

# West Palm Beach Traffic Calming

## *The Second Generation*

TIMOTHY STILLINGS

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### ABSTRACT

The Transportation Division of West Palm Beach city, Florida, is implementing innovative practices based on traffic calming, New Urbanism, and associated principles. In North America, the city's program can be considered "second generation traffic calming," prioritizing economic development, revitalization, aesthetics, pedestrian comfort and safety, and driver behavior modification, resulting in intense redevelopment activity. Other programs of the city, ranging from home ownership to facade enhancements, complement the program. This comprehensive, coordinated approach to city building has helped stabilize and revive the downtown and several "challenged" neighborhoods, while stimulating significant private investment. Traffic calming has become a normal component of these efforts.

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### INTRODUCTION

The City of West Palm Beach's Transportation Division, within the Planning, Zoning and Building Department, is implementing innovative transportation practices based on traffic calming, New Urbanism, and their associated principles. The Traffic Calming Program focuses on the pre-suburb areas of the city, with an interconnected street grid, but similar principles are used throughout the corporate limits for all aspects of transportation planning and land use planning. In the North American context, the Program can be considered "second generation traffic calming." Its focus is on economic development, revitalization, aesthetics, and pedestrian comfort and safety. However, it also addresses conventional driver behavior issues such as reducing speeding, collisions, and cut-through motor vehicle traffic. As a result of the program and related initiatives, the city is redeveloping with an intensity and energy that regularly breaks records for building permit activity in the area.

There are many positive transportation and land use changes happening in West Palm Beach, occurring in conjunction with complementary programs involving everything from home ownership to facade enhancements. This comprehensive and coordinated approach to city building has helped stabilize and revive the downtown and several of the city's "challenged" neighborhoods, while stimulating significant private

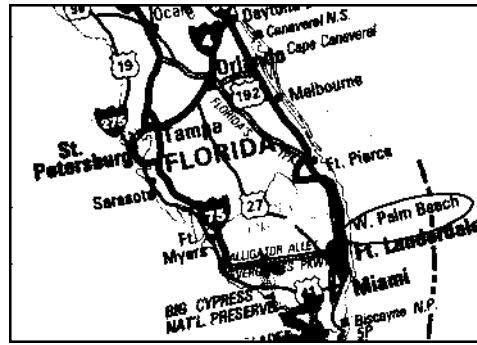


FIGURE 1

investment. Traffic calming has become a normal component of these efforts; in West Palm Beach, traffic calming is becoming the rule rather than the exception.

The City of West Palm Beach (population 80,000) is the center of Palm Beach County (population 1,004,000) on the East Coast of Florida (see Figure 1). West Palm Beach is approximately 65 miles north of Miami, in the Southeast Florida region. The city is 56 square miles in area, with the western 50 percent designated as a wetland conservation area. The city has approximately 10 miles of waterfront (Intracoastal Waterway) on its eastern boundary. The downtown and older parts of the city extend inland approximately one mile from the waterfront. The city is the County seat of government and many regional services, recreational and cultural activities, 25 percent of the County's jobs and consequently, a concentrated share of the region's motor vehicle traffic.

The last several decades of transportation planning have contributed to a slow decay of portions of the city. Part of the deterioration was due to the fact that the streets were planned and incrementally transformed to cater strictly to the mobility/level of service of motor vehicle users, most of which had moved out of the urban areas to the suburbs. Businesses, residents, pedestrians, and the city's urban environment suffered as a result. City streets in the urban area were perceived as dangerous, dirty, and hostile environments suitable only for drug dealers and prostitutes. Visitors and downtown workers sought the safety of their cars and residents cocooned themselves in their homes, further eroding the sense of community and the street environment.

West Palm Beach has an incorrect reputation of being a wealthy city. The truth is that 48 percent of its population is low/moderate income and it has many "challenged" neighborhoods and business districts. The city's challenges on the streets went well beyond the speeding, collisions, and cut-through traffic, and consequently its approach to traffic calming had to go beyond these issues as well. The focus of this paper is to briefly explain the history of traffic calming, discuss how the "first generation of traffic calming" (from a North American perspective) was used in West Palm Beach, and then outline how and why the city developed a new model for traffic calming that could be called "second generation traffic calming."

## HISTORY OF TRAFFIC CALMING (I)

To fully understand traffic calming, one should understand its history. The idea of traffic calming is certainly not new. It began in the 1920s in Europe, at about the same time the

automobile was becoming popular. In 1928, the British Parliament published the “Road Vehicle Regulation Bill,” suggesting that speed humps and other measures be used to slow drivers. In 1938, Alker Tripp, a former Assistant Commissioner at Scotland Yard, wrote his book, *Road Traffic and Its Control*, which discussed the reduction of motor vehicle speeds to reduce collision casualties—giving pedestrians priority while maintaining vehicular access—all through modifications to the street. In 1963, Colin Buchanan wrote *Traffic in Towns*, in which he cautioned communities about the impact of the growth of motor vehicle traffic in urban areas and offered recommendations to avoid it. Buchanan had the idea that, in urban areas, there “must be areas of good environment—urban rooms—where people can live, work, shop, look about, and move around on foot in reasonable freedom from the hazards of motor traffic. . . .”

In the late 1960s in the city of Delft, The Netherlands, motor vehicle dominance led to a revolt against the automobile by angry residents. Completely fed up with the negative impacts of cars on their street and the lack of a remedy by the city, a group of residents tore up the brick pavement one night so that cars had to maneuver in a serpentine pattern at much slower speeds. The initiative did not close or even partially close the street, but forced drivers to behave differently, i.e., slower. Necessity is the mother of invention and consequently the *woonerf*, “living yard,” was invented. Later in 1972, the first officially sanctioned woonerf was built in Delft. This is commonly considered to be the birth of modern traffic calming.

