Our report begins by outlining our research design, we then discuss our research findings, and we conclude with some recommendations for the future.

H RESEARCH DESIGN

Our research evaluates the effectiveness of the surveillance cameras in the City of Cincinnati. We used two primary methodologies (1) random samples of videotaped activity and (2) and analysis of police call for service and arrest data. We describe these two methodologies below.

1. Random Samples of Video Tapes

This phase of the evaluation examined actual video tape from three of the four surveillance camera sites[1]. The Northside site (tape operational since December 21, 1998) includes a little over

[1] We did not include the Madison and Whetsel site in this part of the analysis because we were unable to download usable tape from the machine due to technical anomalies with the data storage at this site.

three months of videotape from December 21 through March 24[2]; the Hopkins Park site includes three months of data from February 17 through May 20, 1999; and the Findlay Market site includes two months of data from March 17 through May 17, 1999.

< See Table 1 >

Selected dates and times from each master tape were copied and recorded on a video tape. We selected the study time slots in the following manner: first, we interviewed beat officers and patrol officers from each of the sites to understand the patterns of activity at each surveillance camera location; second, we reviewed police calls for service data to validate officer perceptions of high activity and low activity times; third, we decided that most action at the three study sites occurred between 1500 hours to 2100 hours with peak activity varying for each site; fourth, to measure the possible effects of temporal displacement, we extended our study period to a twelve hour period from 1300 hours to 0100 hours. As such, seven different points of time were studied for each study site[3].

We could not include every single day in our study sample due to time and resource restraints. We did, however, include every third day in our study sample. As such, for every three weeks, we include data from every day of the week. We believe this selection process is both parsimonious and thorough. To observe the spread of activity during the course of any one day,

---

[2] We include three months for this first site for a couple of reasons: first, this site was the first site installed and we have a longer time period to assess the data and provide reliable measures both before and after the intervention period; second, after the first month of recording the data, we made extended the number of hours to capture the data, thus making the latter months commensurate with our final study design.

[3] The exception is Hopkins Park which seemed to have more of a daytime problem. As such, for this site we added an additional observation period of 1100 hours to capture the possibility of temporal displacement to an earlier time in the day.

we randomly selected a start time at two hour intervals beginning at 1300 hours and finishing at 0100 hours. To reduce error likelihoods in the data, the exact start time for each selected hour was randomly selected and all subsequent time points came at two hour intervals afterwards.

We hired four students to review the video tapes and code specific activities observable in the tapes. We coded the conditions of the tapes, the number of people (by age groups, by gender, by race) and we specifically coded the range of activities in the surveillance locations. We also re-coded a randomly selected five percent of the three sites as a reliability check of the codings. (Appendix A contains a copy of the videotape codebook).

In total we collected 252 observation points for the Northside site, 240 observation points for the Hopkins Park site, and 147 observation points for the Findlay Market site. In total we include 639 observation points in our sample.

< See Table 2 >

We came across several problems in meeting our schedule for recording videotapes. In total, 62.9 percent of the planned observations were collected for the exact date and time we had scheduled. We were forced to substitute 18.2 percent of the planned observations for a variety of reasons (see below) and we were faced with 18.9 percent of the cases that could not be substituted and were subsequently recorded as missing cases (see Diagram 1). In most cases (70.5 percent), police error hampered our ability to conduct the planned observation. This included failure to insert videotape, failure to switch on the camera, or failure to keep the videotape for 72 hours. Other problems included camera malfunction (16.5 percent) and researcher error (9.3 percent) (see Diagram 2).

The cameras were not always functioning in the manner we expected. Indeed, only 54.9

percent of the time we recorded the cameras to be "sweeping" the intersection in the manner it was intended. In 40.7 percent of the cases, we found the camera to be in a "fixed" position, usually in the center of the intersection and in 4.3 percent of the cases, the camera was pointed directly down to the ground or towards a brick wall or some other site that obscured a clear view of the intersection (see Diagram 3). The functioning of the camera led us to record over half of the cases with a full view of the hot spot (57.2 percent) and 29.8 percent of the time we only recorded a partial view of the hot spot. In 13 percent of the cases, the viewing was so poor we could not record any activity at the hot spot at all (see Diagram 4),

Overall, our observations (including the substitutions) mirrored our planned observations. That is to say that the substitutions that we made were random across the study sites, across the days of the week, and across the time slots for the observations. Diagram 5 depicts the distribution of our sample by day of week. As this diagram shows, we conducted between 70 and 100 observations on each day of the week. Similarly, as we had planned, we conducted observations between 1.00 p.m. in the afternoon and 1.00 a.m. at night (we also included an 11.00 a.m. observation time slot for Hopkins Park based on comments from Beat Officers who suggested the activity could possibly displace to earlier in the day). Diagram 6 depicts the distribution of our sample by time slot.

One of the factors that we captured in our coding of the videotapes was the weather conditions. Initially, we were concerned that the winter weather would hamper our viewing of the videotapes. Diagram 7 shows the distribution of observations across a number of prevailing weather conditions. As this diagram shows, the vast majority of our observations were recorded in clear conditions. When these data are matched against the visibility of the camera (based on

camera malfunctioning etc (see Diagram 4), we found that over 200 of our observations are clearly visible, over 150 have some limitations in terms of visibility and just over 100 of them we categorized as very limited (see Diagrams 8 and 9).

2. Analysis of Police Data

This phase of the evaluation used Cincinnati Police Department calls for service and arrest data. These data were cleaned (address mistakes corrected), geo-coded and mapped. We then carefully selected police calls and arrest data from 1,000 foot radii around each of the three study surveillance camera locations (these data were later broken down so that we could also examine data fluctuations in 500 and 200 foot radii).

We constructed measures of crime for a "pre-intervention" period before the start of each surveillance camera, and for a post-intervention period after the implementation month. The exact before, during, and after dates for the three sites are as follows:

Northside: The pre-intervention ("before") period is from January 1, 1997 through November 30, 1998; the intervention period ("implementation month") is December 1998; the post-intervention ("after") period is from January 1, 1999 through June 30, 1999.

Hopkins Park: The pre-intervention period is from February, 1997 through January 31, 1999; the one month intervention period is February, 1999; and the post-intervention period is from March 1, 1999 through June 30, 1999.

Findlay Market: The pre-intervention period is from March 1, 1997 through February 12, 1999; the one month intervention period is February 13, 1999 through March 15, 1999; and the post-intervention period is from March 16 through June 30, 1999.

Our pre-post intervention analysis examines the percent change in the mean per week of

calls and arrests by specific crime types for 1,000 feet, 500 feet and 200 feet radii surrounding each of the surveillance camera areas.

ffl. RESULTS

Our results presented in this report are broken into three sections. Section One describes the videotape data in aggregate form and differentiates the activities across the three study sites. Section Two presents our time series analysis depicting trends in pedestrian, pro-social, anti-social, guardianship, and traffic activity identified in the videotapes over time. Section Three presents the changes in calls for service and arrests from before the implementation of the cameras compared to short follow-up periods.

1. Summary Statistics from Videotapes

Table 3 depicts some general characteristics of the study sites. As this table shows, we noted payphones in both Hopkins Park and Findley Market (but not at Northside), we recorded a bar at the Northside site, but not at the other two sites. Findley Market had about 58 buildings and Northside comprises about 43 buildings. Hopkins Park recorded an index of 2.31 on a garbage scale (3 being high and 0 being low). Northside seemed to have the least amount of observable garbage at the site.

< See Table 3 >

The number of people that were observed in the video tapes was also recorded for each observation. The average across all observations, by site, are summarized in the Diagrams attached. Diagram 10 shows that nearly two thirds of the people at the Northside hot spot were male, 20.2 percent were female and the rest we could not decipher (Diagram 10). In Hopkins Park 53.6 percent of the people in the videotapes were male (Diagram 11) and about 43.8 percent

of the people at Findley Market were male (Diagram 12). We note, however, that we could decipher the gender of a large percentage of people in Findley Market (40.6 percent).

Table 4 shows the average number of people, by gender by site. As this table shows, Findley Market shows that about 8 out of every 20 people we recorded at the site during any one observation were male. About 9 out of every 20 people we could not decipher their gender at Findley Market. At Northside, about 2 out of every 4 people at the site were male and similarly about 2 out of every 4 people at Hopkins Park were male.

< See Table 4 >

Most of the people at the Northside site were African American (69.9 percent) (Diagram 13) and about the same percentage of people at Hopkins Park (Diagram 14) and Findley Market (Diagram 15) were African American. Table 5 shows the average number of people by race by site. As this table shows, less than 1 out of every person frequenting the sites were white. The majority of people at the sites are African American. We show about 3 out of 4 people per observation at Northside, 3 out of 5 people at Hopkins Park and 12 out of 20 people at Findley Market were African American.

< See Table 5 >

2. Time Series Analysis

We recorded every possible activity observable in our videotapes. The range of activities included people riding bikes, people stopping to talk to one another, children playing games, people behaving in a suspicious manner, people begging, the number of store owners in the front of their store, the number of utility workers present, the number of police present, people using ATM's, and people waiting to catch the bus. Please refer to Appendix A that depicts the entire list

of activities recorded for each observation point.

Our first step in analyzing these data was to create indices of activities. We developed five indices that serves as the basis of our analysis of the videotapes: the number of pedestrians, the number of people engaged in "pro-social" behavior, the number of people engaged in "anti-social" behavior, the amount of guardianship (including the number of police, civic, and utility persons present) and the amount of vehicular traffic. These composite measures were created for each of the 639 observations. Each category is mutually exclusive.

Table 6 describes the behaviors that comprise each index and presents the mean values by site for the various indices of behavior. The mean values are the average number of people across all observation points (by site).

< See Table 6 >

Not surprisingly, we found that Findley Market had an average of about 19 people per observation. We depicted about 5 people engaged in clearly pro-social behaviors (see Diagram 16) and about 3 people engaged in anti-social behavior. We recorded nearly 2 instances of guardianship per observation for Findley Market. By contrast, both Northside and Hopkins Park have significantly less behavior than Findley Market. Northside shows an average of about 3 pedestrians per observation, Hopkins Park about 2 pedestrians per observation (see Diagram 17).

Our videotapes also show that Findley Market experienced the most anti-social behavior (score of 2.62). Northside shows the least amount of anti-social behavior averaged across all observations (238) (see Diagram IS). Findley Market also shows a score of 1.55 instances of guardianship (see Diagram 19) on average per observation which again is higher than for both Hopkins Park (.46) and Northside (.238). Overall, Findley Market is the most active of the three

sites we studied.

Diagram 20 shows the site comparisons for traffic activity as well as the average number of autos parked and the average number of people frequenting the locations (see Diagram 20). Consistently, and as we would expect, Findley Market has more through traffic and people traffic than the other two sites.

Our second step in analyzing the video tape data was to create fifteen time series statistical models, including analysis for each of the three sites for each of the five outcome indices (pedestrians, traffic, pro-social, anti-social behavior and guardianship). The time series analytic method allows us to determine the effect of the surveillance camera on patterns of activity over time.

Almost invariably, two raw time-series will be spuriously correlated due to common sources of trend, drift, and autocorrelation (Granger and Newbold, 1986). Hence, prior to the estimation of the multivariate models it is necessary to prewhiten each of the original series. Prewhitening entails: 1) identifying and estimating an appropriate ARIMA model for each series; and 2) inverting and applying the final ARIMA model for each series to that same series. If the models are satisfactory, the residuals of each series should be uncorrelated (i.e., "white noise").

The general form of the univariate ARIMA model is (p,d,q) (P,D,Q); where: p= the order of the autoregressive process, d= the degree of nonseasonal differencing, q= the order of the moving average process, P- the order of the seasonal autoregressive process, D= the degree of seasonal differencing, Q= the order of the seasonal moving average process. One of the necessary conditions of an ARIMA model is that it be stationary in its variance. Inspection of a plot of the raw time-series reveals whether or not a series is stationary in its variance. Fortunately, a series

which is not stationary in its variance can be made so by performing a natural logarithm transformation of the series.

In brief, univariate model identification of a time-series (which is stationary in its variance) is based upon the examination of the autocorrelation function (ACF) which is a measure of the correlation between observations of a series at time t and succeeding time lags, and the partial autocorrelation function (PACF) which is a measure of the correlation between time-series observations k units apart after the correlation at intermediate lags has been controlled or partialed out. Inspection of the ACF and PACF indicates whether or not the series is stationary in its level (i.e., requires differencing) and/or is contaminated by autocorrelation (i.e., requires the specification of autoregressive or moving average parameters).

For example, if the ACF at lag one is large, say greater than or equal to .7, and if the ACF at succeeding lags decays very slowly, the analyst can deduce that the series is nonstationary in its level and requires differencing or requires the specification of a trend parameter (i.e., a constant)[4]. However, if the ACF reveals a significant value (i.e., spike) at a given lag, but no spikes at succeeding lags and the PACF reveals a spike at that same given lag but slowly decaying values at succeeding lags, the analyst can deduce that a moving average process is present. Finally, if the ACF reveals a spike at a given lag, but slowly decaying values at succeeding lags and the PACF reveals a spike at the same given lag, but values that approach zero at succeeding lags, the analyst can deduce that an autoregressive process is present. Based upon the researcher's interpretations

---

* The analyst can determine whether a nonstationary time-series reflects a random walk process (and thereby requires differencing) or a systematic change in the level of the series (and thereby requires the specification of a trend parameter) by testing the null hypothesis: HQ : $0_O = 0$. If one can reject the null hypothesis, then the researcher must conclude that the time-series is drifting and must be differenced.

of the ACFs and PACFs, competing models are estimated. As noted above, a model is considered statistically adequate when there is no longer any systematic variation among the model residuals[5].

The univariate ARIMA procedures model the systematic variation among observations of a time series. Typically, univariate models are able to explain well over 90% of the variation in a time series. None of the univariate models for the three surveillance camera sites achieve this level of efficiency. With the exception of the models for traffic (see Table 7), the explained variance does not exceed .52 (for Hopkins Park, Pedestrian). Hence, the overall impression one gets from these models is that much of the variation in the time series under investigation is random, not systematic.

< See Table 7 >

Many of the univariate models have a seasonal component (require seasonal differencing and/or the specification of seasonal moving average or autoregressive parameters). However, the seasonal components are invariably daily - there is no evidence of higher order seasonally (i.e.. there are no weekly, monthly, or yearly seasonal effects). For example, the activities at 3pm in Hopkins Park are generally predictive of the activities at 3pm at Hopkins Park on any one day

Findley Market

A) The Pedestrian Series:

The univariate model for the pedestrian series requires: first-order, nonseasonal differencing (i.e., the substraction of the observation t-1 from observation t), seasonal differencing (i.e., the subtraction of observation t-7 from observation t; This means that there is a daily pattern

[5] The Q statistic, which is distributed as chi square, tests whether or not there is any systematic variation among the model residuals (i.e., do the residuals as a whole differ from a white noise process).

to the seasonally, the number of pedestrians at hour x is related to the number of pedestrians at hour x during the prior day), and the specification of the a seasonal moving average parameter (i.e., observation t is a function of observation t-7).

This series does not trend (i.e., there is no constant in the model). Moreover, inspection of the graph of the raw series reveals *no obvious pattern* of increase or decrease in the series, abrupt or gradual.

B) Prosocial series:

The univariate model for the prosocial series requires: the specification of a first-order, non-seasonal autoregressive parameter, the specification of a first-order seasonal autoregressive parameter, and first-order, seasonal differencing. This series also does not trend. However, inspection of the graph of the raw series suggests that there may be a *gradual decline inprosocial* activity over time. However, the r-square is quite low (.28), indicating that much of the variation in the series is random.

C) Antisocial series:

The univariate model for the antisocial series requires: the specification of a non-seasonal moving average parameter, and first-order, nonseasonal differencing. There are no seasonal components in this model. This series does not trend. However, inspection of the graph of the raw series suggests that there may be a *gradual increase in antisocial behavior,* but the pattern is weak. The explained variance is quite low (.30).

D) Guardianship series:

The univariate model for the guardianship series requires: the specification of first- and second-order, nonseasonal, moving average parameters, the specification of a first-order, seasonal

moving average parameter, and first-order, seasonal differencing. This series does not trend. Inspection of the graph of the raw series does not reveal a pattern of increase or decrease (abrupt or gradual) over time in the level of guardianship.

E) Traffic series:

The univariate model for the traffic series requires: the specification of a first-order autoregressive, nonseasonal, parameter and the specification of first- and second-order, seasonal, autoregressive parameters. This series does not trend and the series require no differencing. Inspection of the graph of the raw series suggests the level of traffic remains relatively constant over the length of the series. While there is substantial variation across observations, there is no clear pattern of increase or decrease (abrupt or gradual) in the level of traffic.

Hopkins Park

A) The Pedestrian Series:

The univariate model for the pedestrian series requires: the specification of a first-order, nonseasonal, autoregressive parameter and a constant (a trend parameter). Remember, a trend parameter in ARIMA means that there is a constant process that characterizes the entire length of the series (this is somewhat akin to a constant in OLS regression). This series trends, as discussed above. Inspection of the graph of the raw series reveals no obvious pattern of increase or decrease in the series, abrupt or gradual (see output graph). Clearly, there is a fair amount of variation within the series.

B) Prosocial series:

The univariate model for the prosocial series requires: a log transform of the raw series to induce variance stationarity (this is akin to the problem of heteroskedasticity in OLS regression;

The log transform makes the variance homoskedastic), the specification of a first-order, non-seasonal autoregressive parameter, and the specification of a first-order seasonal autoregressive parameter. There was no need for seasonal or nonseasonal differencing. However, we note that the seasonal lag is eight time periods (there were eight observations per day in Hopkins Park). Hence, the seasonal period is still daily. This series does not trend. Inspection of the graph of the raw series reveals *no dear pattern* of increase or decrease (gradual or abrupt) in prosocial activity. Moreover, the r-square is quite low (.20), indicating that much of the variation in the series is random.

C) Antisocial series:

The univariate model for the antisocial series requires: the log transform of the raw series to induce variance stationarity, the specification of a non-seasonal autoregressive parameter, the specification of a seasonal, autoregressive parameter, and first-order, nonseasonal differencing. This series does not trend. Inspection of the graph of the raw series suggests that there may be a gradual decrease in the variance in the series. Further inspection also suggests that there is a gradual *decrease in the level of antisocial behaviors.* The explained variance is moderate (.50).

