

“IT TAKES A VILLAGE...”

EASING TRAFFIC CONGESTION AROUND BARRON EARLY CHILDHOOD SCHOOL

PLANO POLICE DEPARTMENT, NEIGHBORHOOD POLICE OFFICER UNIT, 2004

THE PROBLEM: During the latter part of 2000, many City of Plano residents began complaining of significant traffic congestion in the area of Barron Elementary School. They advised Officer Nors, the neighborhood police officer who patrolled the area, that the traffic problem was becoming unbearable, with several recent crashes raising concerns about student safety.

ANALYSIS: The parents of students attending Barron Elementary School informed Officer Nors that many motorists frequently violate traffic and parking laws because they are late for work, their children are late for school, and they become frustrated with the lengthy wait in traffic. Officer Nors studied the problem and found numerous environmental factors that contributed to the congestion.

RESPONSE: Officer Nors concluded that a coordinated response from the City of Plano, the Village Creek planning team, other residents, and PISD was required to make substantial improvements. She recommended installation of traffic control devices and additional parking restrictions as well as extensive traffic rerouting and increased enforcement.

ASSESSMENT: Upon conducting surveys of motorists and those living in the community in April 2004, Officer Nors found a significant majority of those surveyed had favorable comments on these changes and did believe traffic congestion and safety had been improved. Furthermore, crashes had been significantly reduced from previous years and street blockage had been virtually eliminated.

SCANNING

The problem of traffic congestion around Barron Elementary School (Barron) is complex because it involves residents of a small enclosed neighborhood, business commuters, and motorists trying to get to and from school; all three parties end up converging at one intersection at peak traffic times. This problem was identified initially by residents of the neighborhood surrounding Barron, who were very frustrated about the overwhelming congestion in their neighborhood. Many called Officer Nors and complained that motorists frequently ran red lights and parked illegally. This was a significant problem to a large portion of this community and the congestion contributed to several crashes and other traffic violations, which compounded the problem. Initially, Officer Nors attempted to address these complaints as individual violations by monitoring the area and issuing citations as needed. Over time, however, she concluded that significantly reducing traffic congestion was limited by the environmental design of the school parking lot, the carpool configuration, and the surrounding neighborhood. She estimated that the traffic congestion stemming from Barron affected several hundred people daily. This problem was a significant issue for the residents of her neighborhood, the parents and staff of Barron, as well as the motorists on Parker Road. Officer Nors believed reducing traffic congestion would greatly improve public safety in the area.

ANALYSIS

Barron was built in 1970 in a residential area of northeastern Plano, Texas (see

Figure 1 for map of area). The population then was 17,872. By 2001, the population had exploded to 236,539 and 620 students attended Barron. The city was growing, but the neighborhood surrounding the school was not. The original traffic management design could not accommodate the increased congestion caused by this population growth. In the 2002-2003 school year Barron it changed from Barron Elementary School to Barron Early Childhood School. It currently comprises local students for Kindergarten and First grades, as well as morning and afternoon classes of preschool children with disabilities (ECS students) from eleven other neighborhood zones. Because the students are so young and many of them have physical disabilities, a majority of parents choose to drive their children to school rather than use the buses, further adding to the traffic volume around the school. Officer Nors identified the peak traffic times:

- 0745-0800--drop-off of kindergarten and first grades, and morning ECS students,
- 1045-1100-- pickup of morning ECS students,
- 1115-1130—drop-off of afternoon ECS students, and
- 1445-1500-- pickup of kindergarten and first grades, and afternoon ECS.