In 1976, the Dutch Parliament passed legislation permitting the installation of woonerven and by 1983, more than 2,700 had been constructed. Surveys indicated that the majority of the population considered the woonerven attractive. They also reduced the number of injury-related collisions by 50 percent. The lower speeds also contributed to a decline in the severity of the crash-related injuries.

The woonerf concept was later replicated in Germany and termed *Verkehrsberuhigung*, or “traffic tranquilization,” later called *traffic calming* in English. Traffic calming in Germany became a widely accepted and successful transportation practice. The Germans then developed 30 kilometers/hour (19 mph) streets, which greatly reduced the cost of traffic calming when compared to the relatively expensive woonerven while achieving benefits at about the same level.

Traffic calming rapidly spread through Europe, Australia, New Zealand, Japan, and most of the developed world. It has also been used in the United States and Canada. It was originally initiated through the efforts of community associations in the northwest United States, but is now a transportation practice used by a rapidly growing number of cities and towns throughout the country. The first generation of traffic calming programs was developed by Portland, Oregon, and Seattle, Washington, and later became the model for many cities, including the initial policy for West Palm Beach.

## **WEST PALM BEACH’S TRAFFIC CALMING PROGRAM**

In the United States, when one hears the phrase “traffic calming,” there are typically three intended objectives, including:

1. Reducing motor vehicle speeds;
2. Reducing collisions; and

3. Reducing motor vehicle volumes cutting through sensitive areas such as neighborhoods.

This was also the case for West Palm Beach when traffic calming was first introduced in the city in 1992. However, in an effort to revitalize the main street, Clematis Street, the city leaders set out to enhance the pedestrian environment through wider sidewalks, landscaping and street furniture, and to return the street to two-way operation with protected parking and mid-block narrowings. At the eastern end of Clematis Street where it terminates at the city's library, a raised intersection was constructed. The new intersection was designed to blend into and complement the public library's new plaza area with its interactive fountain, where children play and families picnic.

At the time, the city was unaware that it was using traffic calming on a main street in the downtown and implemented it as part of its streetscaping efforts. Later in 1994, an official policy was adopted for traffic calming, but it was limited to residential streets.

### **The City's First Traffic Calming Policy**

The city's 1994 traffic calming policy was crafted in a fashion that was very similar to that of many programs throughout the United States. The Neighborhood Traffic Calming Program (2) was adopted to address speeding, collisions, and cut-through traffic in residential areas. It was modeled after programs from the northwest United States.

#### *1994 Policy Description*

The policy set up an elaborate planning, testing, evaluation, and installation process which, if each step were successful, would result in the installation of a permanent traffic calming measure. Each measure required a separate process. The process began with the neighborhood defining a petition area within 400 feet of the center of the intersection or location in which the proposed measure was to be located. Once the petition was defined, a minimum of 60 percent written support from residents within the area was required to compete for funding. Petitions were only accepted once a year, in March. However, this did not guarantee funding within the following fiscal year.

The next step was the evaluation by the city's Engineering Department based upon a point system that analyzed collision history, motor vehicle traffic volumes, and speeds. The point system was used to rank the priority for construction for the newly submitted set of petition areas and any unfunded petition areas from previous years.

Once a petition area was qualified for traffic calming, a trial was initiated, involving the placement of a temporary traffic calming measure for a period of approximately 180 days. Once the trial period was completed and no unreasonable impacts (to motor vehicles) were witnessed, the Engineering Department would recommend permanent installation. This was contingent upon no more than 40 percent of the residents within the petition area objecting to the measure.

### *Cumbersome Policy*

This model for traffic calming was suitable for the northwest United States, but it was not suitable for West Palm Beach for various reasons. The policy was extremely restrictive and time-consuming for city staff and the residents. At the time it was adopted, the city was in financial trouble; much of the tax base had been eroded and financial reserves were low. Spending was cut along with personnel. With limited staff and resources, this policy was difficult for the city to follow. In addition, the process required resident petitions, analysis, public hearings, trial periods, and permanent installation for every measure. Furthermore, each measure was required to go through the same procedure. The policy did not allow traffic calming plans for entire districts, corridors, or neighborhoods. The arbitrary petition area (400 feet) also allowed other residents not directly affected by the measure to object, sometimes making it even more difficult to achieve the 60 percent threshold of support.

### *Inequitable Policy*

Experience showed that the procedure could only be successfully completed by established community organizations. This excluded many challenged areas of the city where the communities were completely unorganized and where traffic calming was needed most, due to the incremental effects of motor vehicle traffic that contributed to their decline. At the time of the policy's adoption, this was a large portion of the city. In other words, the policy was inequitable because it favored the organized, more affluent neighborhoods over the remainder of neighborhoods in the city.

### *Limited Scope of the Policy*

A major weakness in the 1994 policy was that all of the analysis and evaluation was only from the perspective of the motor vehicle user and not that of those in the affected area, i.e., the residents or other street users. It ignored the unique characteristics of the area and the presence of large pedestrian-oriented land uses (particularly involving children), i.e., routes to school, proximity to parks, community centers, building setbacks, historic districts, etc. (With the new policy, all of these issues influence decisions for the design of the areawide plan and the priority for implementation.)

The old policy was limited to residential streets. Its goal was to improve the residential areas, yet the criteria did not include street crime activity, housing turnover, rental conversions, and other factors affecting neighborhood cohesion, despite the fact that the residents were very concerned for the safety of their neighborhood in terms other than vehicle-related collisions. Furthermore, by limiting the policy to residential streets, the policy discouraged any traffic calming on collector streets and arterials. It also discouraged it in commercial areas and in the downtown. Consequently, the limited scope of the policy did not take full advantage of the potential benefits of traffic calming on these other types of streets and in non-residential areas.