D) Guardianship series:

The univariate model for the guardianship series requires: the specification of first-order, nonseasonal, moving average parameters and a constant (trend parameter). There is no evidence of seasonally (no seasonal differencing or seasonal parameters). The explained variance is quite low (.27). This series has a trend (constant) component. Inspection of the graph of the raw series does not reveal a pattern of increase or decrease, abrupt or gradual, changes over time in guardianship. In general, the frequencies are quite low (ranging from 0 to 5).

E) Traffic series:

The univariate model for the traffic series requires: the specification of a first-, second-, and third-order, nonseasonal, moving average parameters, the specification of a seasonal, first-order, moving average parameter, and first-order, seasonal differencing. As with the other traffic models, this model does one of the better jobs of accounting for the variation in the series— the explained variance is .71. This series does not trend. Inspection of the graph of the raw series suggests the level of traffic remains relatively constant over the length of the series, though one may interpret this graph as suggesting that the level of traffic is increasing, a slow rate, over time.

Northside

A) The Pedestrian Series:

The univariate model for the pedestrian series requires: a log transform of the raw series to induce variance stationarity, the specification of a first-order, seasonal, moving average parameter, and first-order, seasonal differencing. This series does not trend. Inspection of the graph of the raw series reveals no particular pattern of increase or decrease (abrupt or gradual) in the pedestrian series. We note, however, the presence of two extreme scores (possibly outliers?) a little before and after observation number 150 (that is after the first month).

B) Prosocial series:

The univariate model for the prosocial series requires: the specification of a first-order, seasonal, moving average parameter, and first-order, seasonal differencing. Note there are no nonseasonal processes at work (i.e., no need for nonseasonal differencing and no need for the specification of nonseasonal parameters). This series does not trend. Inspection of the graph of the raw series reveals a slight pattern of gradual *increase* in the frequency of prosocial activity.

Moreover, the r-square is low (.33), indicating that much of the variation in the series is random.

C) Antisocial series:

The univariate model for the antisocial series indicates that there is no systematic variation is the series. This is rather uncommon. Our best guess is that an independence model provides the best fit to the because there is so little antisocial activity. That is to say, the frequency counts for are quite small or zero. Thus, there is little, if any, pattern or structure to the series. This series has no trend or seasonal components. Inspection of the graph of the raw series reveals, that with a few exceptions, there is *very little antisocial* activity in Northside.

D) Guardianship series:

The univariate model for the guardianship series parallels that of the antisocial series: there is no systematic variation among the observations of the time series. Our interpretation of this series is identical to that of the previous series (see above—a function of low frequencies-very little variation to explain). This series has no trend or seasonal components. Inspection of the graph of the raw series indicates that with few exceptions, this is little, if any, guardianship being observed by the cameras. Hence, there is virtually no systematic variation to explain or model.

E) Traffic series:

The univariate model for the traffic series requires: the specification of a first-order, nonseasonal, moving average parameters, the specification of a seasonal, first—order, moving average parameter, and first-order, seasonal differencing. As with the other traffic models, this model does one of the better jobs of accounting for the variation in the series— the explained variance is .80. This series does not trend. As with the other traffic series, inspection of the graph of the raw series for Northside suggests the level of traffic remains relatively constant over the

length of the series.

3. Changes in Calls and Arrests

Our analysis of police data (calls and arrests) was undertaken in several stages. The rlrst stage involved creating geographic boundaries (buffer zones) surrounding each of the three sites. We decided to examine the amount of calls and arrests in and around the three sites at three levels of analysis: 1,000 foot radius, 500 foot radius and 200 foot radius. Map 1 depicts the Northside buffer zones, Map 2 depicts the Hopkins Park buffer zones and Map 3 depicts the Findley Market buffer zone.

< See Maps 1, 2 and 3 >

The second stage of our analysis involved creating counts of calls and arrests across four time zones: before the implementation of the cameras (Pre-Intervention Period), the one month intervention period (Implementation Month), the period after the one month intervention period through June 30, 1999 (Post-Intervention Period), and then the corresponding one month period from the year prior to the Implementation Month[6].

The third stage of our analysis involved collapsing call and arrest codes to create four primary crime categories: disorder (including disorderly persons, curfew violation, neighbor

---

[6] Northside: The pre-intervention ("before") period is from January 1, 1997 through November 30, 1998; the intervention period ("implementation month") is December 1998; the post-intervention ("after") period is from January 1, 1999 through June 30, 1999. The one month comparison month is December 1997. Hopkins Park: The pre-intervention period is from February 1, 1997 through January 31, 1999; the one month intervention period is February 1999; and the post-intervention period is from March I, 1999 through June 30, 1999. The one month comparison month is February 1998. Findlay Market: The pre-intervention period is from March 1, 1997 through February 12, 1999; the one month intervention period is from February 13, 1999 through March 15, 1999; and the post-intervention period is from March 16, 1999 through June 30, 1999. The one month comparison month is February 13, 1998 through March 15, 1998.

trouble, noise complaints, suspicious person or auto), drugs, property and violence. We focus in this report on just disorder and drugs because the other two categories (violence and property) included ^o few calls and arrests as to compromise the results.

Table 8 shows the weekly averages and percent change in all calls for service both the entire district where each of the video cameras are installed as well as for each site (by buffer zone). The numbers in parentheses represents the weekly average of calls in the prior year comparative month.

< See Table 8 >

As Table 8 shows, the weekly average in calls for service increased in each of the three districts that we examined, the biggest increase being in District 1 (17 percent increase from before to after the implementation of the cameras). Similar changes to the districts (insignificant changes at Northside and Hopkins Park) and a 17 percent increase were recorded in the weekly average of calls in the 1,000 foot buffer zones surrounding the video camera sites.

The most interesting results appear in the 200 foot radius surrounding two of the three camera sites: in Northside, we show a 50 percent decline in the weekly average of calls for service from before to after the implementation of the camera. This decline, while weaker in the 500 foot buffer area, still shows a decline (13 percent) in Northside. This result discounts any possible displacement of crime problems to the blocks immediately adjacent to the Northside hot spot. We also do not believe there was any displacement effect due to the fact there was no increase in calls for service within the 1,000 foot buffer zone for Northside.

The Hopkins Park site shows very few calls for service on a weekly basis and the changes are insignificant. Findley Market shows a somewhat different pattern. Table 7 shows that there

was a decline in calls in the 200 foot buffer around the camera site (17 percent decrease), but a 7 percent increase in the 500 foot buffer and a 17 percent increase in the 1,000 foot buffer. This results tends to suggest some displacement of activity (as reflected in calls for service). We note, however, a slight decrease in calls during the implementation month compared to the same month from the previous year. This result might suggest an immediate deterrent effect of erecting the video camera in the Findley Market area, coupled with some residual deterrent effect in the following month. Most likely, however, the problems returned after the initial deterrent period. The arrest and videotape data tend to support this Findley Market hypothesis.

< See Table 9 >

Table 9 depicts the weekly average and percent change in all arrests by site. As this table shows, there was an increase in arrests in the 200 foot buffer area (17 percent increase), in the 500 foot buffer area (47 percent increase) as well as in the 1,000 foot buffer area (58 percent increase) surrounding the Findley Market camera hot spot. The 1,000 foot buffer area reflects the patterns District wide (48 percent increase).

There were insignificant changes in the weekly average of arrests in Northside and Hopkins Park at the 200 foot buffer level of analysis. There were, however, 50 percent fewer arrests in the 500 foot buffer area surrounding Hopkins Park, suggesting a possible diffusion of crime control benefits extending beyond the camera zone. While the Northside hot spot showed a 25 percent increase in the 500 foot buffer area, the base rates of arrests is so small to make this difference pretty insignificant (increase from 3 to 4 arrests).

We also examined the weekly averages and percent changes in calls for disorder and drug problems. Table 10 depicts the changes in disorder calls.

< See Table 10 >

As Table 10 shows, there are across the board declines in the number of calls for disorder problems at the 200 foot buffer zone, the 500 foot buffer zone and the 1,000 foot buffer zone units of analysis. These declines are evidenced across all three video camera sites, suggesting a crime control benefit, at least for controlling disorder problems, as a result of erecting the cameras. Diagram 21 depicts the average number of weekly disorder calls by site at the 1,000 foot level of analysis; Diagram 22 depicts the average number of weekly disorder calls by site at the 500 foot level of analysis; and Diagram 23 depicts the average number of weekly disorder calls by site at the 200 foot level of analysis.

Table 11 depicts the changes in calls for drug problems.

< See Table 11 >

As this table shows, the base rates of weekly calls for drug problems are very low for all three sites, making the analysis somewhat questionable. With this caveat in mind, the table shows that there is very little change in the number of calls about drug problems as a result of implementing the cameras. Findley Market, however, seems to have experienced somewhat of an increase in drug calls for service during the implementation month, perhaps as a result of citizen enthusiasm and support of the cameras. Diagrams 24, 25, and 26 present the graphs for the three sites.

IV. SUMMING UP

Our evaluation of the three surveillance cameras installed in Cincinnati during the winter of 1999 seems to have had the following effects:

1. Findley Market shows the greatest amount of activity compared to the other two sites that we

studied. Our time series analysis of the videotape data, however, shows some gradual increase in anti-social behavior and some gradual decrease in pro-social behavior overtime.

2. There appears to be an initial deterrent effect from installing the cameras. The numbers of calls for service during the implementation month compared to the same month from the previous year shows a general drop in calls for police service. This initial drop in citizen complaints is consistent for a 200 buffer zone, a 500 foot buffer zone and an 1,000 foot buffer zone. In particular, Findley Market shows a pattern of initial deterrence and then gradual increases in anti-social behavior as people become used to the video cameras.

3. The camera installed in Northside showed the greatest declines in calls for service. These crime control benefits seem to have diffused to the immediate geographic area (500 foot radius) not covered by the surveillance camera. The time series analysis of the videocamera data for Northside also shows a gradual increase in pro-social behavior over time. We point out, however, that our time series analysis shows that the activity in the Northside site appears to be the most random and unpredictable of all three sites. This finding suggests, therefore, that caution be taken in attributing the crime control benefits to the installation of the cameras.

4. Our time series analysis of the videocamera data for Hopkins Park shows a gradual decline in anti-social behavior over time.

5. Displacement of crime (as measured by calls for service) is a possibility for the Findley Market site.

V. RECOMMENDATIONS AND SUGGESTIONS

As a result of our research, we suggest the following;

I. The initial deterrent impact of installing the surveillance cameras appears to show the most

promise. People seem to adjust their behaviors in the short am in response to the installation of the camera. We are concerned, however, that people frequenting surveillance camera zones may become de-sensitized to the cameras over time, thus watering down the potential for long term sains. Therefore, we recommend (a) installing the cameras for one to two month periods at a time (b) installing the cameras in such a manner that they can be moved from site-to-site on a random basis every one to two months. The benefits of this approach could be as follows: (a) greater number of hot spots could be monitored through surveillance cameras, (b) the initial deterrent effect could be capitalized on multiple times (through repeated installation) at the same site, (c) a cost-benefit analysis could reveal that, in the long run, the cost of purchasing more cameras outstrips the costs involved in regularly moving the cameras around. This cost-benefit analysis, however, is beyond the scope of this current evaluation.

2. We suggest that greater benefits from installing the cameras can be gained through advertising the presence of the cameras. This could involve mailing notices one week before installation of the cameras to business owners and residents within a 500 foot radius of the camera location. We also recommend erecting permanent street signs about 30 feet away from the target intersection, on all four approaching streets, informing incoming pedestrian and motor traffic that they are entering a "Surveillance Camera Zone."

3. We recommend further monitoring and evaluation of Cincinnati's experimentation with surveillance cameras. There is a tremendous amount of interest in the effectiveness of surveillance cameras as a crime control tool throughout the US, UK and Australia. This is evidenced through numerous and recent newspaper reports (see The Plain Dealer, Sunday August 1, 1999) and National Public Radio Broadcasts (July 27, Talk of the Nation). Cincinnati is rapidly becoming a

leader in experimenting with the effectiveness of surveillance cameras and many other cities across the nation can leam a tremendous amount from Cincinnati's experiences.

TABLES

Surveillance Cameras
in Cincinnati

Table 1. Distribution of surveillance cameras

Location	District	Neighborhood	Date Operational	Research
Five points	2	Evanston	Since 1996	Not studied
Madison and Wetzel	2	Madisonville	22 Feb 1999	Not studied - equipment problems
Fergus and Chase	5	Northside	21 Dec 1999	Completed
Dorchester and Aubum	4	Hopkins Park	17 Feb 1999	Completed
Race and Elder	I	Findlay Market	17 Mar 1999	Completed

Table 2. Evaluation method

Location	Start Dare	End Date	Days of week	Time	Number of Observation
Northside	21 Dec 99	24 Mar 99	Every third day	1PM 3 PM 5 PM 7 PM 9 PM 11 PM I AM	252
Hopkins Park	I7Feb99	20 May 99	Every third day	11 am 1PM 3 PM 5 PM 7 PM 9 PM 11 PM 1AM	240
Findlay Market	17 Mar 99	I? May 99	Every third day	1 PM 3 PM 5 PM 7 PM 9 PM 11 PM 1 AM	147

Table 3. Selected Site Characteristics

	Pay Phone	Building	Bars	Garbage
Northside (Fergus and Chase)	0	43	1	1.91
Hopkins Park (Dorchester and Aubum)	1	18	0	2.31
Findlay Market (Race and Elder)	1	58	0	2.10

Table 4. Mean Number of Observations by Gender by Si[e

	Male	Female	CouJd not tell
Northside (Fergus and Chase)	2.37	.76	.64
Hopkins Park (Dorchester and Auburn)	2.07	1.23	.51
Findlay Market (Race and Elder)	8.13	2.90	9.13

Table 5. Mean Number of Observations by Race by Sire

	White	African American	Could not tell
Race			
Northside (Fergus and Chase)	.62	2.62	.51
Hopkins Park (Dorchester and Auburn)	.69	2.58	.60
Findlay Market (Race and Elder)	.38	12.18	7.53

Table 6. Mean Values of Selected Social Activity Per Site

	Pedestrians	Pro-social	Anti-social	Guardian
Northside (Fergus and Chase)	3.46	1.29	.238	.238
Hopkins Park (Dorchester and Auburn)	1.67	2.16	.57	.46
Findlay Market (Race and Elder)	18.99	4.81	2.62	1.55

Pro-social behavior includes number of people doing the following activities: riding bikes, walking pets, supervising, greeting and conversing with other individuals, playing games, using parks or playgrounds, patronizing stores, using ATMs, waiting for buses, and using pay phones and/or newspaper or vending machines.

Anti -social behavior includes walking in street, loitering, fighting or mock fighting, drug activity, begging, drinking, and suspicious person and autos.

Guardianship behavior includes residents visible on private property (i.e. sitting on porches, working in yards), business people, police, civic and utility workers present, and delivery vehicles loading or unloading in the area.

Table 7

Final L'nivahate Models for Findley Market, Hopkins Park, and N'orthside

Findley Market			
Series	Model	Q-Statistic	R:
Pedestrian	(0,1,0X0,1,1),	Q=22.06df=23	.49
Prosocial	(l,0,0)(U,0)7	Q=30.52 d£=22	.23
Antisocial	(0,1.1)	Q-13.47df=23	.30
Guardianship	(0,0,2X0,1,1)7	Q-17.35df=21	.48
Traffic	(1,0,0X2,0,0),	Q=19.26df^21	.80
Hopkins Park			
Series	Model	Q-Statistic	R:
Pedestrian	(1,0,0) T 0	Q-31 .30 df=22	.52
Prosocial	Lg(1,0,0)0,0,0),	Q=3l.00df=22	.20
.Antisocial	Lg(l,l,0)(l,0,0),	Q=30.25 df=22	.50
Guardianship	(0,0,1)+ 0	Q=25 .98 df=22	.27
Traffic	(0,0,3X0,1,1),	Q=13.70df=20	.71
Northside			
Series	Model	Q-Statistic	E:
Pedestrian	$Lg(0,0,0)(0,!,l)_T$	Q-20.04df=23	.39
Prosocial	$(0,0,0X0,1,1)_7$	Q=13.61 df=23	.33
.Antisocial	(0,0,0)	Q=24.89df^24	.00
Guardianship	(0,0,0)	Q=14.90df=24	.00
Traffic	$(0,0,l)(0,l,l)_7$	Q-27.55df=22	.80

Tabie S. '.Veekiy Average and Percent Change in Calls for Service by Site

	Before	Implementation Month	After	% Change
location				
Distric: 5 Northside (Fergus and Chase)	901	820	917	~ 2 %
District 4 Hopkins Park (Dorchester and Aubum)	1062	952	1166	+ 10 %
District 1 Findlay Market (Race and Elder)	1005	S46	1175	+ 17%
1000ft				
Northside (Fergus and Chase)	36	31(35)*	36	0%
Hopkins Park (Dorchester and Aubum)	22	16(22)	22	0%
Findlay Market (Race and Elder)	111	89(89)	130	+ 17%
500 ft				
Northside (Fergus and Chase)	15	13(16)	13	- 13 %
Hopkins Park (Dorchester and Auburn)	10	7(12)	10	0%
Findlay Market (Race and Elder)	45	35(41)	48	+ 7 %
200ft				
Northside (Fergus and Chase)	4	2(6)	2	- 50 %
Hopkins Park (Dorchester and Auburn)	3	**K2)**	3	0%
Findlay Market (Race and Elder)	12	10(12)	10	- 17%

* The number in the parenthesis represents the same time period as the implementation - one year earlier

Table 9. Weekly Average and Percent Change in Arrests by Site

	Before	Implementation Month	After	% Change
District				
District 5 Northside (Fergus and Chase)	159	158	205	- 29 %
District 4 Hopkins Park (Dorchester and Auburn)	200	225	226	-13 %
District 1 .Findlay Market (Race and Elder)	340	332	503	+ 48%
1000 ft				
Northside (Fergus and Chase)	8	7(6)	10	+ 25 %
Hopkins Park (Dorchester and Aubum)	4	3(4)	3	- 25 %
Findlay Market (Race and Elder)	43	37(40)	68	+ 58 %
50Qft				
Northside (Fergus and Chase)	3	3d)	4	+ 25 °A
Hopkins Park (Dorchester and Aubum)	2	2(2)	1	- 50 %
Findlay Market (Race and Elder)	19	18(17)	28	+ 47 %
200ft				
Northside (Fergus and Chase)	1	2(0)	1	0%
Hopkins Park (Dorchester and Auburn)	1	0(0)	0	0%
Findlay Market (Race and Elder)	6	3(6)	7	+ 17%

* The number in the parenthesis represents the same time period as the implementation - one year earlier.