As illustrated in the map in Figure 2, Barron is situated on the northeast corner of Parker Road and P Avenue, the main intersection. Parker Road is a busy major thoroughfare consisting of four lanes eastbound and westbound. P Avenue is a narrow residential street consisting of two lanes northbound and southbound. The school is on the east

side of P Avenue and in the front of the school there is an entry and exit for the carpool lane. Within this area there are fifteen parking spaces, four of which are reserved parking. This carpool lane only allows thirty cars at a time. The remainder of the traffic backs up into the main intersection until the carpool lane moves forward. Due to the enclosed nature of this neighborhood, most of the vehicles exiting the carpool lane turned south to get back to Parker Road in opposition to traffic coming to the school. This further blocked traffic at P Avenue and Parker Road. There are houses along the west side of P Avenue, directly across from Barron. The bus lane is on the south side of the school adjacent to the staff parking lot. However, this lot was insufficient to accommodate the staff for the elementary school but more so when it changed to Early Childhood since the change in the school function required a higher teacher to child ratio. The overflow traffic parked on the narrow streets on the west and north sides of the school.

Examining the traffic pattern around Barron, Officer Nors observed the underlying cause of the congestion was that for these hundreds of cars, there was only one practical way to and from the school. The only carpool lane was inadequate and designed to empty traffic back onto P Avenue at Parker Road. Because the school parking lot was insufficient, staff and visitors were forced to park on the narrow side streets, often competing with residents for limited parking spaces. This diminished visibility and made the narrow streets even more hazardous. These environmental factors indicated that until some design changes were made,

congestion and safety would continue to be a challenge for this area.

At the beginning of this project, interviews with some of the people affected by this problem (including residents, Barron staff, PTA, and parents) gave Officer Nors a much broader view of the impact of traffic congestion in this area. Observing the area during peak traffic times, she realized many were frustrated and tended to commit traffic violations in order to get out of the area as quickly as possible. They routinely stopped in the middle of the street and encouraged their children to run across the street to school, thus avoiding the carpool lane traffic.

Officer Nors interviewed residents at her monthly crime watch meetings and found many of them had taken extraordinary measures to avoid this area. Others simply tolerated the inconveniences it produced and accepted it as an irreparable problem that had been this way for the past ten years. They reported that congestion gets worse as the number of vehicles on Parker Road increases.

Officer Nors checked calls for service for January 1999- December 2001 and found there had not been an unusually high volume of calls reported due to traffic problems. However, there were several crashes in the area immediately surrounding Barron and this did not include the crashes occurring on Barron's property. In 1999, there were 4 crashes; in 2000, there were 4 crashes; and in 2001 there were 3 crashes. The staff at Barron reported that numerous other crashes occurred each year on school property that were not reported to

Table 1: Comparison of Crash Histories at Barron and Three Other Plano Schools

| <u>Traffic Crashes Comparison</u> | <u>Barron</u> | <u>Meadows</u> | <u>Mendenhall</u> | <u>Memorial</u> |
|-----------------------------------|---------------|----------------|-------------------|-----------------|
| 1998-1999 School-year | 4 | 2 | 1 | 1 |
| 1999-2000 School-year | 4 | 6 | 0 | 1 |
| 2000-2001 School-year | 3 | 2 | 0 | 1 |

police. Comparing crashes around Barron with three other similar schools for the same timeframe, she found one school had almost as many crashes but two others had far fewer crashes than Barron. These comparisons are illustrated in Table 1.

Prior to Officer Nors initiating this problem-solving project, there were minimal efforts being made to address this problem. Officers tended to avoid the area during peak traffic times because of the congestion. Occasionally, residents made reports to the Traffic Engineering Department to have the light cycle changed to allow more time to disperse traffic from P Avenue. However, the cycle was always changed back to give Parker Road more time, since it was the major thoroughfare. Parents repeatedly complained to school staff, but these complaints were not reported to traffic engineering or to police. None of these efforts had any perceptible effect on the problem. Residents, parents and Barron

staff believed the city was not responsive to their complaints.