### *Lack of Education Requirements*

The policy also did not include any requirements for public education. Traffic calming is slowly becoming a commonly known practice, yet even though it has been in North

America for close to 20 years, its understanding by most individuals is low. In 1994, the level of understanding of traffic calming was almost nil in West Palm Beach. As a result, the selection and placement of traffic calming measures by the citizens who were preparing the petitions for the measures was poor. Considering the program was geared around minitraffic circles, the solution to every problem was a minitraffic circle, which was naive.

There was also an absence of community participation and, subsequently, a lack of consensus building. A neighborhood's involvement was limited to the collection of petition signatures, the public hearing(s), and the approval of the plan. The public hearing was the typical process of presenting the issues, then the plan, and then recording residents' comments.

### *Temporary Measures*

Another flaw was the mandatory use of temporary traffic calming test periods. The temporary traffic calming measures added costs to the program. So in order to save money they were built cheaply, and therefore looked "temporary." This contributed nothing aesthetically to the neighborhood or the street. Residents often made objections simply because of the temporary measure's "ugliness." Due to the lack of education about traffic calming, residents were unfamiliar with the appearance of a permanent measure. In addition, the temporary measures that required installation, study, and removal added costs to the project, reducing the amount of money and staff time available for permanent installation of measures. Again, this was at a time when the city was not financially stable and could not afford to be inefficient with resources. Typically, the reason temporary measures are used is doubt about acceptance and/or performance. Depending on how many measures fail, the idea is that using temporary ones could save money. With the exception of one poorly planned and unique roundabout on an arterial road, no permanent traffic calming measure has ever been removed in West Palm Beach. Consequently, the cost-effectiveness of using temporary measures is absent and their mandatory use for every implementation was dropped.

### *Adherence to the Policy*

The previous discussion of the city's 1994 traffic calming policy was based on the assumption that the policy resulted in a measure being installed. However, only one traffic calming measure was constructed that followed the complete procedure of the policy, because to do so took too long and was too cumbersome. The rest of the measures were built by skipping steps and doing just the permanent installation. Clearly, a new policy was required to meet the needs of the city.

### **The "Improved" Traffic Calming Policy (3)**

In September 1996, the City of West Palm Beach created the position of City Transportation Planner, whose incumbent was responsible for planning and guiding the city's traffic calming projects. From 1996 to 1998, several traffic calming projects were planned and constructed, using a different, more holistic, and more flexible approach.

Later in 1998, the old policy was replaced with one that reflected this new approach. Also, by 1998 the city's Transportation Division had doubled in size to include another staff person.

By 1998, the city had constructed at least six areawide traffic calming projects in various parts of the city, including neighborhoods, districts, and downtown. By then, the city's own experience with traffic calming, as well as what was learned from national and international experiences, provided increased local understanding and acceptance of traffic calming. The city's use of traffic calming and the Traffic Calming Program was now considered an accepted and desirable practice by the residents, business people, and politicians, rather than an exception to the rule. The projects consistently produced external benefits such as attracting private investment, increasing property values, and increasing community pride. This further increased the program's acceptance. The Traffic Calming Program's success and community support allowed the policy to evolve beyond the conventional "first generation" approach to what would be considered "second generation" traffic calming in a North American context.

The new policy established a definition of traffic calming, categories of traffic calming, and the goals and objectives of the program. The policy also instituted a number of principles that would guide all future traffic calming projects. These principles are also applied to all related transportation planning in the city.

The process was purposely left flexible, dependent on the circumstances of the area, i.e., size, local issues, land-use types, neighborhood/business association presence, etc. The resolution adopting the policy was short and to the point and simply states, "Traffic calming projects shall be planned and developed by the Transportation Division, employing the process that is in the best interest of the city. This process shall include a combination of workshops, meetings, and other opportunities for public input. . . ."

The policy was kept nonprescriptive, so that staff had the flexibility to use a variety of approaches to solve problems. The policy demonstrates a public trust in the professionalism of the staff to do what is in the city's best interest, instead of prescribing a process to which staff must adhere. This also allows staff to be creative and try new ideas, with confidence and city support, at a level that would be impossible to achieve through a prescriptive policy. The 1994 policy and others like it could never anticipate the myriad of unique circumstances in which traffic calming is being applied in the city today.

The new policy also does not limit traffic calming to residential areas or to a limited set of street types. The city has used traffic calming on local streets, collector streets, and arterials, including two commercial corridors (the downtown main street, Clematis Street, and the main street in the city's northern town center), and one section of the current truck route through a challenged neighborhood. The city is also in the process of planning for two major north-south streets that traverse commercial and residential districts for the entire length of the city (approximately 10 miles) and are part of U.S. Highway 1.

Another difference in the 1998 policy is that not only would traffic calming occur at the request of the residents and property owners, but it would also be done when the streets are torn up for utility projects, as part of the utility project. The traffic calming policy states that streets cannot be reconstructed with their current configuration unless specifically recommended in writing by the city Transportation Planner. The direction is that they have to be traffic calmed in accordance with a plan initially developed by the

Transportation Division and then accepted by the public and the city Commission. In other words, traffic calming is the rule, not the exception.

As compared to the “if warranted” approach outlined in the 1994 policy, traffic calming is now considered normal practice. It is not an alternative to conventional street engineering. Therefore, there is no specific requirement for analysis of the street or area to determine whether traffic calming is warranted. That is a given. Keeping streets in their conventional layout needs to be specifically warranted now. There are also no mandatory test periods using temporary measures to determine if the measures will produce their intended results. Once a traffic calming plan receives a consensus from the affected area, not a predetermined petition area, the traffic calming measures are installed permanently. Once an area is adequately traffic calmed, evaluations of the measure’s performance may be conducted to determine whether the intended results are satisfactory to the stakeholders (e.g., residents, business people, etc.)—for example, whether more measures are required and whether the placed measures are providing the intended results or need modifications.