Table 10. Weekly Average and Percent Change in Disorder Calls for Service by Site

	Before	Implementation Month	After	% Chana;
lOQQjt				
Northside (Fergus and Chase)	8	5	8	0%
Hopkins Park (Dorchester and Auburn)	4	3	3	- 25 %
Findlay Market (Race and Elder)	18	12	16	- 11%
500ft				
Northside (Fergus and Chase)	4	3	2	- 50 %
Hopkins Park (Dorchester and Auburn)	1	0	0	-100%
Findlay Market (Race and Elder)	8	4	5	- 38 %
200ft				
Northside (Fergus and Chase)	1	1	0	- 100 %
Hopkins Park (Dorchester and Auburn)	1	0	0	-100'%
Findlay Market (Race and Elder)	2	1	1	- 50 %

Disorder calls for service include: disorderty person, curfew violation, neighbor trouble, noise complaints, mental person complaints, suspicious person or auto, and person with weapon.

Table ! 1. V,Ve£y Average and Percent Change LI Drug Calls for Service by Site

	Before	Implementation Month	After	% Chance
i 000 ft				
Northside (Fergus and Chase)	2	0	2	0%
Hopkins Park (Dorchester and Aubum)	1	0	1	0°.4,
Findlay Market (Race and Elder)	4	5	5	* 25 °A,
500ft				
Northside (Fergus and Chase)	1	0	0	- 100 %
Hopkins Park (Dorchester and Aubum)	0	0	0	0 %
Findlay Market (Race and Elder)	2	3	2	0 %
200 ft				
Northside (Fergus and Chase)	1	0	0	- 100 %
Hopkins Park (Dorchesier and Aubum)	0	0	0	0 %
Findlay Market (Race and Elder)	1	2	1	0%

APPENDLX

VIDEO TAPE OBSERVATION DATA
OFFICIAL USE ONLY

1. Case Number: _____

2. Camera Location
   1. Fergus and Chase (Northside)
   2. Dorchester and Auburn (Hopkins Park) _____
   3. Race and Elder (Findlay Market)

Planned observation

3. Date: _____
4. Day of the week: _____
5. Observation Time: _____

6. Was planned observation carried out?
   0 NO _____
   1 YES

7. Reason planned observation not carried out.
   1) Camera offline
   2) Police error
   (either did not change or rewind the tape) _____
   3) Researcher error
   4) Other_____
   5) Unknown
   6) Researcher was not gathering this data point at this time (1300 or 0100)

Substitute Observation

8. Was a substitute date used?
   0 NO _____
   1 YES

9. If yes what date: _____

10. What day of the week: _____

SECTION A: *VISIBILITY*

Date: _____
Time: _____
Location: _____

11. Camera functioning

1) Camera functioning normally (sweeping back and forth) _____
2) Camera functioning normally (sweeping back and forth) but is set at a low angle so only has a partial view of full area
3) Camera in a fixed position but still viewing part of the hot spot area
4) Camera in a fixed position but set at a low angle or positioned so it only has a partial view of the area.
5) Camera in a fixed position but in a position to gather little data (i.e. pointed straight down at the sidewalk, or middle of street or wall).
6) Camera sweeping back and forth faster than normal (low film)
7) The camera is currently being controlled from the station (i.e. moving around abnormally, focusing in and out on fixed objects, etc.)
8) Other please list_____

If in a fixed position what is the in view:_____

12. Weather

A. What are the current weather conditions? A. _____

1) Snowing
2) Sleet
3) Raining
4) Foggy
5) Hazy
6) Clear
7) Unable to tell

B. If you choose weather 1, 2, 3, or 4 is it

1) Light B. _____
2) Moderate
3) Heavy

C. What are the current conditions on the ground? C. _____

I) Dry
2) Wet
3) Snow covered (over 20 % of the ground is covered)
4) Unable to tell

13. What is the level of visibility?

1) None - Close object can not be seen or appear vague
2) Very limited - visibility obstructed possible severe weather/low lighting or combo - close objects can be readily discerned, medium ranged objects appear hazy, far objects can not be seen.
3) Limited - visibility partially obstructed (dimly light, foggy) close objects can be clearly seen; medium ranged objects can be readily discerned; far objects appear hazy.
4) Clear

_____

OBSTRUCTIONS	
14. Foliage	
A. Is the area covered by foliage? If yes answer question B and C. 0 NO 1 YES	A. _____
B. How heavy is the foliage? 1) Light 2) Medium 3) Heavy	B. _____
C. Does the foliage in any significant way hamper the view of the camera? 0 NO 1 YES	C. _____
D. What percentage of the viewing area is being blocked?	D. _____
15. Obstructions	
A. Is there any other type of physical obstruction blocking the Camera's view? If yes please answer B and C. .^ vtr*^.^: 0 NO 1 YES	A. _____
B. What percentage of the viewing area.isjbdutig b l o c k e d ? ; ^^^^0$j	B. _____
C. Please list: ^pe ofobstoictioa_ vi::w^\.-..; \-^^^^^^^^.t ______________________________________	

16. Glare

A. Is there a glare coming from the sun or street lights making part of the surveillance area difficult to view? If yes answer question.

0 NO
1 YES

A. _____

B. What percentage of the viewing area is being blocked?

B. _____

17. Streetconditions

A. What are conditions like on *the* thrpughfaresCstreer/or **sidewalk)?**

1) No apparent obstructions
2) Snow on the streets or sidewalks
3) Streets or sidewalks fs^wet..
4) Other physical obstruction i.e. consfiictibrF' blocking streets or side walks

A. _____

B. [f you number 4 Please list_____

SECTION B: *PHYSICAL DESCRIPTION*

i S. Is there garbage, litter, or broken glass in the street or on the sidewalk? 18. _____

1. None
2. Yes, but not much
3. Yes, quite a bit
4. Yes, almost everywhere
5. Everywhere
6. Can not tell
99. N/A

19. Are there large junk items present (i.e., refrigerators, dyers, sofas)? 19. _____

1. None
2. Yes, but not much
3. Yes, quite a bit
4. Yes, almost everywhere
5. Everywhere
6. Can not tell
99. N/A

20. Is there any evidence of damaged or destroyed property in the area?" 20. _____

1. None
2. Yes, but not much
3. Yes, quite a bit
4. Yes, almost everywhere
5. Everywhere
6. Can not tell
99. N/A

If yes, please describe _____

21. Is there any graffiti in the area? 21. _____

1. None
2. Yes, but not much
3. Yes, quite a bit
4. Yes, almost everywhere
5. Everywhere
6. Can not tell
99. N/A

23. Are there any burned out or abandoned autos in the area? 23. _____

0 NO
1 YES

SECTION C: VEHICLES 24. How many vehicles passed through the area? (Including police and others)	24. _____
25. Of those cars how many vehicles stopped and sat or engaged other vehicles or a passerby in conversation? Not including police?	25. _____
26-jju Of those vehiclesjipw^^yused]a drive through? B. Was the drive through in view 0 NO 1 YES	26. A. _____ B. _____
27. Number of suspicious autos? (Parked not moving with individuals inside or people coming up to the vehicle engaged in more than normal conversation).	27. _____
28. Number of vehicles.parkedoni-tne. street?	28. _____
29. Number of parked cars that left?	29. _____
30. -Number of vehicles, that came ,and parked?	30. _____
31. Number of individuals that exited a car and return in short order (it look like they ran an errand)	31, _____

32. Number of delivery vehicles loading or unloading in area?	32. _____

SECTION D: ***USERS OF SOCIAL SPACE***	
33. Total number of people	**33.** _____
34. RACE A. Number of white individuals	A. _____ White
B. Number of African-American individuals	B. _____ A.A.
C. Number that could not be identified	**C.** _____ Couldn't tell
D. Number of other_____	D. _____ Other
35. GENDER A. Number of males	A. _____ Male
B. Number df females	B. _____ Female
C. Number that could not be identified	C. _____ Couldn't tell
36. AGE: Approximate age of individuals	
A. Number of Children 0-7	A. _____ Children
B. Number of Youths 8-13	B. _____ Youths
C. Number of Older Youths 14-17	C. _____ Older Youths
D. Number of Adult 18-59	D. _____ Adults
E. Number either Adult or Older Youth (When not sure which, but not a child)	E. _____ Adult/Youths
F. Number of Elderly >60	F. _____ Elderly
G. Number could not tell	G. _____ Couldn't tell
37.'SUPERVISION	
A. Number of children (under 7). supervised	A. _____
B. Number of youths (8 - 13) supervised	**B.** _____
C. Number of teens (14 -17) supervised	**C.** _____

SECTION E: *POSITIVE ACTIVITIES*

38. Number of individual pedestrian traffic — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About halfand half 4) Mostly white
5) All white 6) Could not tell
7) Other _____ — A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell — B. _____

39. Number of individual people on bicycles — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____ — A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell — B. _____

40. Number of individual people walking pets — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About halfand half 4) Mostly white
6) Could not tell — A. _____

7) Other _____

B) Is this group

1) All male 2) Mostly male
3) About halfand half 4) Mostly female
5) All female 6) Could not tell — B. _____

; 41. Number of individuals sitting, observing or supervising other individuals

Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other_____

A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

B. _____

42. Individuals stopping greefone anothet'(conversaitibns under 1 minute)

Total _____

'A) Is this group

I) All African Amencaii 2) Mostly African American
,3) About half and half. 4) Mostly white
5). All white 6) Could not tell
7) Other _____

A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) Allfemale 6) Could not tell

B. _____

43. Number of individual engaged in conversation (conversations over 1 minute)

Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other_____

A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

B. _____

44. Number of individual people playing games — Total _____

A) Is this group — A. _____

1) All African American
2) Mostly African American
3) About half and half
4) Mostly White
5) All white
6) Could not tell
7) Other_____

B) Is this group — B. _____

1) All male
2) Mostly male
3) About half and half
4) Mostly female
5) All female
6) Could not tell

45. Number of individual people properly using the playground or park — Total _____

A) Is this group — A. _____

1) All African American
2) Mostly African American
3) About half and half
4) Mostly white
5) All white
6) Could not tell
7) Other_____

B) Is this group — B. _____

1) All male
2) Mostly male
3) About half and half
4) Mostly female
5) All female
6) Could not tell

C) This location or item (where appropriate) — C. _____

1) Can be seen
2) Is not in the view of the camera for this segment
3) Is not applicable (item or location does not present in this hot spot)

46. Number of individual people going in and out a store (count each individual only once) — Total _____

A) Is this group — A. _____

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____

B) Is this group — B. _____

1) All male 2) Mostly mare
3) About half and half 4) Mostly female
5) All female 6) Could not tell

C) This location or item (where appropriate) — C. _____

1) Can be seen
2) Is not in the view of the camera for this segment
3) Is not applicable (item or location does not present in this hot spot)

47. Number of individual people using ATM — Total _____

A) Is this group — A. _____

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____

B) Is this group — B. _____

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

C) This location or item (where appropriate) — C. _____

1) Can be seen
2) Is not in the view of the camera for this segment
3) Is not applicable (item or location does not present in this hot spot)

4S. Number of individual people at bus stop (waiting, getting off, getting on) Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____ A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell B. _____

C) This location or item (where appropriate) C. _____

1) Can be seen
2) Is not in the view of the camera for this segment
3) Is not applicable (item or location does not present in this hot spot)

49. Number of individual people using the pay phone Total _____

A) Is this group

I) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) Ail white 6) Could not tell
7) Other _____ A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell B. _____

C) This location or item is (where appropriate)

1) Can be seen
2) Is not in the view of the camera for this segment
3) Is not applicable (item or location does not present in this hot spot) C. _____

50. Number of individual people using vending or newspaper machines — Total _____

A) Is this group

I) All African American 2) Mostly African American
3) About half and half 4) Mostly white — A. _____
5) All white 6) Could not tell
7) Other _____

B) Is this group — B. _____

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

C) This location or item (where appropriate) — C. _____

1) Can be seen
2) Fs hot in the view of the camera for this segment
3) Is not applicable (item or location does not present., in this hot spot)

SECTION F: *NETURAL USES OF SPACE*

51. Number of individual people going in and out of a bar (count each individual only once)?

Total _____

A) Is this group

1) All African American
2) Mostly African American
3) About half and half
4) Mostly white
5) All White
6) Could not tell
7) Other _____

A. _____

B) Is this group

1) All male
2) Mostly male
3) About half and half
4) Mostly female
5) All female
6) Could not tell

B. _____

C) This location or item (where appropriate)

1) Can be seen
2) Is not in the view of the camera for this segment
3) Is not applicable (item or location does not present in this hot spot)

C. _____

SECTION G: *NEGATIVE USE 0F SPACE*

^_. Number of individuals playing or walking in the street (note this is different than crossing) — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white — A. _____
5) All white 6) Could not tell
7) Other _____

B) Is this group

1) All male 2) Mostly male — A. _____
3) About half and half 4) Mostly female
5) All female 6) Could not tell

C) Was the side walk clear of show and other obstacles? — B. _____

53. Number of individual individuals loitering or hanging around — Total _____

A) Is this group

I) All African American 2) Mostly African American
3) About half and half 4) Mostly white — A. _____
5) All white 6) Could not tell
7) Other _____

B) Is this group

1) All male 2) Mostly male — B. _____
3) About half and half 4) Mostly female
5) All female 6) Could not tell

54. Number of individual people horsing around or mock fighting (aggressive play) — Total _____

A) Is this group

1) AH African American 2) Mostly Afiican AmerTcah^;ifa
3) About half and half 4)'Mostly white — _____
5) All white 6) Could not tell
7) Other _____

B) Is this group

1) All male 2) Mostly male — B. _____
3) About half and half 4) Mostly female
5) All female 6) Could not tell

55. Number of individual people engaged in drug activity — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____

A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

B. _____

56'. Number of individual homeless people or people begging — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____

A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

B. _____

---

57. Number of individual people drinking or intoxicated — Total _____

A) Is this group

1) All African American 2) Mostly African American
3) About half and half 4) Mostly white
5) All white 6) Could not tell
7) Other _____

A. _____

B) Is this group

1) All male 2) Mostly male
3) About half and half 4) Mostly female
5) All female 6) Could not tell

B. _____

58. Illegal behavior

A. Did you see any clearly illegal activities?

0 NO

1 YES

A. _____

Please describe _____

_____

_____

B. Did you see suspected illegal activity beside drug dealing?

0 NO

1 YES

B. _____

Please describe _____

_____

_____

C. Did you see any suspicious activity?

0 NO

1 YES

C. _____

Please describe _____

_____

_____

SECTION H: *GUARDIANS*

60. Residents

A. Number of people working, sitting, talking or doing any activity .. • • • on private property? (Activities in front yards and on front porches) A. _____

B. .Number of people working on or washing cars in the street B. _____

C. Number of people froniiocal businesses that caii.be seeh;y^>r'• T Outside of their business C. _____

61. Police

A. Did you see any police activity at this site? A. _____

0 NO
1 YES

B. How many separate police activities did you see? B. _____

C. Please identify the number and type of each police activity?

1. Patrolling in cars C1. _____
2. Patrolling on bikes C2. _____
3. Patrolling on foot C3. _____
4. Investigating a complaint or actively contacting citizens C4. _____
5. Observing the area or doing paper work C5. _____
(i.e. being stationary and not contacting citizens)
6. Directing traffic C6. _____
7. Other _____ C7. _____
8.N/A C8. _____

D. How many officers were engaged in this activity? D. _____
(Code as 99 if you see officers but only see the vehicles)

E. How police vehicles were present? E. _____

62. Other civic officials

A. Did you see any other civic workers or officials (i. e. mail carriers, fire fighters and street maintenance)?
0 NO
1 YES

A. _____

B. How many separate activities did you see?

B. _____

C. Please identify the number and type of each activities?
1. Working outside
2. Working inside (if both choose outside)
3. Walking in the area
4. Actively contacting citizens
5. Observing the area or doing paper work (i.e. being stationary and not contacting citizens)
6. Directing traffic
7. Other _____

C1. _____
C2. _____
C3. _____
C4. _____
C5. _____
C6. _____
C7. _____

C. How many workers were engaged in this activity?

D. _____

63. Other workers

A. Did you see any utility (phone, electric, or cable) activity at this site?
0 NO
1 YES

A. _____

B. How many separate activities did you see?

B. _____

C. Please identify the number and type of each activity?
1. Working outside
2. Working inside (if both choose outside)
3. Walking in the area
4. Actively contacting citizens
5. Observing the area or doing paper work (i. e. being stationary and not contacting citizens)
6. Other _____