Officer Nors attended meetings with the PTA, Barron staff, and the Traffic Engineering Department to discuss this problem. Until this time, it was not evident the extent of these problems and how each problem impacted others and compounded the overall congestion. Initially, the complaints came to Officer Nors primarily through her voice mail, at meetings, or contacts on the street. The complaints were intermittent and ranged from people running red lights, parking illegally, speeding in the school zone and crossing the street haphazardly. She coordinated with Barron staff and the PTA to send home flyers requesting voluntary compliance. Officer Nors randomly monitored the area and took enforcement action for violations. However, she normally did not work during the affected times so enforcement was sporadic. In mid-2000, traffic complaints became more widespread and Officer Nors spent additional time enforcing violations. When Officer Nors was not in the area, the violations recurred. Congestion was still a huge problem and the complaints continued. Officer Nors recognized the need for environmental changes to make substantial reductions in congestion.

RESPONSE

In late 2000, Officer Nors began working with Traffic Engineering to make changes to improve the flow of traffic. These included installing traffic control devices to re-route traffic and making additional parking restrictions to improve visibility on the narrow streets. Officer Nors suggested:

- Posting signs directing traffic exiting the carpool lane to turn right during posted times,
- Painting the curbs of prohibited parking areas yellow;
- Creating four marked crosswalks for pedestrian traffic; and
- Synchronizing the school zone lights with school dismissal times.

Officer Nors altered her work schedule to be able to address these changes at least three times each week for several months. She made maps of alternative routes out of the neighborhood, since the neighborhood is an enclosed area and not easily navigated. She also made flyers for the motorists to explain these changes and educate them about existing laws, spending two days handing them out and talking to hundreds of motorists. This helped alleviate congestion because some parents did voluntarily use the alternate routes suggested, and it gave motorists other options of egress. She then began enforcing the laws.

In the beginning, heavy enforcement was necessary since many motorists refused to obey the signs. Despite Officer Nors' efforts to education motorists about these changes, motorists did not perceive much risk in committing violations. Even when Officer Nors was visibly issuing citations, motorists would blatantly violate the law, believing that she was too busy and they would still escape notice or enforcement. Officer Nors began stopping every violation she observed and issuing citations. Often, this meant stopping six, seven or more cars at a time and issuing citations to them all. This caused motorists to reconsider the value of breaking the law to save a few minutes in traffic. When residents saw this type of enforcement,

many began moving their vehicles to their driveways to create more room for enforcement. Prior to this, residents often had to park on the street to keep other motorists from blocking their driveways (which caused them to be late for work) and mailboxes (which prevented them from receiving their mail).

Officer Nors also removed motorists' excuses for these violations by:

- Replacing PISD signs with city-installed ones, which are enforceable by police,
- Correcting times of enforcement on PISD signs that conflicted with official signs, and
- Contacting the Property Standards Unit to have the trees trimmed so that these signs were not obstructed by overhanging limbs.

Officer Nors recognized that a variety of factors contributed to this problem and there were many obstacles to overcome in reducing the congestion. Addressing these issues separately was insufficient to address the underlying causes of congestion. There was no practical alternative route out of the carpool lane without inundating the neighborhood with traffic. There was no real plan for managing the flow of traffic and motorists were unable or unwilling to follow the suggested alternative routes.

One of the most obvious solutions to this problem was extending Sherwood Drive, a road that ran parallel to P Avenue east of Barron and ended at Abbey Road, (the road just north of the school), to Parker Road. This would give the parents another way out of the neighborhood, reducing blockage of vehicles at the

main intersection. Officer Nors knew of two separate entities that were potential resources for accomplishing this goal: The Village Creek citizen's association and the City of Plano's Park Planning Department.

During this time, Officer Nors was also working with a dedicated group of residents as a neighborhood planning team. She had been working with these residents for crime watch and neighborhood revitalization since 1997. This team had been sought out by Neighborhood Services in 1999 to form a partnership with the city to address numerous neighborhood issues. A neighborhood planner facilitated this project from 1999-2001, but the residents later formalized their group, Village Creek, and continued to make improvements in their community on their own. As the planning team, Village Creek completed a comprehensive study of their neighborhood and selected the most prominent aspects needing improvement. An integral aspect of this plan was that the city was responsible for some of these improvements and the neighborhood was responsible for others. The partnership ensured mutual cooperation and responsibility for improvements. Village Creek compiled a matrix of overall objectives to be achieved, associated costs, and assigned responsibility for each. Congestion around Barron was listed in their matrix as a significant problem needing to be addressed.