### **“NECESSITY IS THE MOTHER OF INVENTION”**

Severe problems call for, and require, innovative solutions. The situation in West Palm Beach was primed for an evolution of North American traffic calming. The city was broke and its physical environment was dilapidated. It had to be innovative. The challenges that existed in West Palm Beach in the early 1990s are not present to the same extent in the majority of communities throughout North America that are utilizing traffic calming. West Palm Beach had much larger issues that required immediate attention beyond simply reducing speeding, collisions, and cut-through motor vehicle traffic. At the heart of many of its challenges were the negative effects of those vehicles in the city and the past treatment of the street environment. Throughout the city, streets make up the majority of the public realm, so the poor street environment was a serious issue for individuals and the city as a whole. Consequently, the Traffic Calming Program sets out to not only alter driver behavior, but affect the perceptions and attitudes of residents, business people, and visitors. The evolution of traffic calming combined with the use of New Urbanist principles, and the host of other initiatives, allowed the city to begin its metamorphosis into a “masterpiece city.” The theme of the Mayor’s 1999 *State of the City Address* was “Pardon our Dust, We are Building a Masterpiece.” None of this would have been possible without innovation and the confidence to use it.

### **The Context for Innovation**

Despite the proximity to the wealthy island of Palm Beach, 48 percent of the city’s population is low to moderate income. The population in this income range is generally located in the presuburb, older areas of the city. Their neighborhoods, districts, and corridors are located to the north and south of the city’s downtown and therefore are inundated with motor vehicle traffic.

The city’s downtown is home to approximately 25 percent of the County’s employment base including the County courts, government services, and associated businesses and services. The majority of those employed in the downtown live outside of





**FIGURE 2**

it, typically not within the areas most affected by motor vehicle traffic generated by the downtown. In addition, the downtown had become so office oriented by the early 1990s that there was little to no activity after 5:00 p.m. and on weekends. Downtown housing was limited to a few isolated, private, high rise condominiums on the waterfront, which seemed just as separate from the downtown as the suburbs. The streets were constructed to look and operate more like “escape routes,” than downtown streets (see Figure 2).

This led to a number of daunting challenges, many of which the city attributed to the environment of the street, the largest component of the public realm. The “escape routes” were left to the criminals and other illegal activities at night. Subsequently, the crime rate was high, particularly prostitution and drug-related crimes. The downtown had the perception of being dangerous after the sun went down and it was not very pleasant during the day either. Downtown commercial rents were as low as \$6 per square foot, with a vacancy rate of more than 80 percent. Downtown office buildings were offering up to six months free rent in an attempt to attract occupants.

All of these conditions—low property values, high crime rates, and the perception of danger—were not contained within the boundaries of the downtown. The same effects were felt in the neighborhoods, corridors, and districts to the north and south. However, the worst case was the downtown, so much so that a portion of a downtown neighborhood was highlighted in the late 1980s in a Home Box Office (HBO) documentary entitled, “CrackAmerica.”

Obviously, the problems in the early 1990s were severe. The city knew that in order to heal the downtown and surrounding urban environments, it needed to enhance its last bastion of the public realm, the street. Traffic calming was especially well suited for this task and the benefits from traffic calming projects occurred quickly because the streets were transformed in only a period of weeks (i.e., the length of the construction period). However, the city also knew that traffic calming that only affected driver behavior was not enough, nor could traffic calming be done in isolation, without complementary programs. West Palm Beach needed traffic calming to affect driver behavior, improve the street environment for nonmotorized users, and enhance the aesthetics of the street.

### **The Success Stories**

After the city’s first attempt at traffic calming on the downtown main street, Clematis Street, it was evident that the changes provided external benefits beyond the conventional.

### *Clematis Street: Then and Now*

Clematis Street is the heart of the city's downtown. The street is approximately 4,500 feet long, anchored by a public plaza and library at the edge of the waterfront on the east. At the west terminus is the historic train station, where in the early part of the century Palm Beach visitors would arrive by train, catch a carriage to the ferry station at the east end of Clematis Street and continue over to Palm Beach. Clematis Street became a thriving main street, but decades of highway-type street construction, suburban sprawl, the saturation of office development, and the new regional shopping mall outside of the downtown took their toll.

In 1993, Clematis Street was a one-way street with two parking lanes and three travel lanes, as shown in Figure 3a. The building space along the street was approximately 80 percent vacant. Property values ranged between \$10 and \$40 per square foot and rent for commercial space was \$6 per square foot.

In 1992, the city initiated a traffic calming plan, disguised as a streetscaping plan, along Clematis Street from the library west approximately half way to the train station. The street was returned to two-way operation (see Figure 3b). Traffic calming measures were provided along the street that included narrowings, a raised intersection, and lateral shifts. Turn lanes were removed, as were traffic signals.

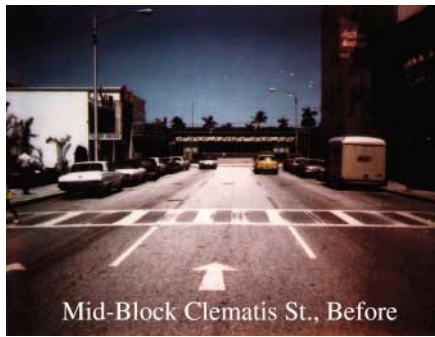
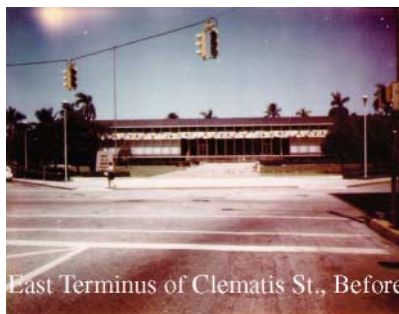
The plaza at the east end of the street, in front of the library (Figure 3c) and was reconstructed with an interactive fountain and pedestrian amenities and electrically wired for special events. Great attention was given to urban design and the public spaces. The city also provided the library with a facelift to coincide with the street changes. The total investment was approximately \$10,000,000.