C1. _____
C2. _____
C3. _____
C4. _____
C5. _____
C6. _____

D. How many workers were engaged in this activity?

D. _____

MAPS

HAP 1 : NORTHSIDE

MAP 2: *HOPKINS PARK*

MAP 3.- FINDLSV MARKET

DIAGRAMS

OBSERVATIONS

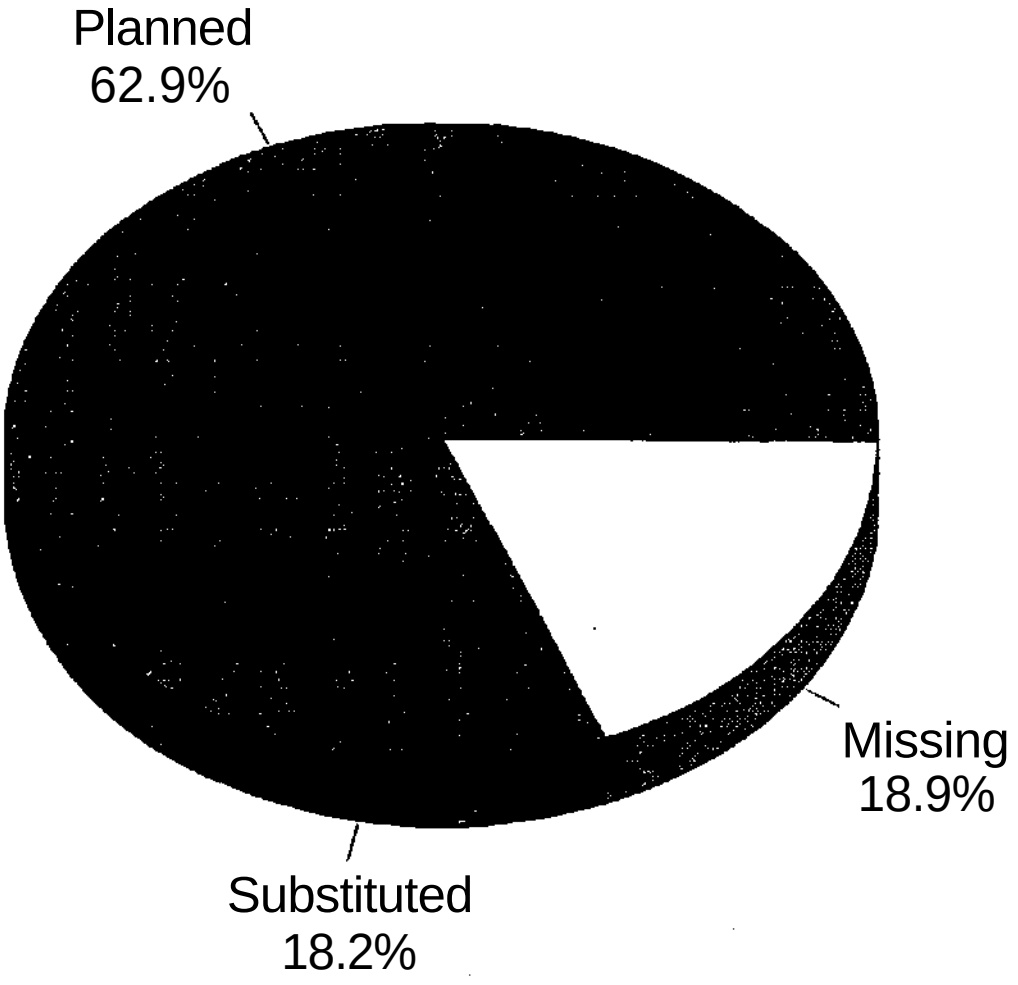


DIAGRAM 2

REASONS PLANNED OBSERVATIONS WERE NOT PERFORMED

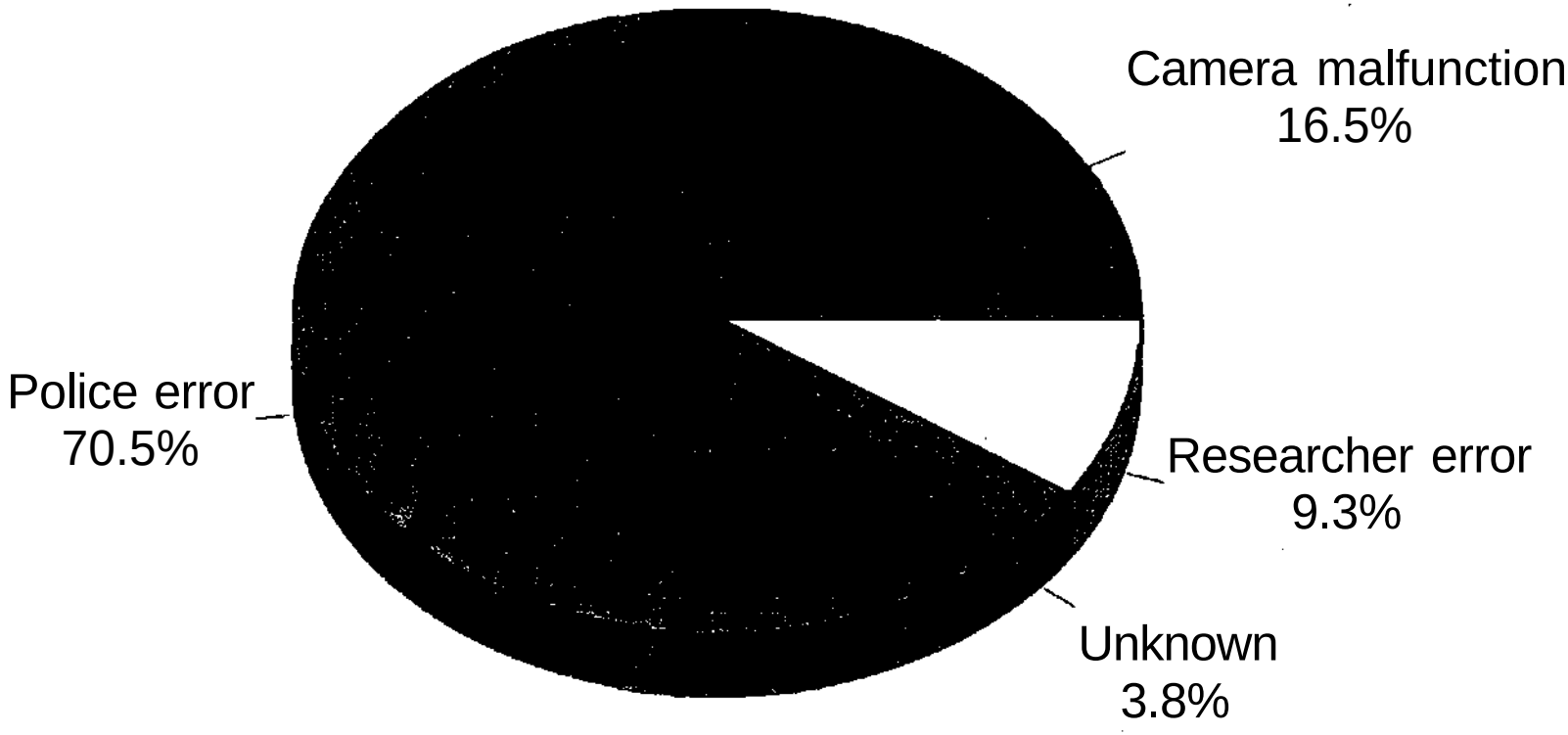


DIAGRAM 3

CAMERA FUNCTIONS

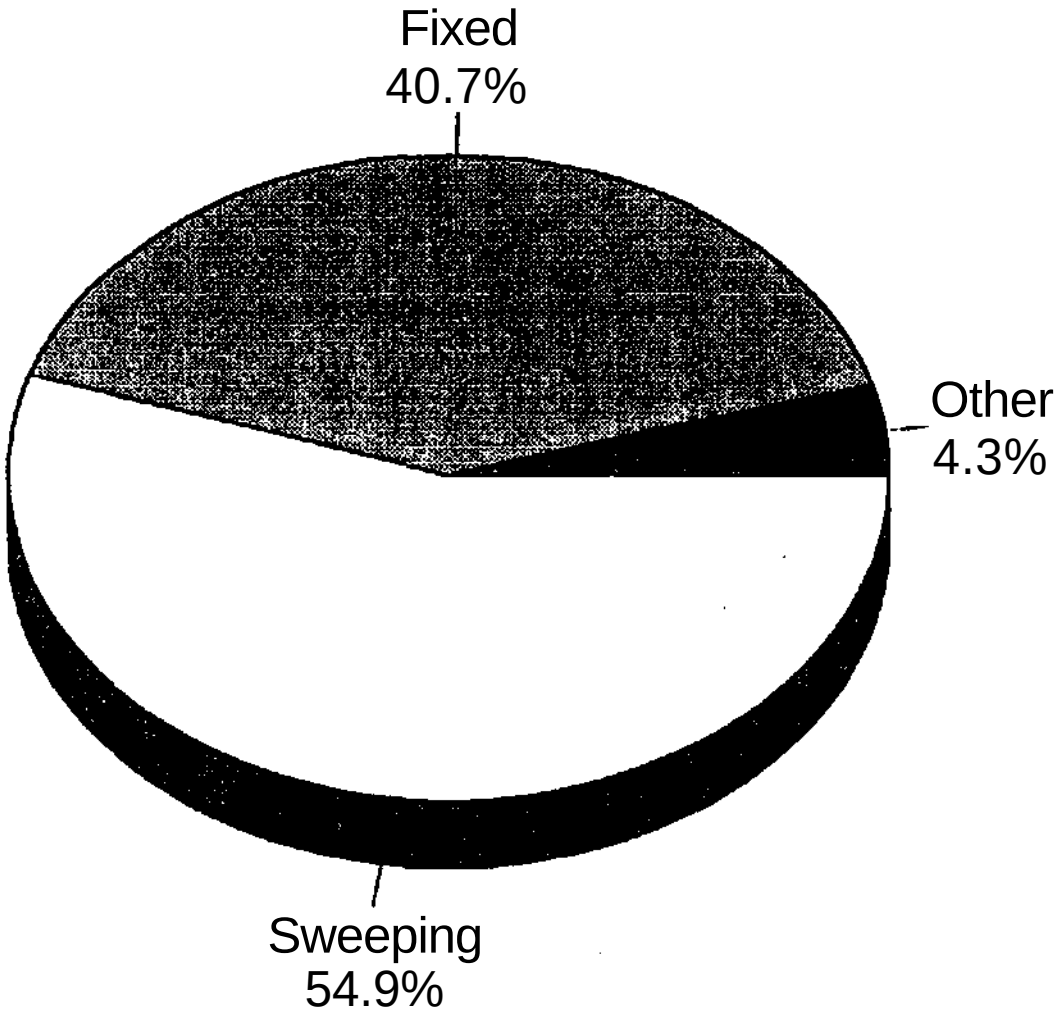


DIAGRAM 4

CAMERA VIEW OF HOT SPOT