Separately, in December 2000, the city was trying to obtain approval from residents to extend Sherwood Drive to Parker Road for a completely different reason. In 1997, a task force completed

a comprehensive study of the revitalization needs of eastern Plano entitled the "Ten Big Ideas for Eastern Plano". The city was working towards implementing suggestions proposed in that plan. One phase included a recommendation making Shawnee Park, currently a hidden and little-used neighborhood park, an integral part of the pilot program for revitalizing eastern Plano. They proposed to make Shawnee Park accessible from Parker Road and make numerous improvements to Shawnee Park. These included increasing lighting, creating dual playgrounds for toddlers and youth, building a basketball court, increasing the parking area, expanding and installing a fountain in the pond, and installing extensive landscaping at the entryway identifying this park. In December 2001, Park Planning presented these plans to the residents and asked for approval to extend Sherwood Drive to Parker Road. The residents were very excited about the prospect of these developments, as they had requested many of these improvements on their matrix. However, they were very much opposed to the extension of Sherwood Drive, fearing it would bring a great deal of unwanted traffic into their neighborhood and would become an alternate route for commuter traffic. Plans for extending Sherwood Drive were rejected due to concerns and complaints from these residents, many of whom were members of the Village Creek planning team. The pilot program with its revitalization for Shawnee Park hinged on having access to Shawnee Park from Parker Road. The residents and city were each committed to their own agendas and plans for expansion stalled for months.

After numerous community meetings on this topic, a member of the planning team broached the idea of a compromise allowing the city to build a park road into a newly designed parking lot at Shawnee Park with a “Y” intersection at Sherwood Drive and Abbey Road. (See Figure 2) This would allow traffic eastbound on Abbey Road to turn onto the park road to quickly access Parker Road, but would discourage motorists on Parker Road from using the neighborhood as a shortcut. This simple concession satisfied the interests of all parties and appeared to be the ultimate solution for everyone’s objectives. The park road was completed in July 2003.

During the summer of 2003, PISD and Traffic Engineering created a new traffic plan, redesigning the carpool lane by closing off the entrance on P Avenue and moving it to Parker Road east of P Avenue. They created a new carpool lane in the rear of the school so traffic could be dispersed from the major

intersection (see Figure 6). Traffic Transportation restricted parking on P Avenue to encourage traffic to utilize the carpool lanes. Many more motorists then began parking on Abbey Road. This created substantial blockage of traffic and made the new road useless because motorists could not access the park road from the school. Officer Nors requested parking restrictions be placed on Abbey Road so that school motorists could wait along the curb, allowing other commuter traffic to pass. After months of requests, Abbey Road was zoned “No Parking.” This was critical in making the entire plan operational. Motorists were finally able to make full use of all the previous traffic management devices and they made sense. Officer Nors created another flyer and map detailing the traffic and parking regulations, Barron staff translated this into Spanish and distributed copies to all parents. Officer Nors increased her enforcement and conditioned traffic to follow the plan.

Table 2: Crash Comparisons, 2001-2004

| <u>Traffic Crashes Comparison</u> | <u>Barron</u> | <u>Meadows</u> | <u>Mendenhall</u> | <u>Memorial</u> |
|-----------------------------------|---------------|----------------|-------------------|-----------------|
| 2001-2002 School-year | 10 | 1 | 1 | 0 |
| 2002-2003 School-year | 9 | 3 | 2 | 1 |
| 2003-2004 School-year | 1 | 0 | 0 | 1 |