Clematis Street regained its position as the heart of the downtown providing the life's blood to the rest of the city. The street is perceived as safe; even families with small children stroll around in comfort and children play in the fountain without undue concern (see Figure 3d). The city even hosts a weekly street party at the plaza that attracts 3,000 to 5,000 people to the downtown every Thursday night. The block party is simply called, "Clematis by Night."

Property values along the street have more than doubled and in some cases are more than \$100 a square foot. The commercial space is more than 80 percent occupied, with rents in excess of \$30 per square foot. The street has also been able to attract major national retailers, such as The Gap and Banana Republic. The street has an exciting array of restaurants, bars, and clubs that provide a unique nightlife that was not present a few years ago. Private investment in the properties along Clematis Street has exceeded more than \$300 million and continues to grow daily.

### *Old Northwood and Northboro Park Neighborhoods (4)*

The first areawide residential traffic calming project occurred in two adjacent neighborhoods in the northern end of the city. The neighborhoods were greatly affected by commuter traffic from the north heading to downtown along U.S. Highway 1. Commuters would consistently cut through the neighborhood to decrease their travel time. Over time, the neighborhoods deteriorated and became a haven for drug dealers and prostitution. A spokesperson for the real estate firm that sells the most homes in the

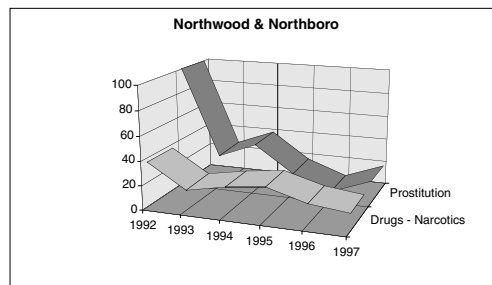
**FIGURE 3(a)****FIGURE 3(b)****FIGURE 3(c)****FIGURE 3(d)**

neighborhood stated that often when he mentioned properties in the area to potential home buyers, they would simply hang up on him.

This is not the case today. The same realtor now has waiting lists for potential buyers in the neighborhood, many of which are young families. The traffic calming has had a tremendous effect. One major effect was a reduction in crimes related to the poor street environments (e.g., prostitution and drugs). For example, within the Old Northwood and Northboro neighborhoods, the number of arrests for prostitution dropped from 100 arrests in 1992 to less than 20 in 1997, a decrease of approximately 80 percent. In the same area, the incidents involving drugs and narcotics dropped from approximately 38 incidents in 1992 to less than 15 incidents in 1997, a decrease of approximately 60 percent (see Figure 4).

These areas have witnessed a decrease in street crime due to increased neighborhood and civic pride and increased natural surveillance as a result of traffic calming. This change has occurred in a short period of time. It is important to indicate that these areas are still within a larger geographic area that is depressed. Therefore, the areas have not reached their greatest potential for crime reduction. When West Palm Beach can implement traffic calming and revitalization projects throughout the city, the results will be even more positive.

The demand to live in the two neighborhoods continues to grow as quickly as the quality of life. People with choice are beginning to opt for a more urban lifestyle. Social links between neighbors are increasing as more people move into the neighborhood and the streets continue to be beautiful, pleasant and safe. There are street parties and other social functions, such as in-line skating groups. The neighborhoods have even adopted the



**FIGURE 4**

public beautification sites, taking responsibility for maintenance of the landscaping, and decorate them for holidays and special neighborhood events.

### *Northwood Road*

Northwood Road was the second commercial corridor traffic calming project in the city, after the Clematis project. It is the historic main street of the northern part of the city and it forms the southern edge of the Old Northwood Neighborhood. The street declined for the same reasons as the neighborhoods to the north, and to a more extreme level than Clematis Street (see Figure 5a).

Northwood Road produced several unique results compared to other traffic calming projects. Reinvestment in the area began at the time of the planning for the street. Property owners were well aware of the Clematis Street success and anticipated the same for Northwood Road. Property owners began upgrading their facades and renovating their buildings in an effort to have them completed by the time the traffic calming project was complete. This was impressive due to the fact that the traffic calming construction from building face to building face only took three months. The project was completed in early 1998, and economic redevelopment along the street has remained brisk (see Figure 5b).

### *CityPlace*

The success of the traffic calming program is most evident in the redevelopment project called CityPlace. In the 1980s, a private developer managed to aggregate and clear more



**FIGURE 5a**



**FIGURE 5b**

than 77 acres of property in the downtown, just southwest of Clematis Street, but then got tangled in a mess of property title problems and went bankrupt. This was in the same area that was featured in the aforementioned HBO documentary (CrackAmerica). The city purchased the land, sent out a request for proposals, selected a developer, and has been working with them to develop the \$400 million project. CityPlace will consist of approximately two million square feet of retail, office, entertainment, and cultural land uses, as well as an 800-room hotel and approximately 600 residential units. Immediately south of CityPlace, Palm Beach County is planning a convention center, in addition to an aquarium and arena, proposed in the same general area.

CityPlace's residential units will be split between rental and owner-occupied units consisting of apartments and townhouses. The design of the buildings follows New Urbanist principles with a minimum of two stories for all buildings with ground floor retail. The project will also construct its streets with traffic calming principles in the original design, rather than retrofitting, all at the developer's expense. The streets will provide bulb-outs for protected parking, shortened pedestrian crossing distances, narrowed and raised intersections, two-way operations, on-street parking, and wide sidewalks.

### **Traffic Calming's Full Potential**

The traffic calming projects have not only had tremendous impacts in the challenged neighborhoods of West Palm Beach, but they also have also been a powerful tool to help revitalize the downtown and the northern city center's main street. The projects have increased street and civic pride, beautified the city's public spaces, enhanced the sense of safety, and provided a unique feeling of place and community. It was this kind of change that was the objective of West Palm Beach's second generation Traffic Calming Program, that is, remaking the streets to build community instead of adding measures to alter only driver behavior.