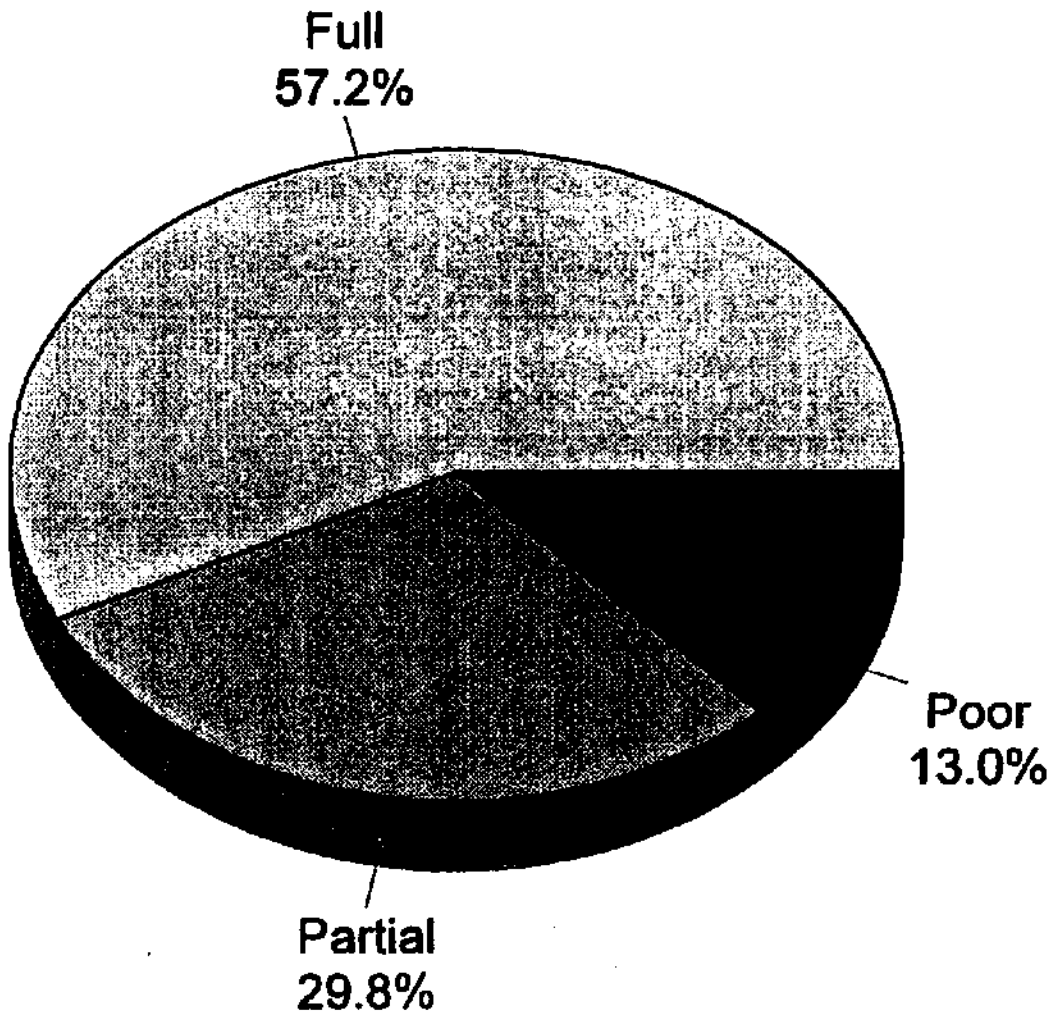


DIAGRAM 5

DAY OF WEEK

Actual vs Planned

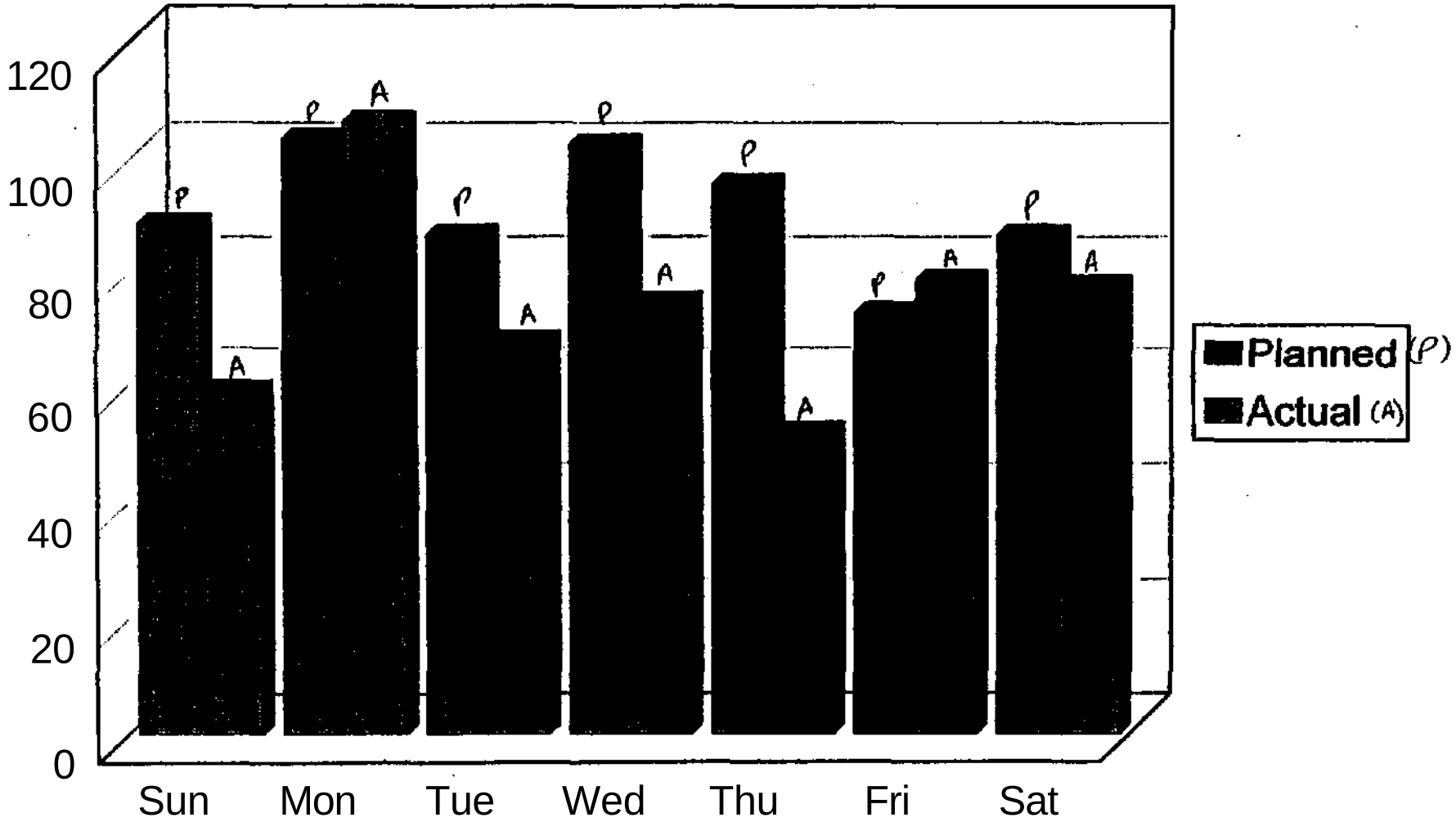


DIAGRAM Q,

OBSERVATION TIME

Planned vs Actual

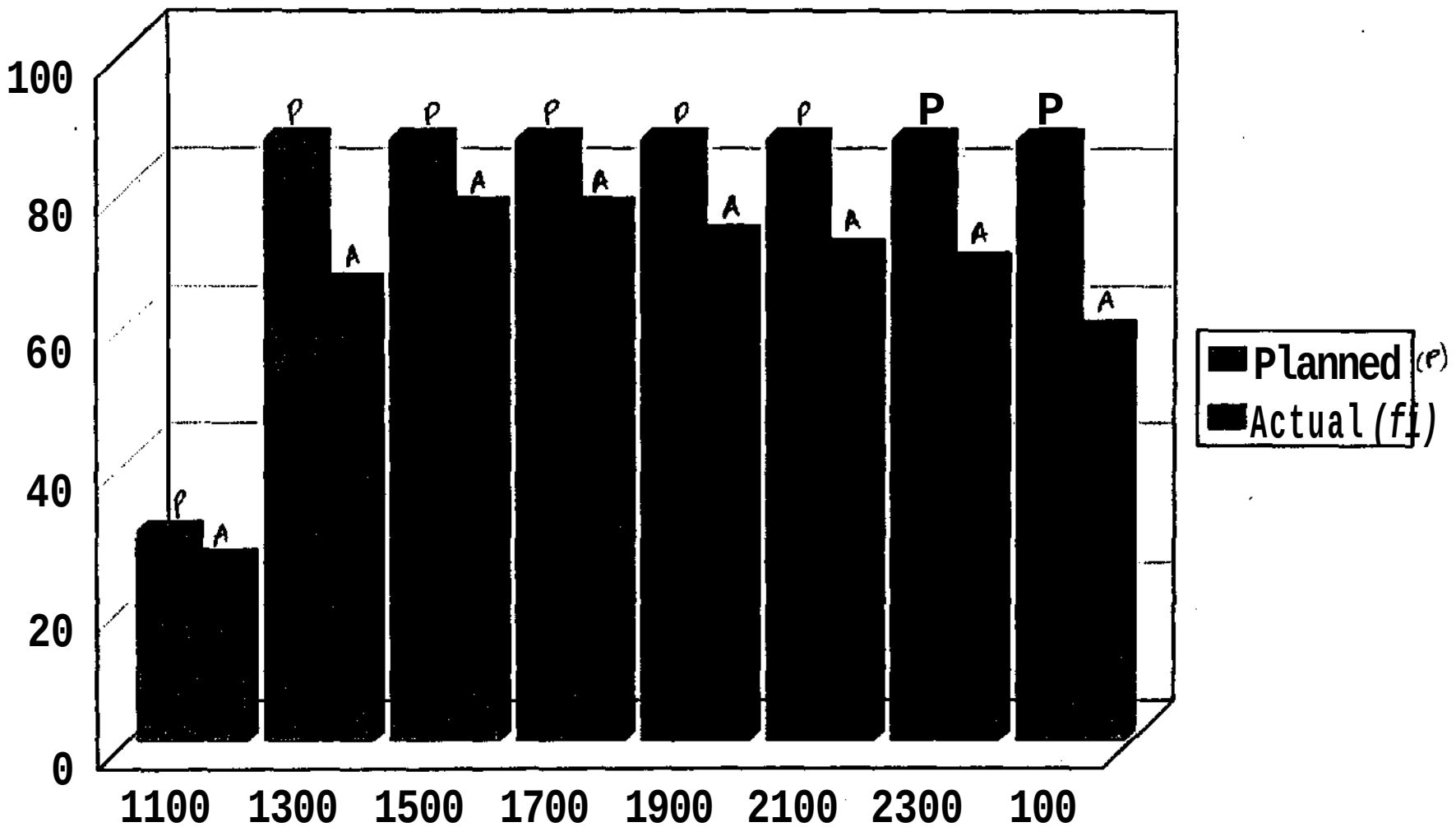


DIAGRAM 4

WEATHER

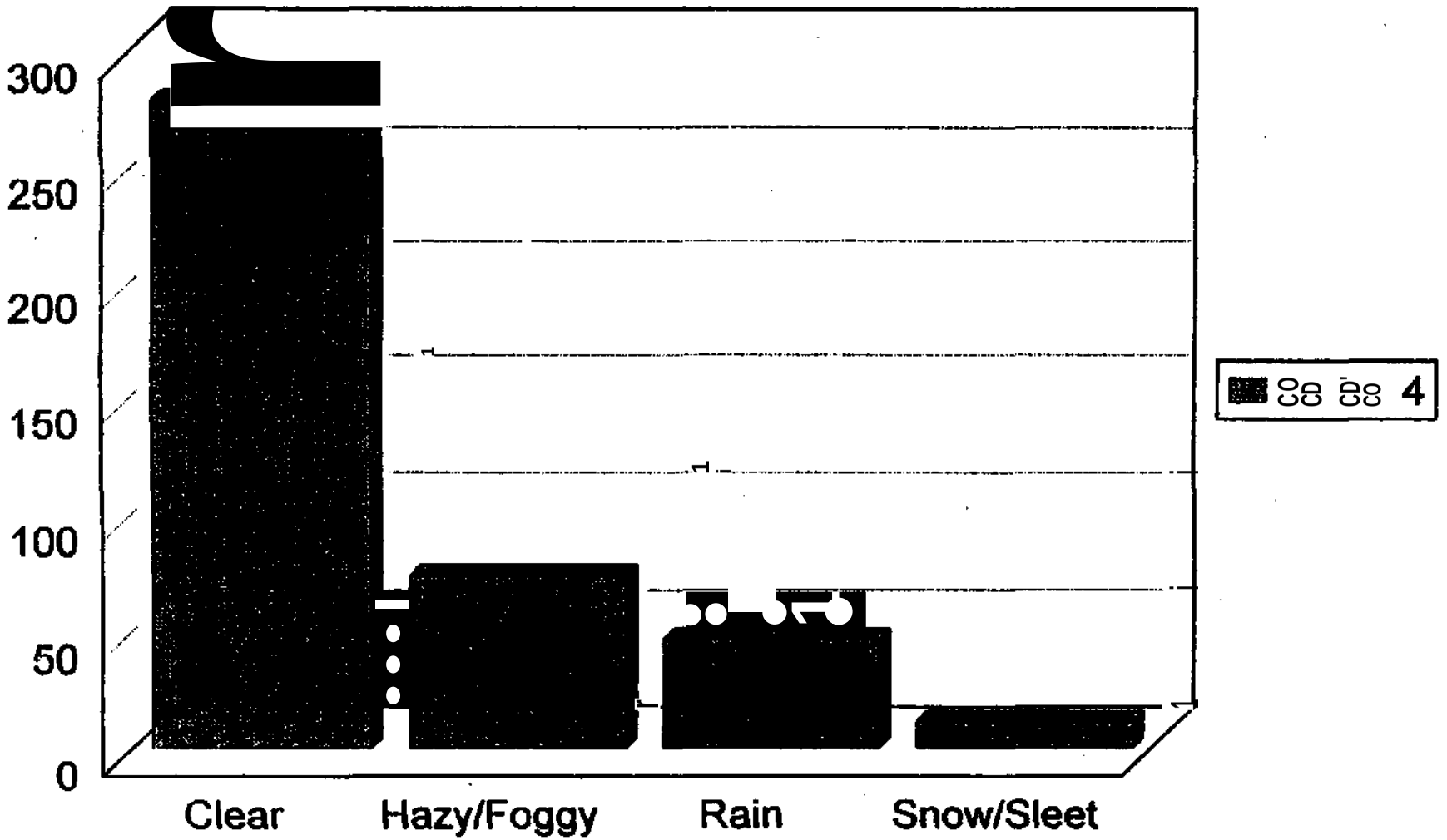


DIAGRAM 8

VISIBILITY

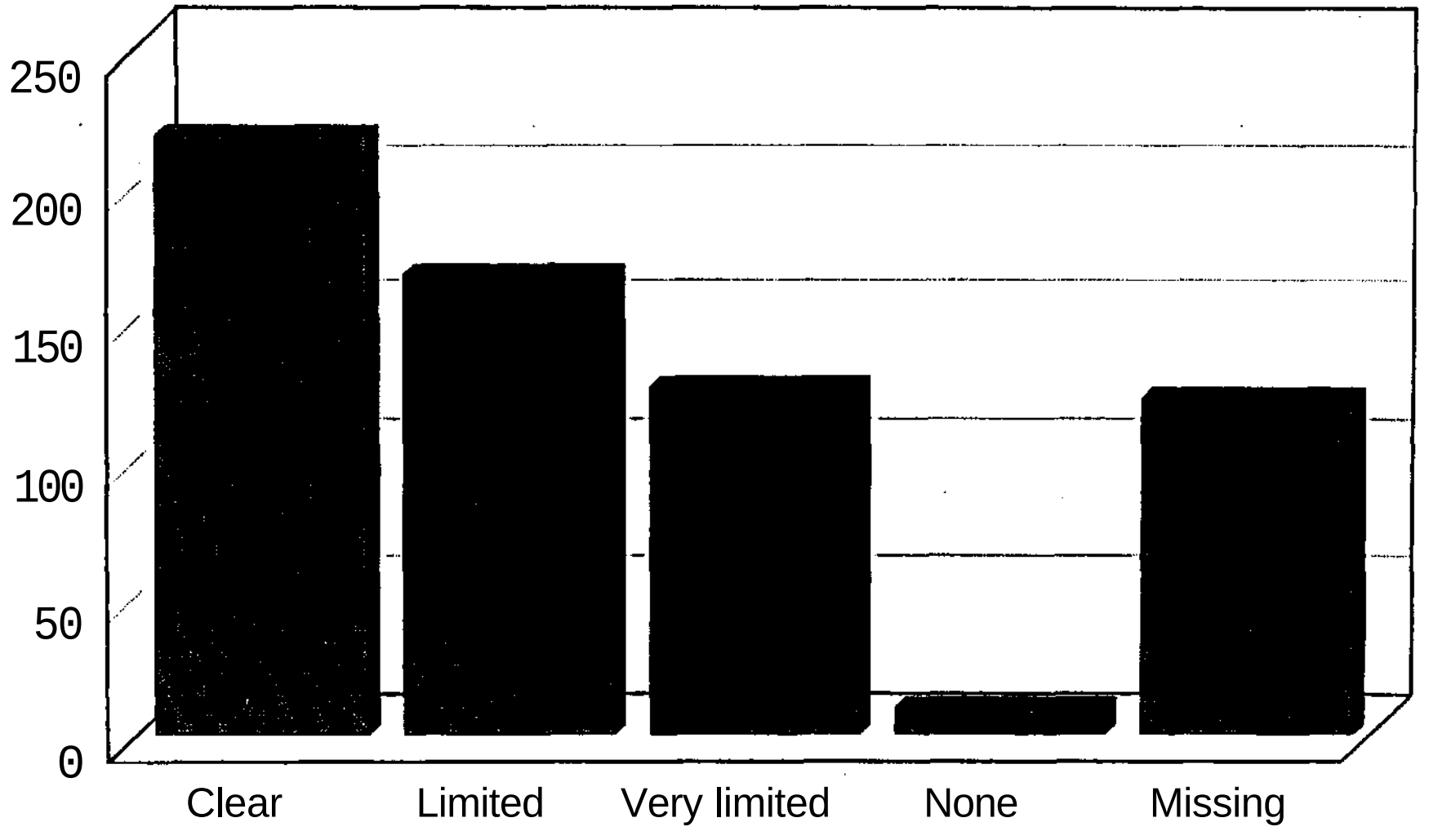


DIAGRAM 9

VISIBILITY

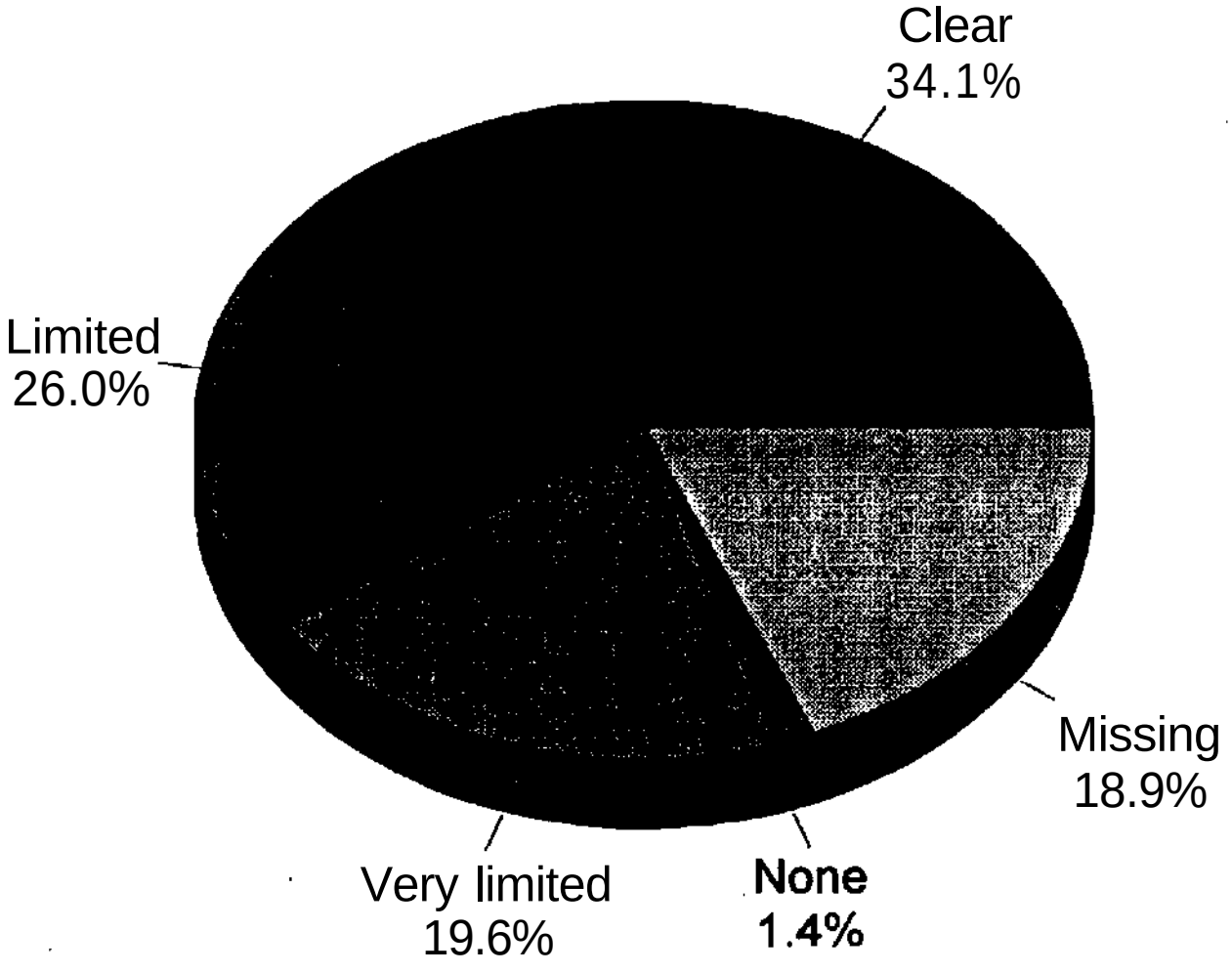
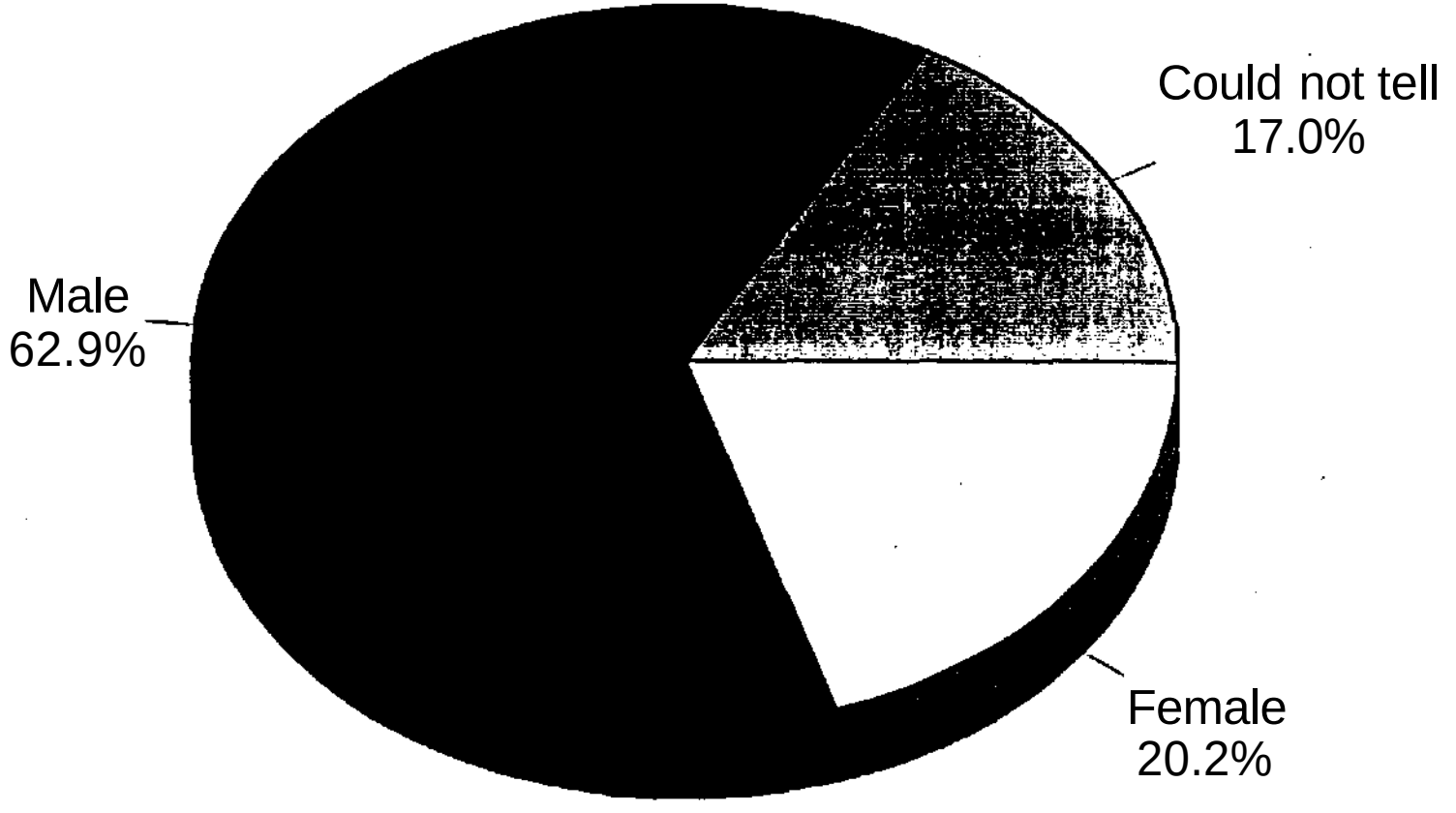