ASSESSMENT

Officer Nors and her supervisor, Sgt. Stan Roady, evaluated this project in April 2004. The completed traffic management plan had a tremendous impact on traffic congestion and crashes in the area surrounding Barron. Officer Nors checked calls for crashes and found that during the times complaints were at their peak (the 2001-2002 and 2002-2003 school-years), several more crashes were reported in the Barron area. Each of these crashes was the result of motorists refusing to abide by traffic laws while attempting to shortcut the traffic plan. This was a recurrent problem during the implementation of

these changes because prior to the 2003-2004 school year, when the traffic management plan was completed, only one crash was reported in this area, and none occurred on PISD property (see Figure 4). This was an enormous improvement over previous years and in comparison with other Plano school areas (see Figure 5). Considering 640 students attend Barron, with most of them being driven to school, blockage of these streets has been virtually eliminated. The same numbers of vehicles still travel this area; however, traffic now flows at a reasonable rate. This has reduced frustrations and citizen complaints of violations, and greatly increased satisfaction of motorists and residents. In addition to increasing traffic safety and reducing congestion, a central objective Officer Nors strived to achieve was to be responsive to the needs of the community. In 2001, Officer Nors conducted a survey of 127 people when the first series of traffic control devices were installed. Many had not observed any effect on congestion or safety (see Figure 9). She conducted another survey in April 2004, after the entire plan was implemented, and she found a significant majority of those surveyed had favorable comments on these changes and did believe traffic congestion and safety had been improved. Further, a majority believed the city, PISD, and residents were doing everything they could do to make improvements. (See attachment #1-4)

The response could have been more effective if there had been a better reporting system in place to signal an alert when the number of crashes reached a level disproportionate to similar schools. A new records system is in place now within the Plano PD and

this should help officers evaluate problems more easily in the future. The surveys Officer Nors administered provide suggestions regarding additional measures that should be explored to further facilitate traffic flow. These suggestions include:

- Extending the boundaries of the school zone on Parker Road, and
- Installing a sign on Parker Road warning westbound traffic that the right lane will be blocked during peak traffic times.

During this entire project, Officer Nors monitored the effects that new traffic devices were having on other streets in

the area. She noticed only a little displacement of traffic, and in most cases that displacement was a desired outcome in order to more equally distribute traffic and reduce congestion around Barron. Displacement often occurred when Officer Nors or the Barron principal called Traffic Engineering to request them to lengthen the traffic signal for P Avenue to Parker Road to allow traffic on P Avenue to disperse. This change would be made only to revert back to the original timing within a week because commuters on Parker Road complained that the cycles should be preferential to Parker Road. Officer Nors discussed this with the systems operator, explaining the effect it was having on congestion around Barron ECS. She created a detailed schedule of peak congestion times at Barron and the operator was able to program longer cycles for P Avenue during these times. During all other times, Parker Road had a much longer cycle. This had minimal impact on Parker Road so commuters

did not pressure Traffic Engineering to constantly change these cycles. As with any dynamic situation, Officer Nors will need to continue to monitor this area for traffic safety issues. However, observation of this area reveals there is an established viable traffic pattern, violations are fewer, their impact is minimal, and enforcement is not as critical. The majority of motorists voluntarily comply with the posted regulations because their perceived risk of apprehension is great and their perceived rewards are diminished. Barron ECS staff will continue to provide the maps and flyers to all parents upon registration so motorists know what is expected of them. Even though the goal of reducing traffic congestion and improving traffic safety

in one small area seems easily attained, Officer Nors learned that it often requires a lengthy and cumbersome process involving many entities. She was successfully able to use existing partnerships and knowledge of a broader objective to assist in her project. This enabled her to help support a process that achieved several major objectives for her neighborhood.