While first generation traffic calming policies and programs may be acceptable and appropriate elsewhere in North America, the City of West Palm Beach concluded that they do not achieve the full potential of traffic calming. What is clear is that the list of community goals and objectives served by traffic calming makes it a powerful tool, especially when considered along with the other policies, codes, and plans. For example, in one city, reducing speeding may be the key objective, while in another it may be increasing access to land. Another city may be concerned about neighborhood revitalization and aesthetics. In the case of West Palm Beach, all of these objectives are important, but especially neighborhood revitalization, increased aesthetics, and increased perceptions of safety by nonmotorized users. Traffic calming is one of the best tools the City of West Palm Beach has today to support these objectives. However, other programs and policies, such as New Urbanism, home ownership programs, commercial facade improvement programs, park renovations, etc., have also been part of the successes.

### **OTHER ATTRIBUTES OF THE WEST PALM BEACH APPROACH**

One of the main attributes of West Palm Beach's Traffic Calming Program is that the city has extended consistent and mutually supportive principles to all aspects of transportation planning. In conjunction with efforts in the Planning and Zoning and

Urban Design Divisions, the Transportation Division has extended the traffic calming goals of:

- Increasing the quality of life;
  - Creating safe and attractive streets;
  - Promoting pedestrian, bicycle, and transit use;
  - Enhancing the street environment;
  - Increasing access for all modes of transportation;
  - Using streets to dictate the form and character of neighborhoods, districts and corridors
- Promoting an interconnected street pattern to reduce travel distance and for other purposes; and
  - Enhancing and increasing the city's walkability.

All of this is an effort to create a city that is livable, sustainable, equitable, and economically successful. The holistic approach allows planning to be proactive rather than reactive. By doing traffic calming in conjunction with all other street reconstruction, the city is able to convert its streets much quicker than it otherwise could. There are also cost savings associated with dovetailing with utility projects. The areawide approach also allows traffic calming on a neighborhood level rather than simply chasing problems from one intersection or street to another.

The program also promotes a level of flexibility in the types of measures used. For example, some communities and engineering departments have opted to use only speed humps, almost ad nauseam. This has even led to revolts by the public and court orders to remove the humps.

The clichés “variety is the spice of life” and “use the right tool for the job” may be somewhat applicable to traffic calming, enabling it to be adjusted to support a design theme or reinforce a community's identity. The intent is to alter driver behavior, slow vehicle speeds, reduce the severity of collisions, and enhance the pedestrian environment, not to be an annoyance to drivers and the community. The city's program frequently utilizes a combination of narrowings with landscaping, speed humps with narrowings that include landscaping, medians with landscaping, and mini-traffic circles with landscaping. “With landscaping” achieves added goals such as allowing for reduced signage by using vertical indicators like trees in the narrowings to help notify drivers of the speed hump, but while notifying drivers it also provides a certain beauty, making the measures more welcome in the street. On other projects, the city will narrow the entire street and use the reclaimed space for recreation paths and/or linear parks. The common theme is to provide more than one reason for traffic calming measures. In that way, more people will have reasons to support the program (they like trees, they like slowing down speeders, they like recreational paths).

The city also does not include or consider route modification techniques as traffic calming. Examples include diverters, turn prohibitions, closures, partial closures, or one-way streets. While these techniques may achieve the similar results of reduced cut-through traffic, reduced crime, and increased property values on the streets on the “right side” of the modification, they do not necessarily alter driver behavior nor enhance the street aesthetics or environment. However, drivers are frequently inconvenienced, often

causing speeding or increased motor vehicle volumes on the streets that did not receive the positive benefits of the route modifications. Route modifications also increase travel distances and circuitry that are the opposite of the city's goals of street interconnectivity and maximizing access. West Palm Beach is interested in increasing and maintaining access and, therefore, highly discourages the use of route modifications.

## **PUTTING PEDESTRIANS FIRST**

Many cities have policies that encourage nonautomobile modes of transportation. Particular importance is assigned to pedestrians because, after all, everybody is a pedestrian at some point in their travels and promoting pedestrian travel is politically correct.

West Palm Beach is no exception. There have been policies supporting pedestrians for many years, but, as in many cities, they were more than ignored; they were violated. Instead, providing high levels of service for motor vehicle users (level of service D and above) during the peak hour of motor vehicle use was given decades of top priority. Incrementally widening streets, speeding up motor vehicles, and deteriorating the pedestrian environment were normal. For example, it became common practice to give pedestrians the minimum green time possible to cross streets at signalized intersections, assuming that they were waiting at the curb prior to getting their signal to cross. The corollary of this practice was, of course, to give as much green time as possible to motor vehicle users. At some intersections, pedestrians were eventually required to find and press a button or their crossing time would be inadequate or nonexistent. The rationalization for these and other common antipedestrian practices was that it was more "efficient and convenient" to keep the motor vehicle users moving as fast as possible. Others would claim that these practices are pro-pedestrian because, if pedestrians were not given the minimum time or buttons to push, then they would not be able to cross the street at all.

Other antipedestrian practices include those that require developers to pay for and install pedestrian paths at the time of development. What happens is that, while there are always fully connected facilities for motor vehicle users, the pedestrian network is incomplete until the last property on the street is developed. However, in some cities the practice is worse. Warrants, based on pedestrian volumes, are actually required before paths are constructed along streets. It becomes a self-fulfilling prophecy; nobody walks because there are no sidewalks and no sidewalks will be built until enough people walk. The list of antipedestrian policies and practices is long and touches most aspects of conventional land use and transportation planning. The point of all this is the hypocrisy of claiming to promote pedestrian travel while doing the opposite.