DIAGRAM 10

Northside

Gender



Average mean

DIAGRAM 1\

Hopkins Park

Gender

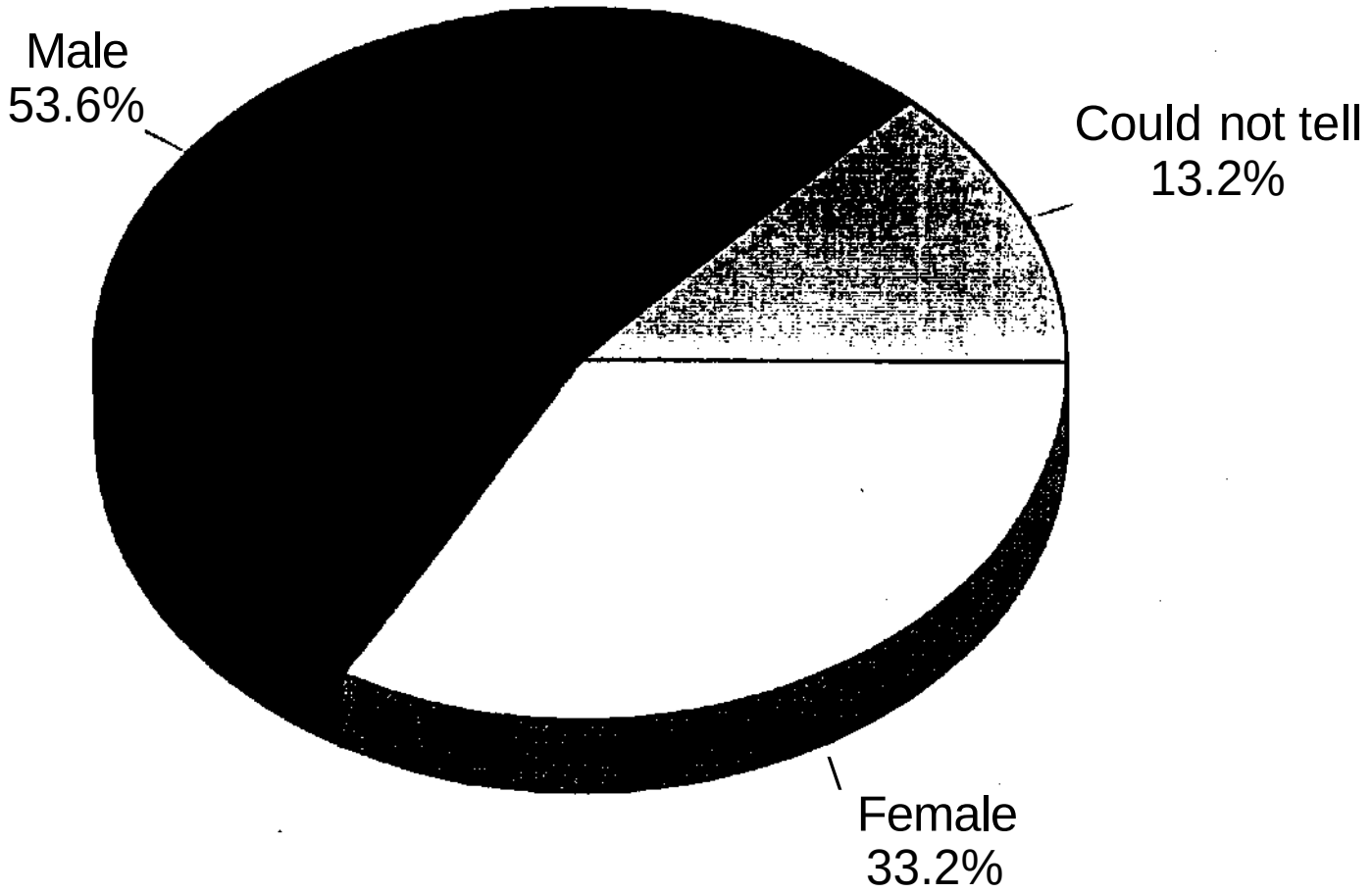
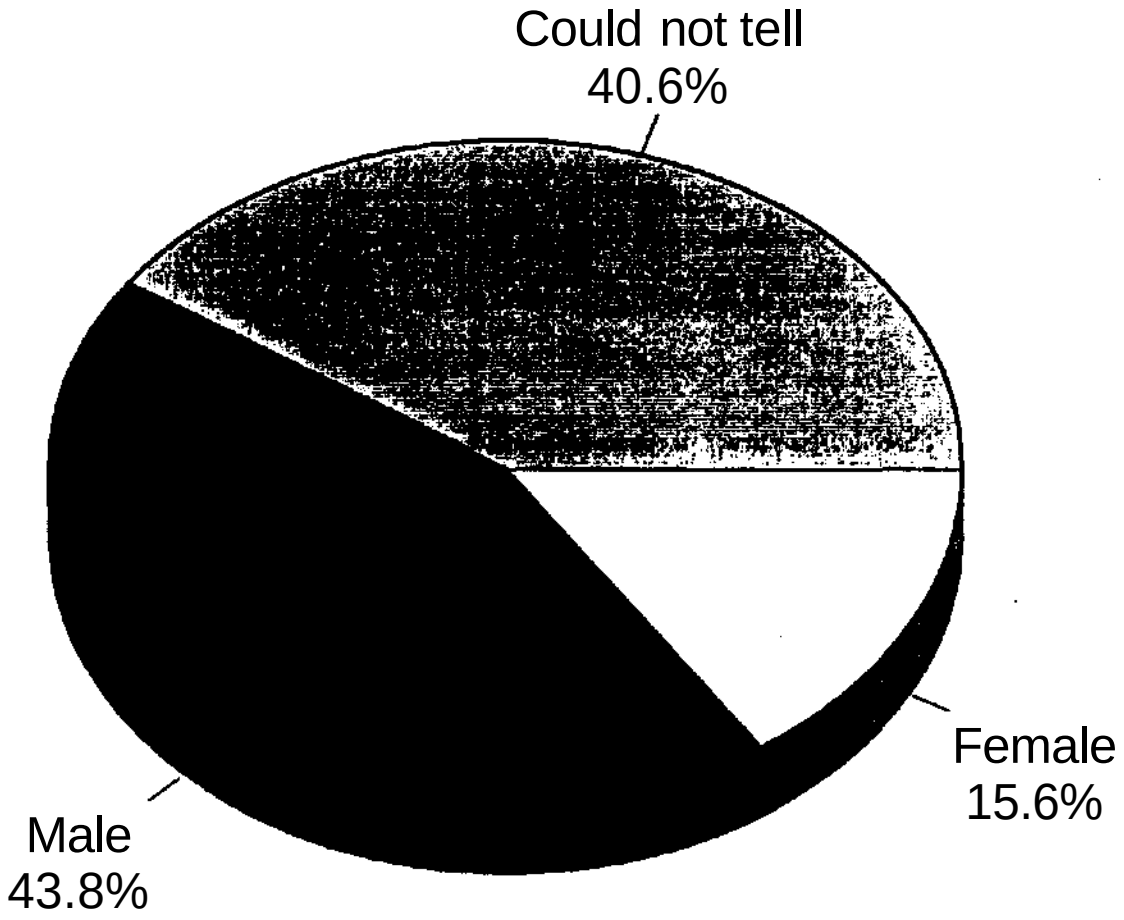