FOR MORE INFORMATION

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Figure 1: Map of Barron Elementary School Vicinity

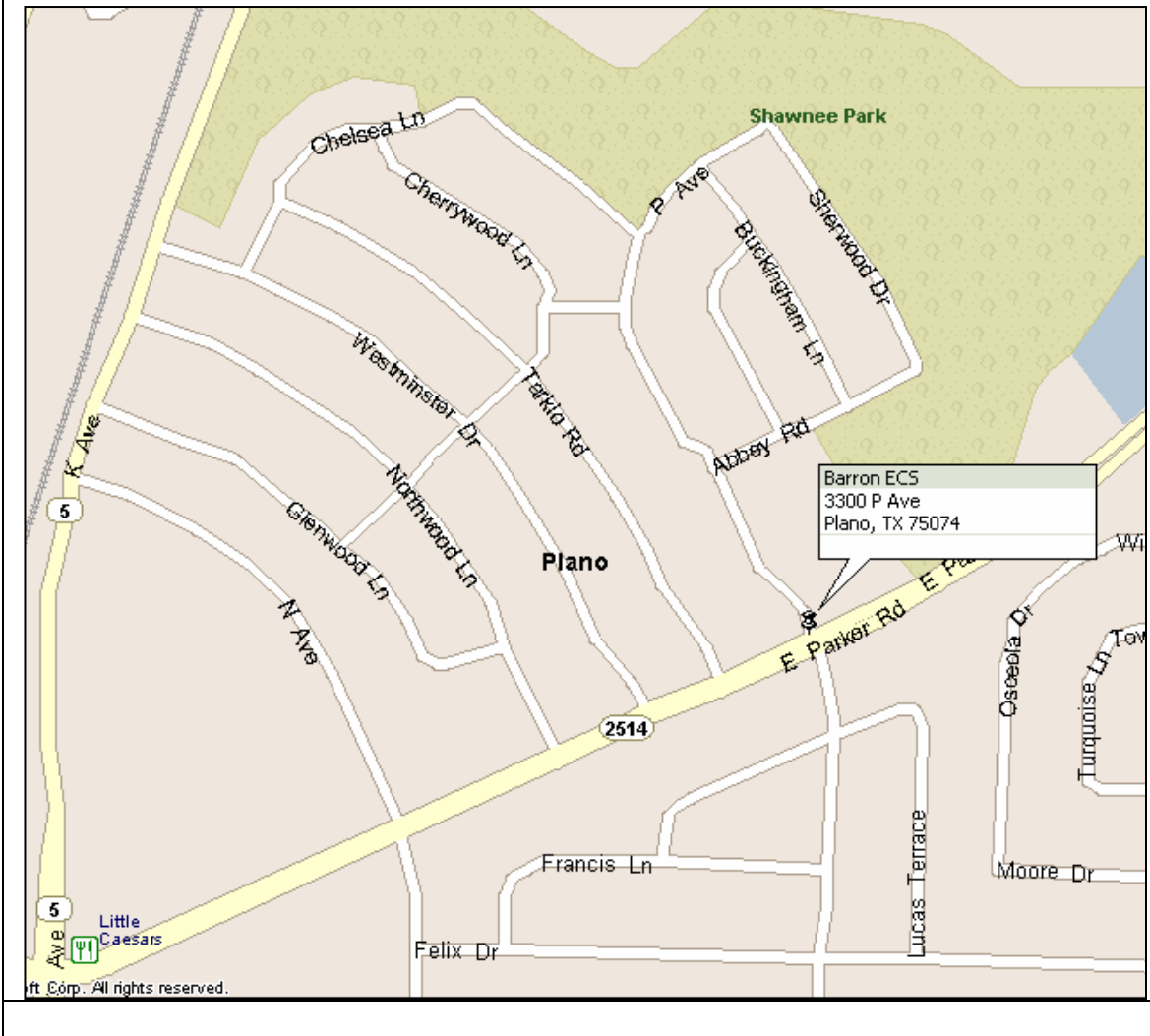


Figure 2: Close-up Map of Barron Vicinity



Figure 3: Map Illustrating Proposed Y Intersection at Sherwood and Abbey

Master Plan Concept Drawing of Shawnee Park Improvements



Figure 4: Map Illustrating New Carpool Configuration

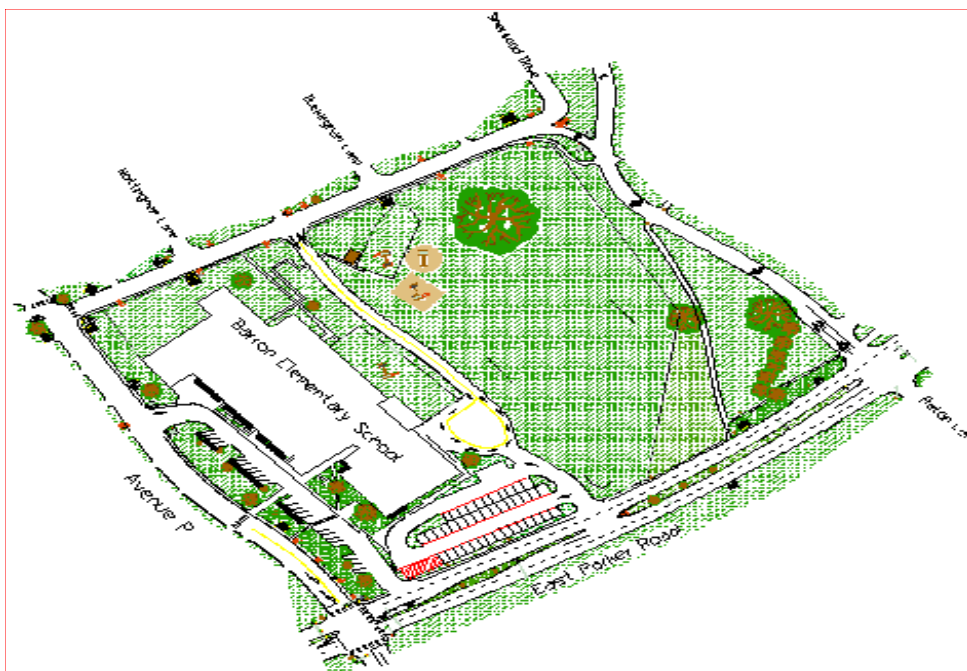


Figure 5: Crashes Around Barron, 2001-2004

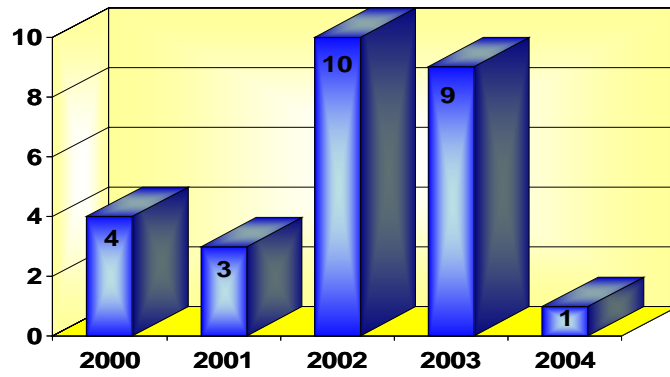


Figure 6: Excerpt of Citizen Survey on Traffic around Barron



SURVEY

This survey is attempting to analyze whether the measures taken to improve traffic congestion around Barron Elementary School have made a positive impact or not. Additional changes are in progress, however, we need to know if we are making positive changes for the school and the community.

Name (optional): _____ Address: _____

Please mark the below items as positive effect(P), negative effect(N) or no effect(N/A).

- | | | | |
|--|-----|----|-----|
| ➤ Adding left turn arrows for P Avenue onto E. Parker Road? | P | N | N/A |
| ➤ Adding sign directing traffic exiting parking lot to turn right in mornings? | P | N | N/A |
| ➤ Adding the marked crosswalk at Abbey Road and P Avenue? | P | N | N/A |
| ➤ Painting the curbs at the parking lot exit "No Parking" to improve visibility? | P | N | N/A |
| As a result of these changes, do you feel your child's safety has been improved? | Yes | No | |
| As a result of these changes, has the time you spend in traffic has improved? | Yes | No | |
| Are you a parent of a student at Barron Elementary School? | Yes | No | |
| Are you a resident of the neighborhood surrounding Barron Elementary School? | Yes | No | |