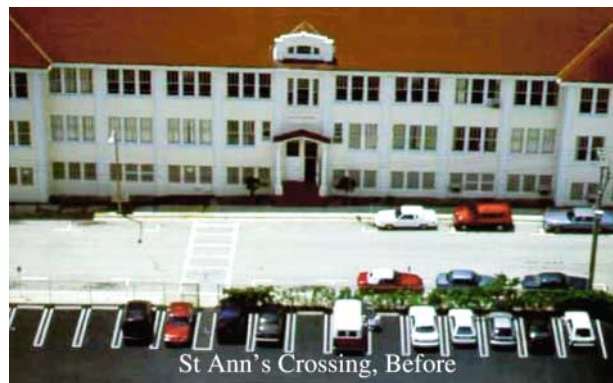
Two of the objectives of traffic calming are to promote pedestrian travel and to improve the pedestrian environment. These objectives were incorporated into West Palm Beach's Comprehensive Plan in a number of ways and affected a number of transportation policies. Of particular interest was the development of an environmental hierarchy of modes, which is to be considered during any and all street modification projects. The pedestrian was at the top of the hierarchy, and the single occupancy automobile was at the bottom. The hierarchy allows the city to narrow streets at pedestrian crossings and remove turn lanes if necessary; raise crossings to sidewalk level so that the vehicles, not the

pedestrians, need to deal with ramps; and place the city's financial resources into traffic calming, instead of street widening.

Below are four examples of how the City of West Palm Beach is designing its streets to be more pedestrian-friendly. Traffic calming is used to support activities and land uses that are adjacent to the streets. Lower importance is assigned to motor vehicle users moving along the streets.

1. Saint Ann's School is a downtown school with its main outdoor recreation area located across a public street and parking lot from the school building. The bisecting public street leads west, past the large and busy County Courthouse. The safety of the children crossing the street was a concern for the school and the city. In order to maintain the interconnected street grid, the city did not wish to close the street but still wanted to address the safety concerns. The result was a raised pedestrian crossing or speed table, constructed in line with the steps of the School (see Figure 6a).

The design of the measure respected the beautiful architecture of the building, along with its magnificent entrance. At the crossing, the street was narrowed to shorten the pedestrian crossing distance. In addition, the students within the crosswalk were effectively made six inches taller than before, providing increased visibility. The reclaimed asphalted area in the narrowings was used for landscaping (i.e., trees and ground cover) and bollards, which serve to beautify the street, provide motorists with additional clues of the crossing, and reduce the overall amount of signage required (see Figure 6b).



**FIGURE 6a**



**FIGURE 6b**



Prior to the commencement of this project, no collisions had taken place at the crossing. However, parents and staff anecdotally mentioned several incidences, but the project was nevertheless initiated based on perceptions. During the actual design period for the new, safer crossing, a motorist struck the School's crossing guard.

2. Another example of placing pedestrians first is the raised intersection at Clematis Street and Narcissus Avenue in front of the city's library and plaza. The plaza is home to the interactive fountain that is teeming with children on warm days, during special events, and at the Thursday evening street parties. The combination of decorative pavers, bollards, narrowings, motor vehicle ramps, removal of the traffic signals and turn lanes, two-waying of the one-way street, and the placement of trees next to the curbs make the drivers appropriately slow. The "level playing field" allows the cars and pedestrians to coexist in harmony.

3. Similarly, the raised pedestrian crossings on Northwood Road were located on the mid-blocks of the streets to facilitate safer crossings. The street was also narrowed at the crossings. Gazebos, complete with benches, were constructed on the narrowings, which visually helps drivers know that they are approaching a pedestrian crossing (see Figure 7). At the two signalized intersections on this street, the left turn lanes were removed to narrow the street, shorten the crossing distances, and provide space for landscaping and gazebos. In addition, the traffic signals were removed from one of the intersections, which has improved the aesthetics of the area dramatically.

4. Recently, just over 3,000 feet (315 meters) of Sapodilla Street was completely torn up from back of sidewalk to back of sidewalk to replace the underground utilities. Near the north end of the street is a primary school. Consequently, when the street was rebuilt, every intersection for the length of the project was narrowed to shorten the crossing distances for the children. This same approach of narrowing every intersection will be used in conjunction with other traffic calming measures for several projects the next few years, affecting literally miles of streets in the city.

Because the objectives of traffic calming permeate all of the city's transportation policies, West Palm Beach is saying that it is promoting pedestrian travel and actually following through. As the city makes its streets more people-friendly, more people use them. because the city uses a pedestrian-first philosophy as the rule rather than the exception,



**FIGURE 7**

there is a difference between its traffic calming program and that of cities using first generation approaches. In other words, the philosophies and value sets that underlie the traffic calming projects do not end with those projects, but are extended to every transportation policy and project in the city.

## PERCEPTIONS AND JUDGMENT

In discussions of traffic calming in many cities, there is a common reply by city staff to the plea for traffic calming. It usually goes something like, “We need to ensure that we are solving real problems and not perceived problems.” Following such a statement, there is typically a discussion about what is perception and what is reality. Staff normally opts out of giving opinions and instead relies on some sort of warrant approach to objectively determine if there is a problem, similar to the one used to install traffic signals and stop signs. As mentioned earlier, West Palm Beach copied this model by measuring speeds and so forth and then assigning points. The public, however, relies on daily experiences to determine whether a problem exists.

It is interesting that, despite initial appearances, both public and official approaches require a level of subjectivity. The public’s approach is obviously subjective because it relies simply on personal street experiences. These experiences are compared to related experiences on, and perceptions of, other streets. Consequently, the judgment that a problem exists is made directly from experience and perceptions. For brevity’s sake, this can be considered the “direct or organic approach.”