DIAGRAM 12

Findlay Market

Gender

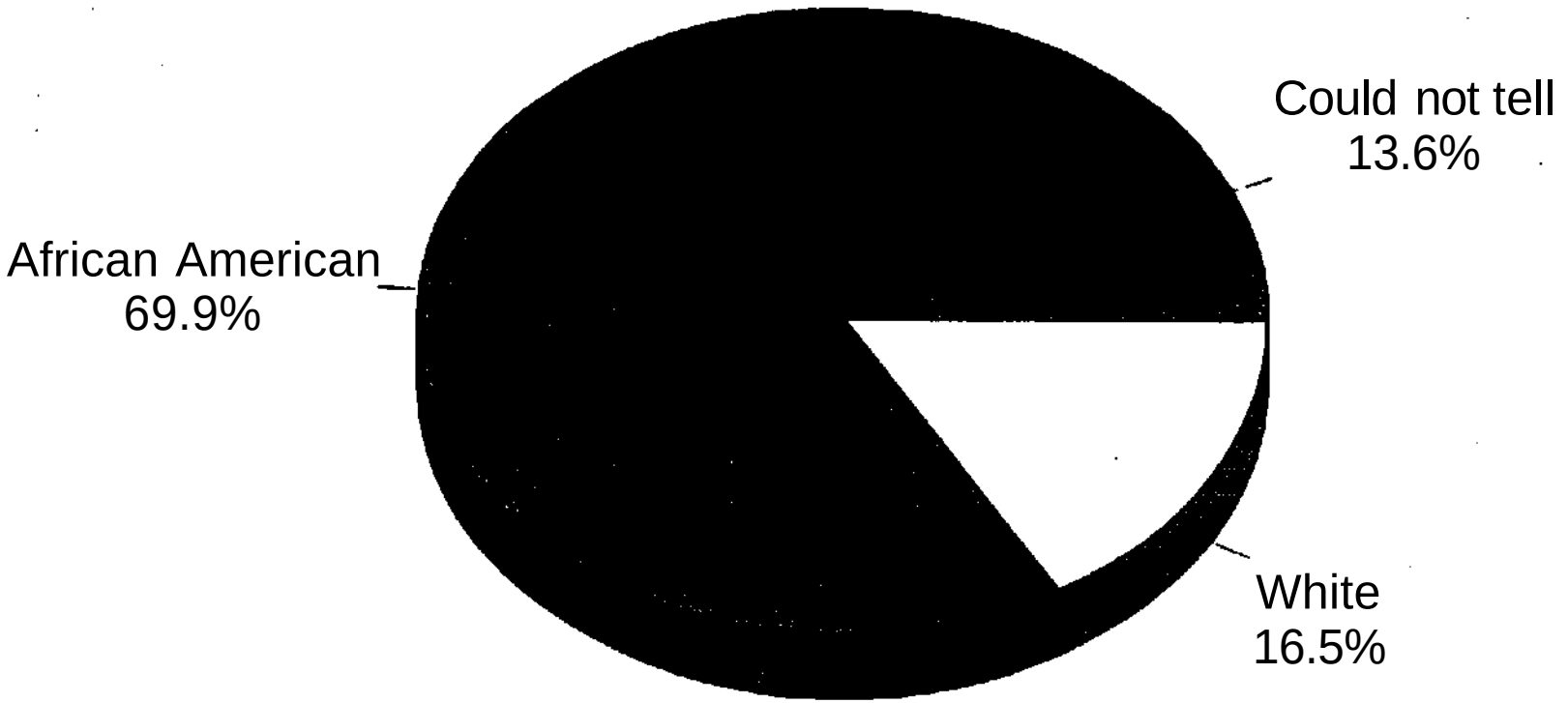


Avor..K")<! mean

DIAGRAM 13

Northside

Race

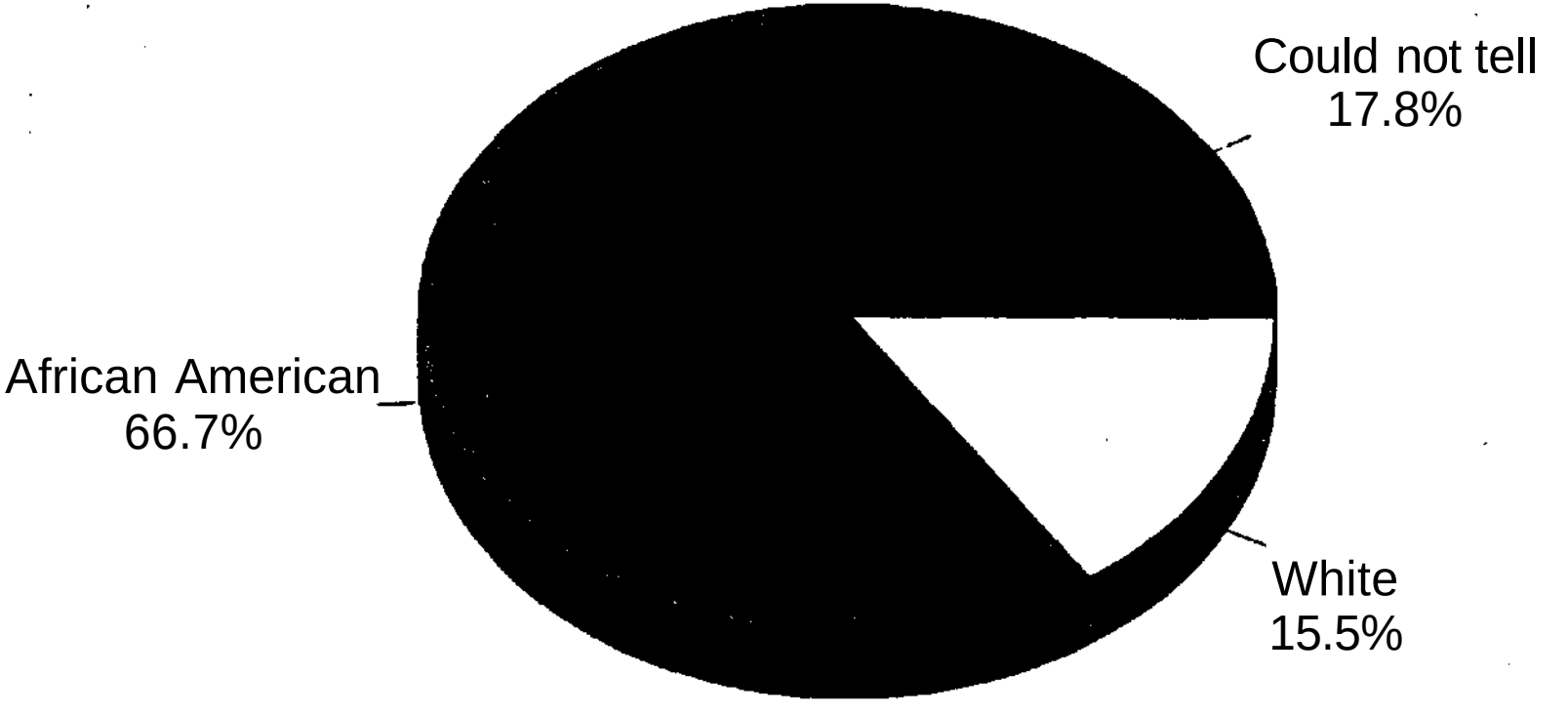


Average mean

DIAGRAM 14

Hopkins Park

Race



Average) mean

DIAGRAM IS

Findlay Market

Race

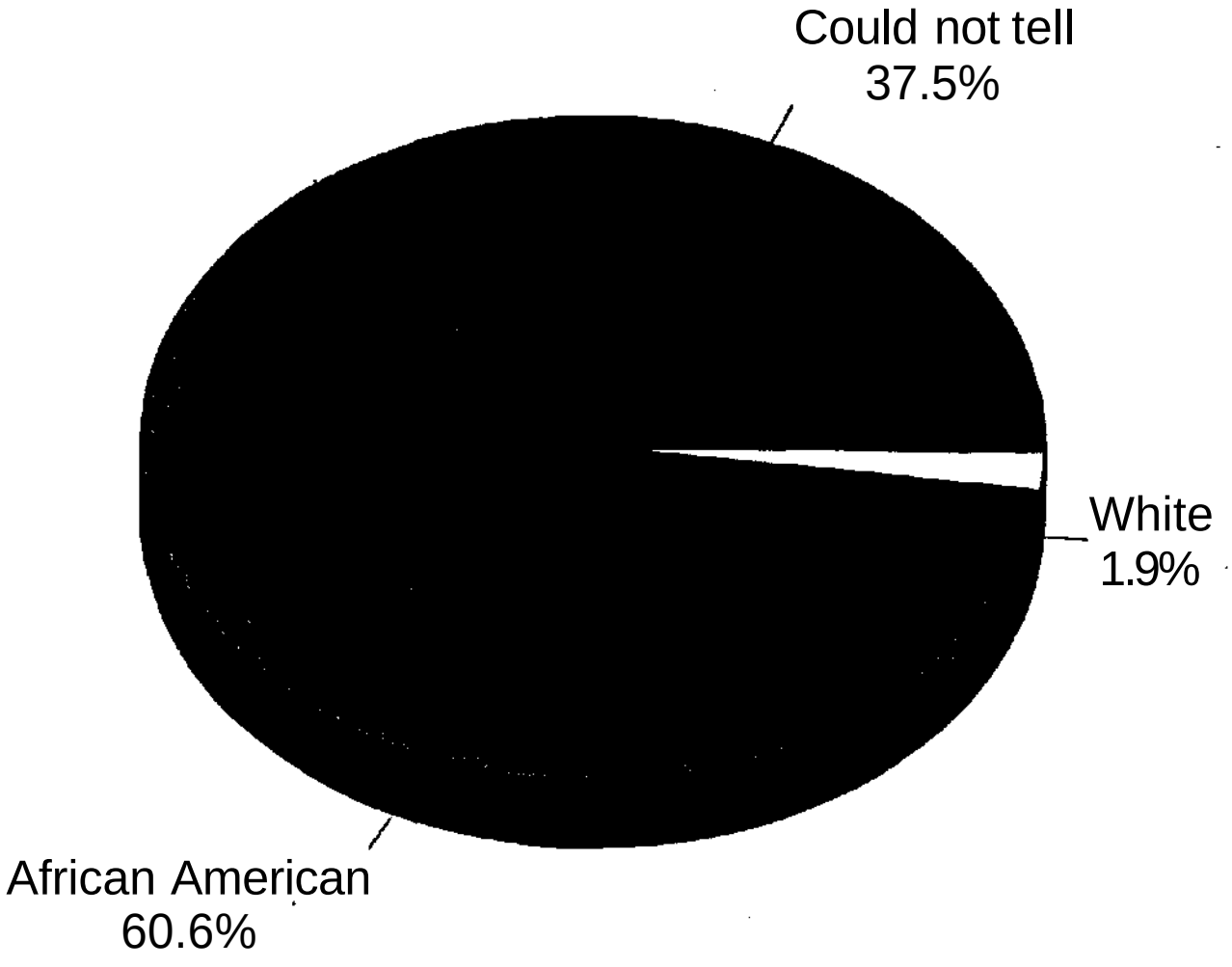


DIAGRAM 16

Pro-social behavior

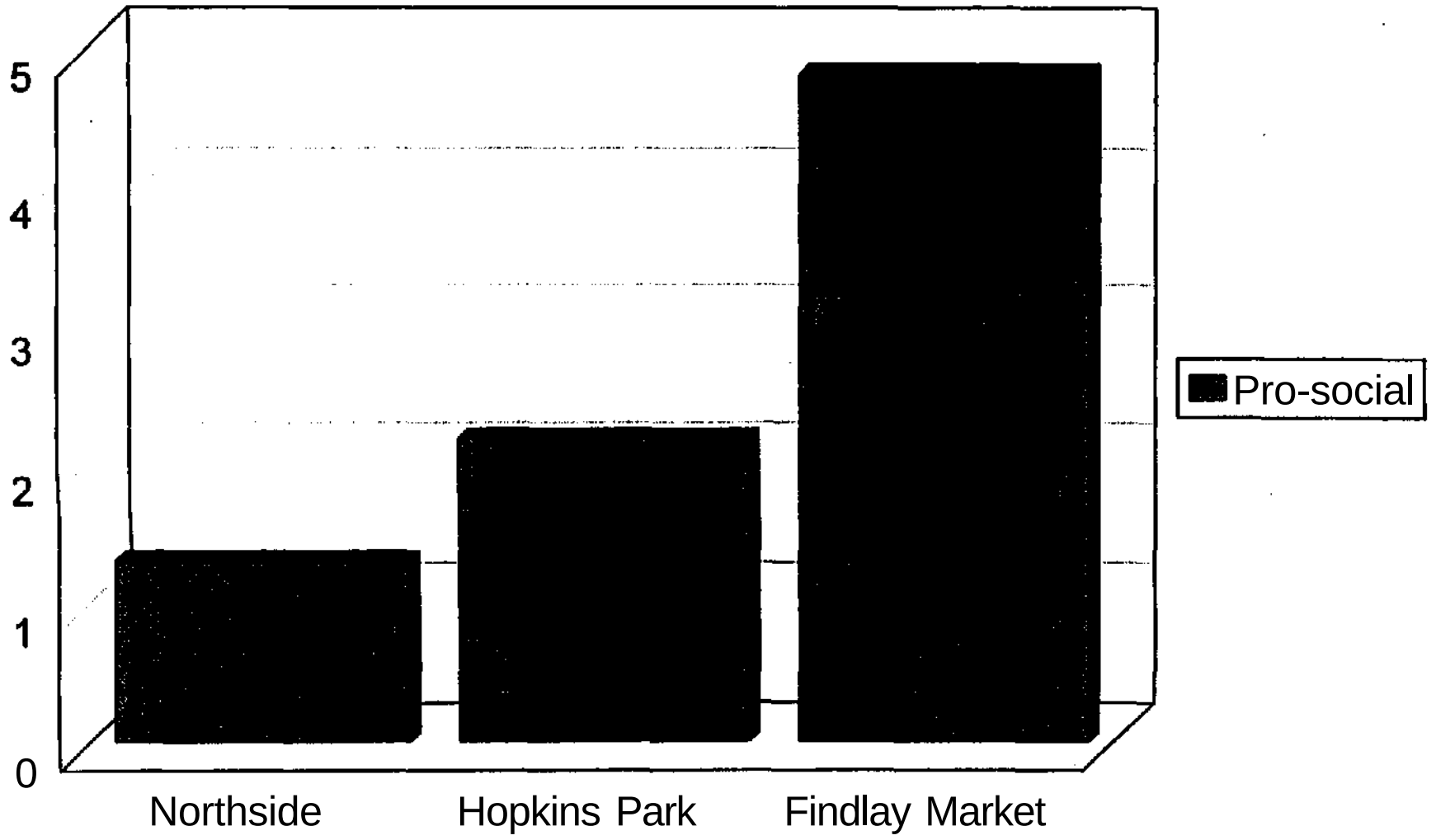


DIAGRAM 17

Pedestrians

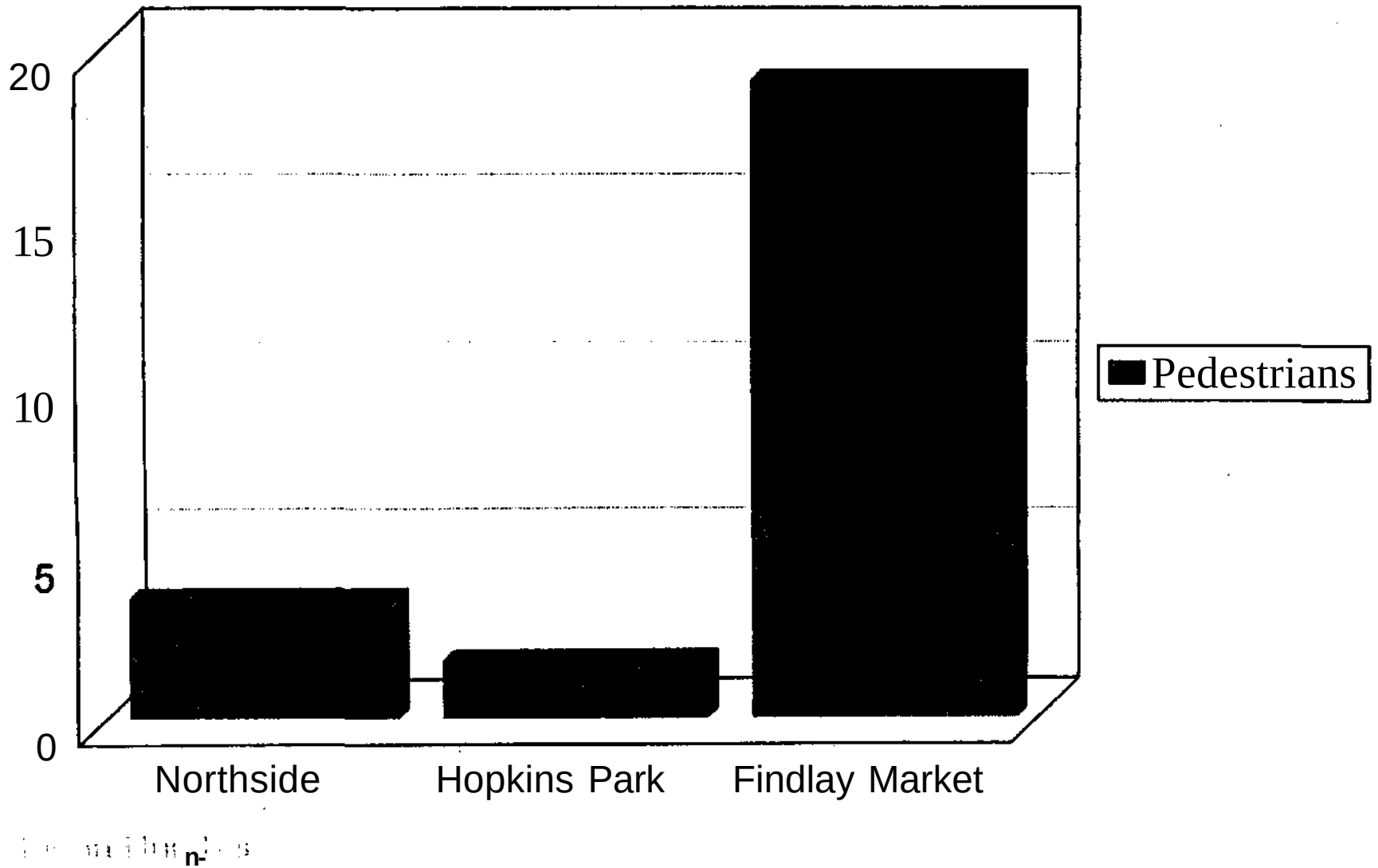


DIAGRAM 18

Anti-social behavior

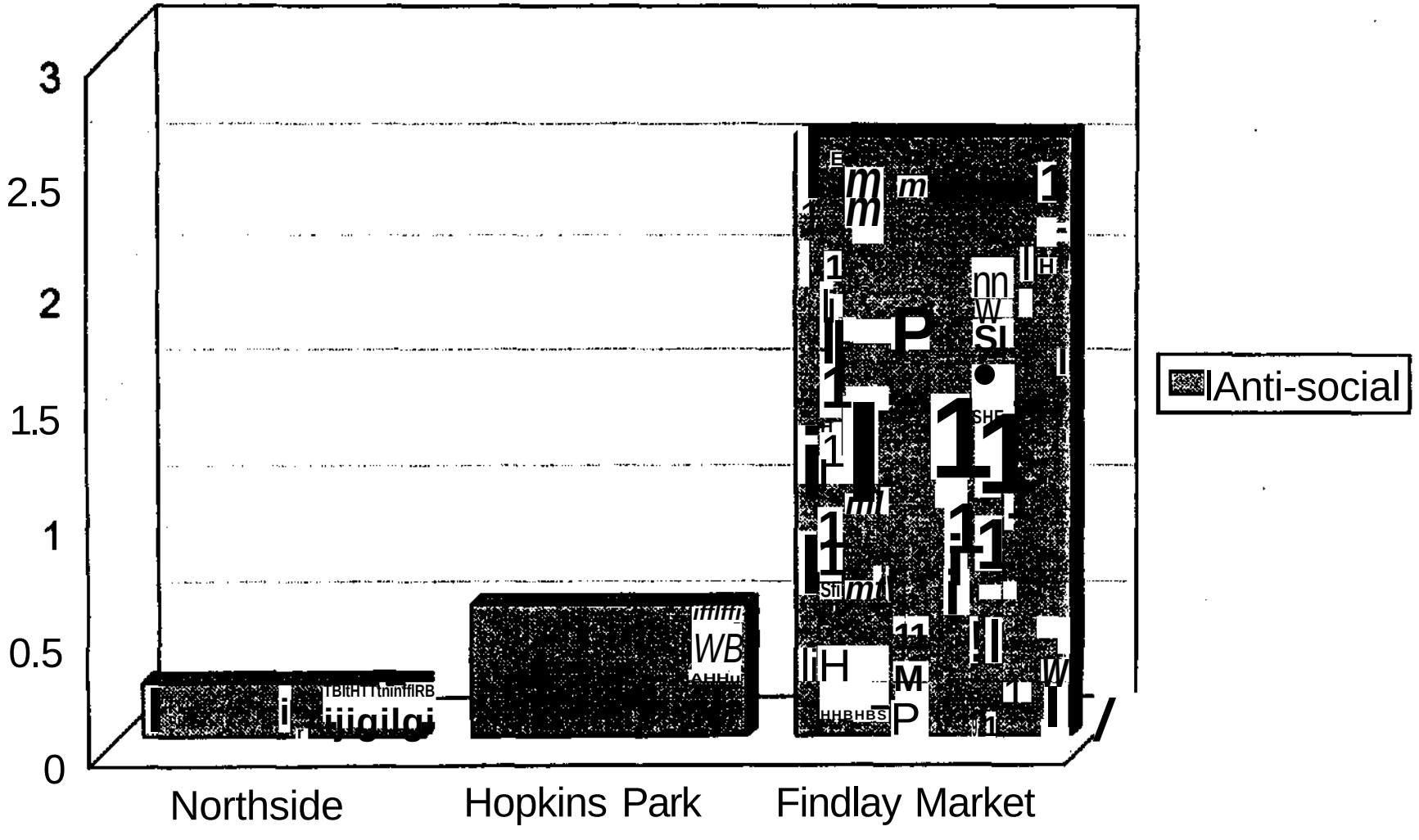


DIAGRAM 19

Guardianship

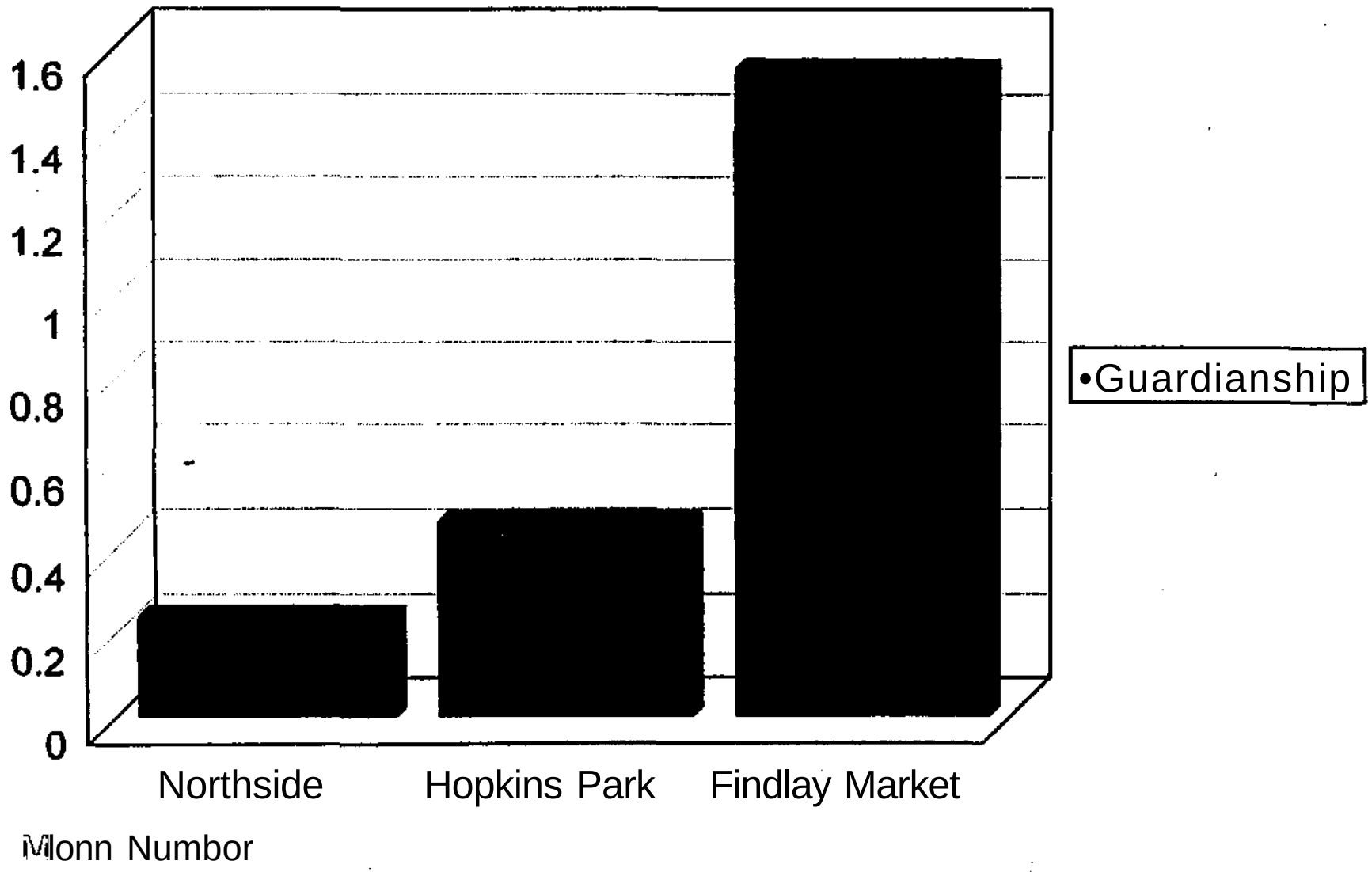


DIAGRAM 20

Site Comparison 05

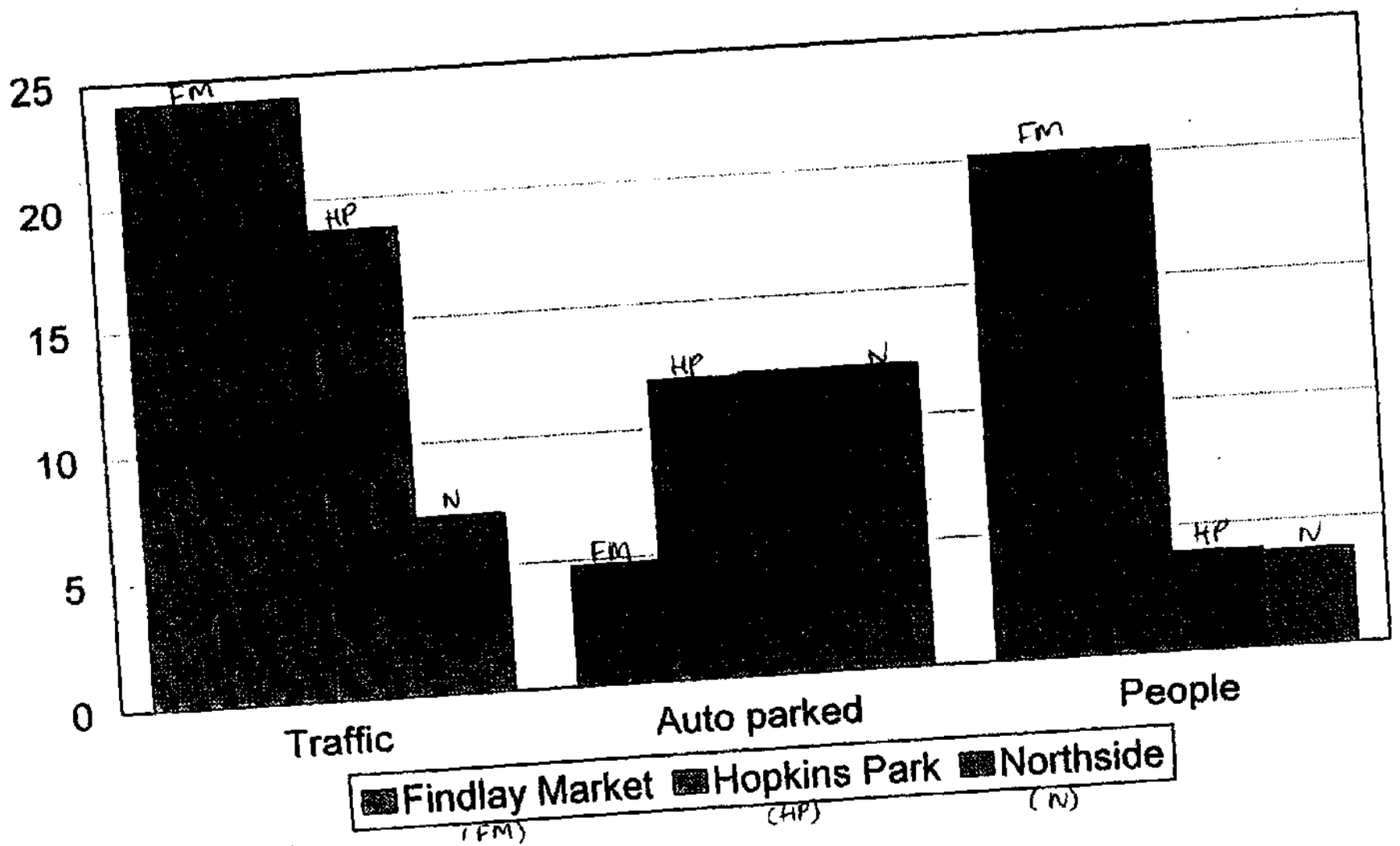
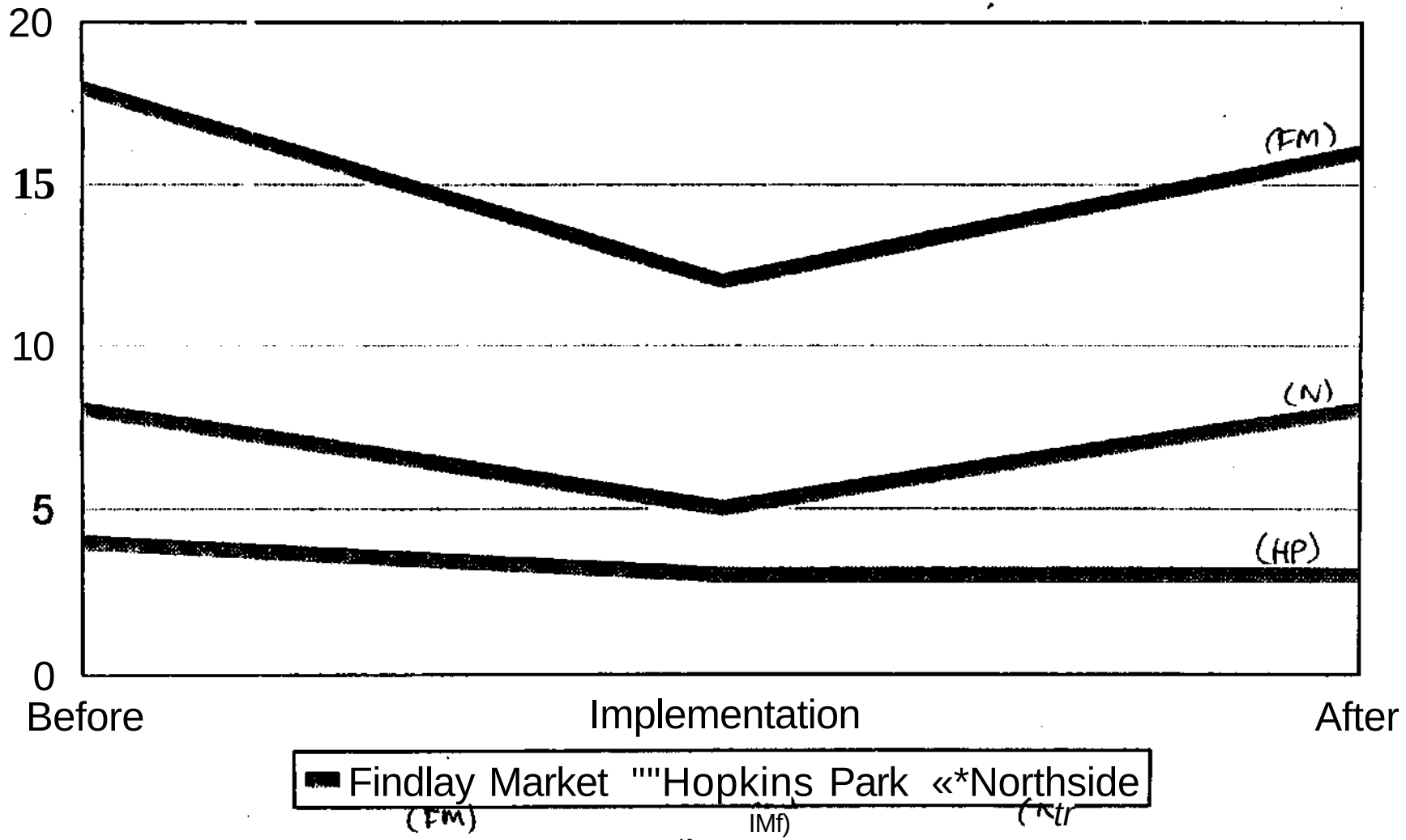


DIAGRAM 21

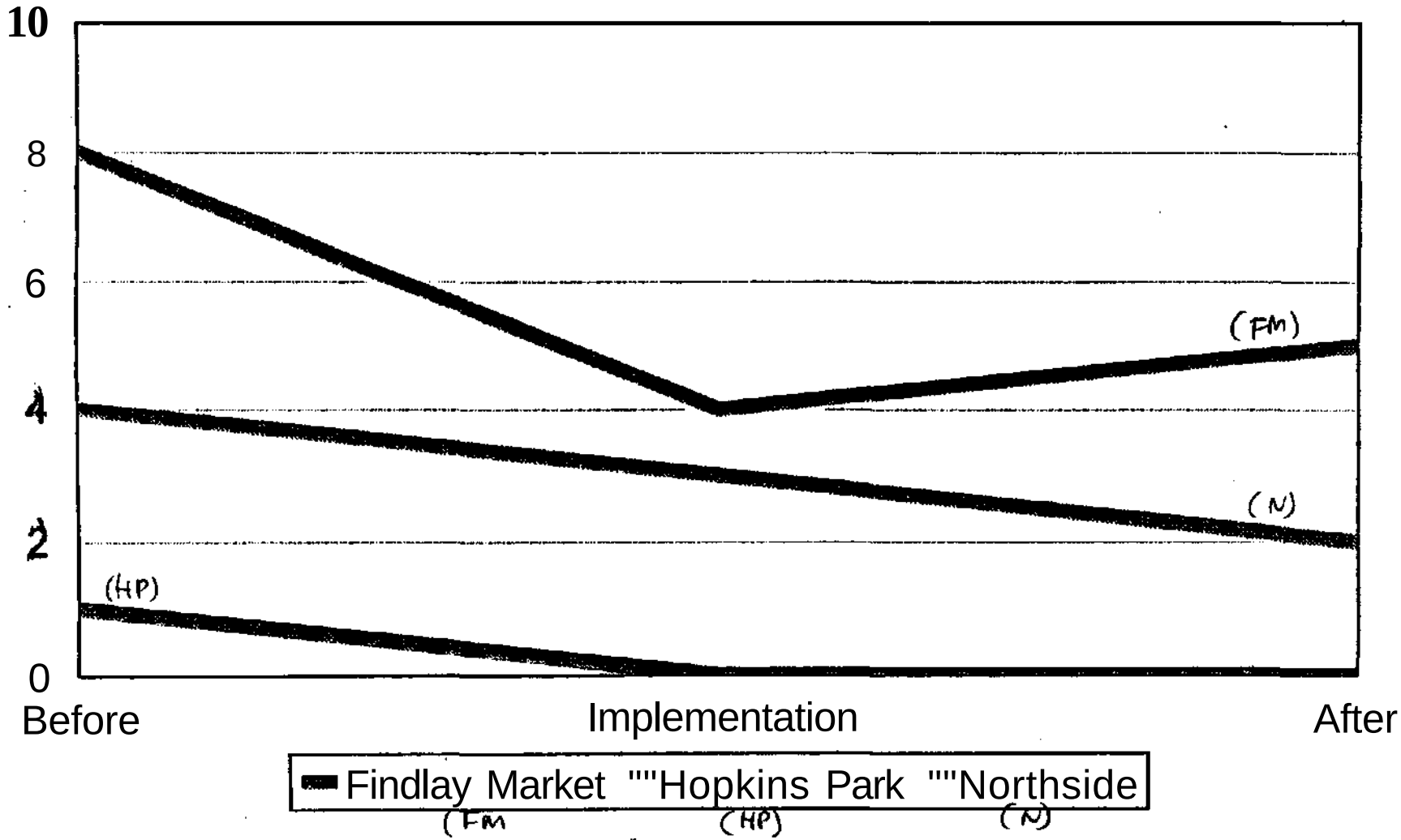
Disorder Calls for Service at 1000 ft



Based on ovomqo numbor oi weekly polls

DIAGRAM 2-2.

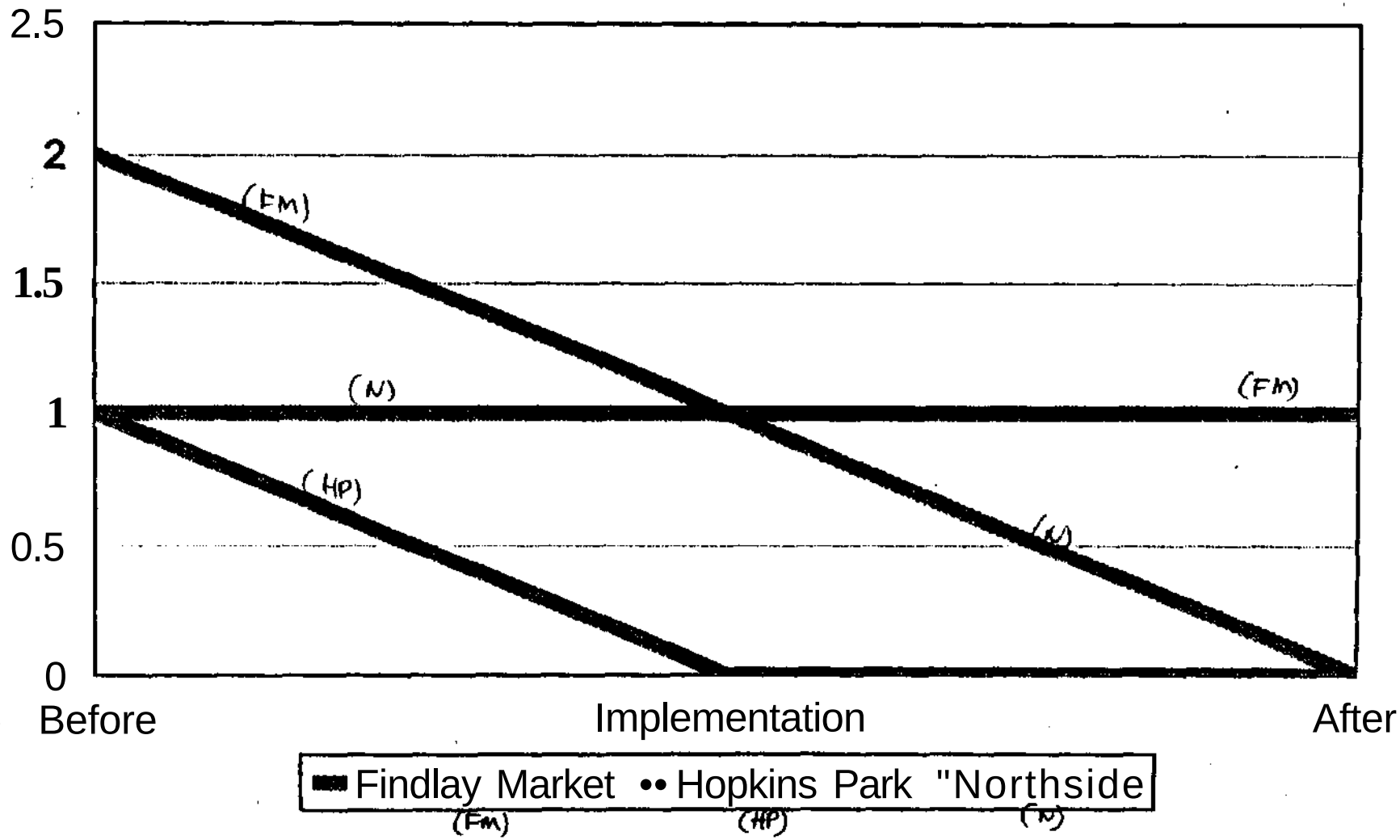
Disorder Calls for Service at 500 ft



Based on average number of weekly calls

DIAGRAM 23

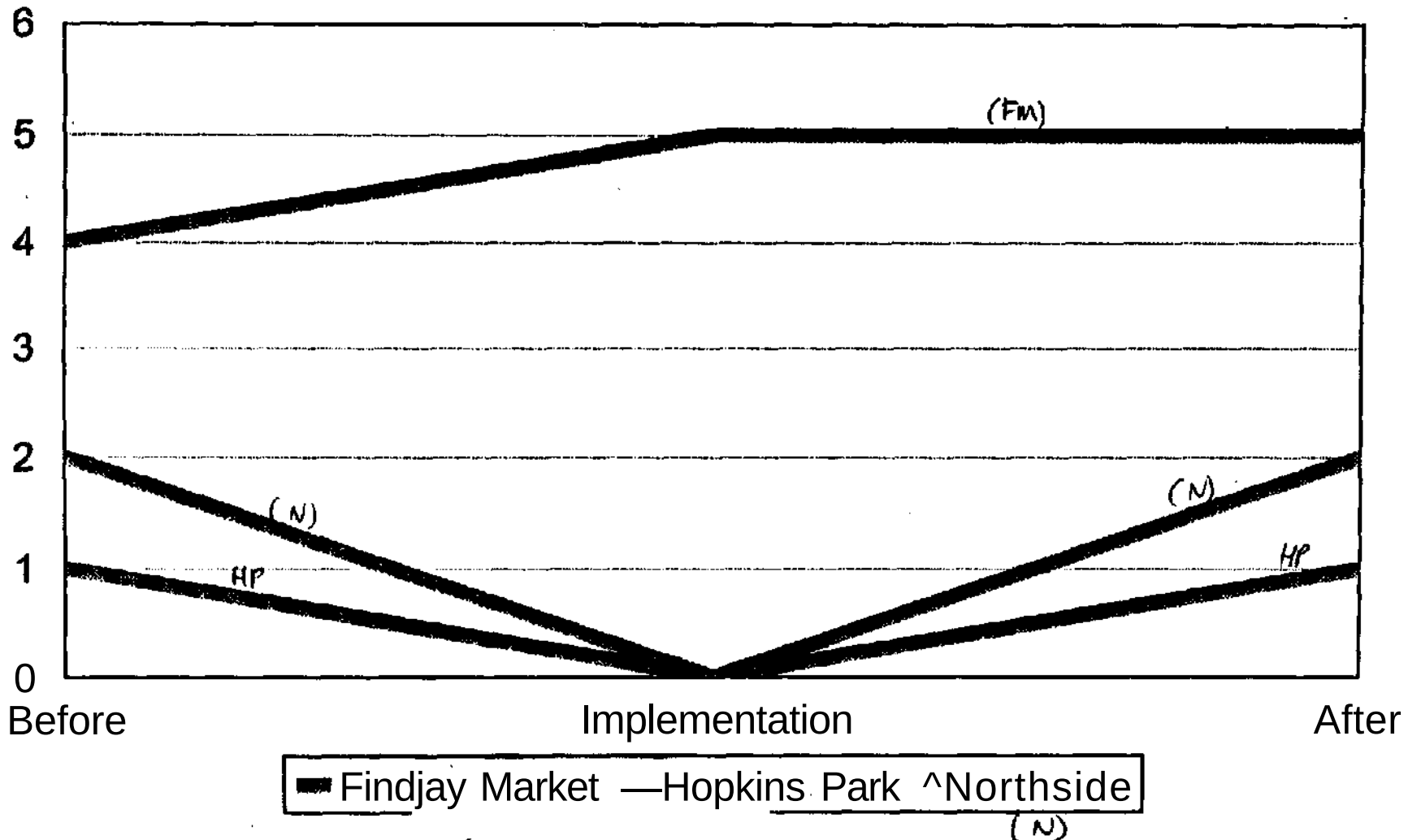
Disorder Calls for Service at 200 ft



Based on average number of weekly calls

DIAGRAM 24

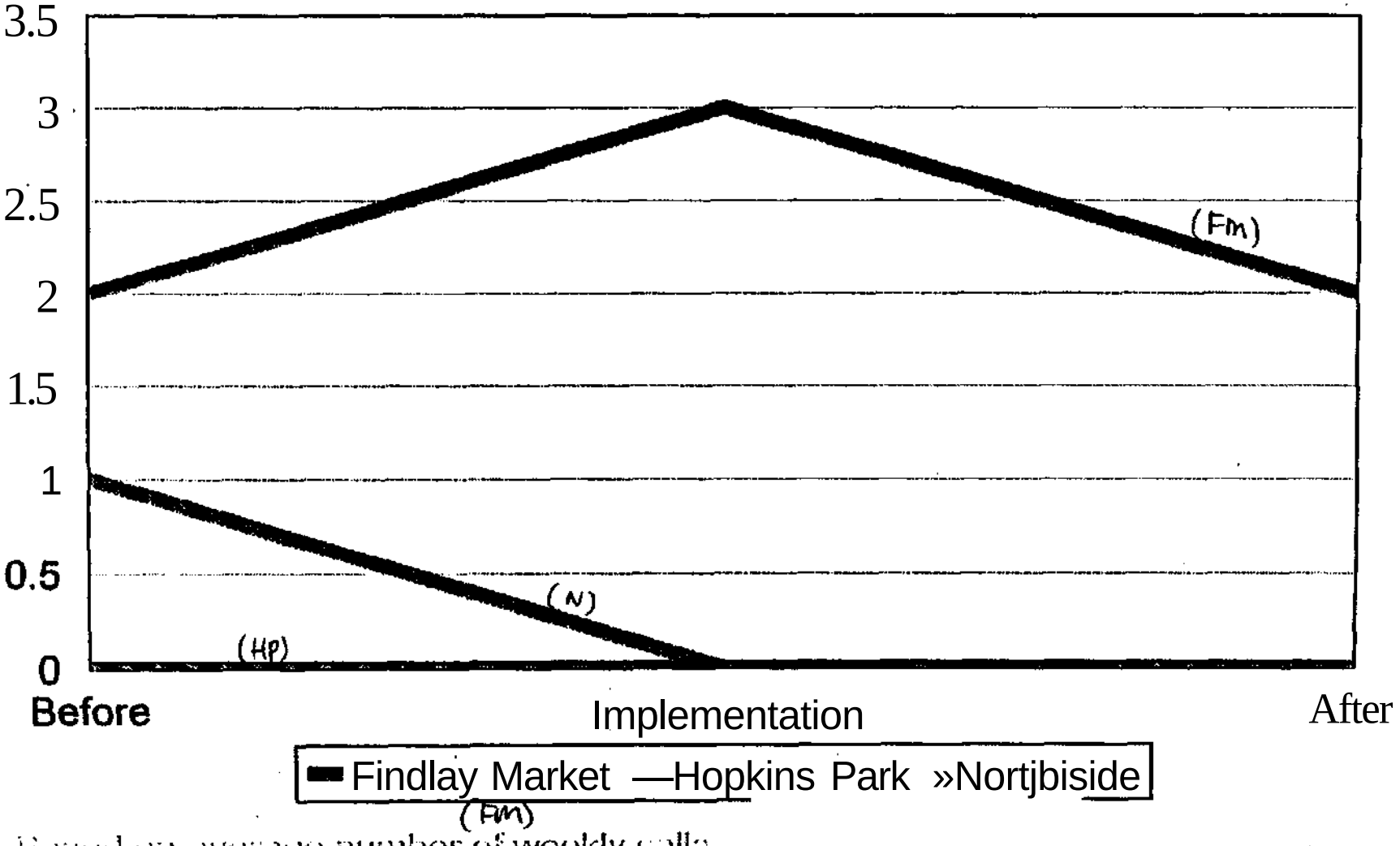
Drug Calls for Service at 1000 ft



Based on average number of weekly calls

DIAGRAM IS

Drug Calls for Service at 500 ft



Based on average number of weekly calls

DIAGRAM 26

Drug Calls for Service at 200 ft