The local staff’s approach, on the other hand, is typically to develop statistical evidence to determine if a problem exists. They often compare the 85th percentile speed with the posted speed limit, they look at collision data, they count motor vehicle volumes, they look at the street classification, and they measure the percentage of motor vehicles without a trip-end in the area (cut-through traffic). The combination of these measurements results in the determination of the existence of a problem. But the approach is not purely objective. In discussing its subjectivity, there are three aspects of the “statistical approach” that require examination: 1) consistency, 2) objectivity, and 3) relevance.

1) Applying the same statistical approach to every street is consistent. Being consistent is typically considered desirable because it can be argued that it is fair or unbiased. However, it is somewhat naive because streets, even those with the same classification, are often different in many ways that are not accounted for in the statistics: in width, contours, building setbacks, drainage methods, landscaping, pedestrian facilities, land-use type, land-use density, population, amount of on-street parking, etc. The organic approach includes these differences implicitly.

2) Statistics by their nature tend to be viewed as objective. However, at some point, that data has to be turned into information and a determination made using some judgment or subjectivity. For example, why is the 85th percentile speed used to determine if a speeding problem exists? Perhaps the 95th percentile speed would be better because those drivers are more likely to negatively affect the quality of life on the street. Does the choice of the particular percentile require judgment or subjectivity? Why use percentiles at all? Why not use the average of the highest 24 speeds over a 24-hour period, or something

else? Why does the posted speed limit matter? Maybe the chosen speed limit is too high or too low. It might just be the default speed of the municipality. Maybe the level of signage or of enforcement is different on different streets. Why do collision statistics matter? Perhaps the street is perceived as so dangerous for pedestrians that nobody walks along it anymore. Just because no pedestrians have been hit by cars, it does not mean that the street is safe. Furthermore, why count the cars? At what volume does quality of life change? Are these thresholds subjective? Do the same thresholds apply to every local street, every collector street, etc.? Are judgment and subjectivity used to determine that the “acceptable” thresholds can be different for different classifications of streets? Who judged the thresholds as “acceptable”? All else being equal, if the classification of a street is changed, do problems disappear or materialize? Why determine the percentage of trips that are cut-through trips? Other factors being equal, it should not matter if, out of 1,000 vehicles, 25 percent or 75 percent came from out of the study area. Is the study area the right size? Does determining the study area and the thresholds for cut-through traffic require judgment and subjectivity? Lastly, if Street A has only a speeding problem, Street B has only a cut-through problem, and Street C has only an aesthetics problem, then the statistical approach will always rank the problems in order of how the various issues were weighted in the generic analysis. Any issue without a measurement in the generic analysis, or issues that have been lightly weighted, will likely never get addressed regardless of their severity.

3) The question of relevancy is important too. Transportation statistics do not typically govern the behavior of the average person, but perceptions do. Perceptions dictate where people buy homes. They dictate property values. They determine if parents will let their children walk to the park or to school. They determine if folks socialize along the street. Perceptions affect behavior such as littering and property maintenance, how safe people feel, where they want to shop, and where they want to spend time. Perceptions are important. When perceptions are shared by many people, they can have huge effects. If most people perceive the downtown as dangerous, then they will not spend time there, invest there, nor live there. Consequently, the downtown will suffer. The same situation exists for neighborhoods and districts. Traffic calming can and does affect perceptions. Therefore, in cities where perceptions are an issue, there is nothing wrong with correcting them with the help of traffic calming.

The paragraphs above point out that a great deal of subjectivity is inherent in the statistical approach. However, it is well hidden from lay-people, and the subjectivity is often forgotten in practice. While these measurements ought to be used only to augment professional judgment, they often replace it, as had happened in West Palm Beach. In fact, adhering strictly to a statistical approach became a crutch to support staff who would not or could not take into account the other issues. It took away professionalism and made the exercise a purely technical one.

In contrast, various experts in their fields often use the direct or organic approach. An expert’s opinion holds more weight than a lay-person’s or a technician’s because the expert is trained, experienced, and often licensed in the particular field. For example, doctors can give opinions about patients’ health and prescribe remedies. Architects can look at building plans and improve the aesthetics before construction.

Industrial engineers examine processes and suggest improvements. Sometimes they rely solely on their observations and sometimes they take measurements. The more physically obvious the situation, the easier the decision regarding the course of action. Obviously, the decision depends on the problem and the practitioner's experience in dealing with it. If one sees the same symptoms several times, one obviously takes fewer measurements to determine what the problem is. When the same problems are ubiquitous, less to no analysis is needed.

In West Palm Beach, the city had expertise in traffic calming. The problems on the streets were at epidemic levels and very obvious, even to people with little or no experience in traffic calming. The distribution of limited traffic calming resources should never have been based on a generic statistical formula because of the severity and range of the problems. There was a brief attempt by staff to actually expand the statistical approach to include a host of otherwise ignored criteria, but applying it would have required endless analysis. In addition, it would have required a lot of defending based on arguments of consistency, objectivity, and relevancy. Instead, the city decided to rely on its professional staff and the public process to guide its program.

The City of West Palm Beach realized that it needed to redefine itself and change the way in which people perceived the city, themselves, and others. In particular, it realized that the design of the streets shaped the way its citizens saw themselves and their communities. Allen Jacobs, a renowned author on street design, stated the variety of ways that streets are important to cities, namely to:

- Facilitate communication;
- Provide public access to property;
- Moderate form, structure, and comfort of the urban community;
- Provide space for social and commercial encounters and exchange;
- Provide political spaces for discussion of issues, celebrations, and demonstrations;
- Provide places for movement, especially people;
- Provide the public realm, 25 percent to 35 percent of all developed land that is not matched by other parks and public spaces; and
- Provide public spaces that define collective values and civic sensibility.(5)

These functions were important to West Palm Beach and, interestingly enough, perceptions play a major role in many of these functions. Traffic calming and the other city programs that deal with the public realm needed to change perceptions. This was and continues to be the most important challenge to the city.

As everyone knows, perceptions can be based on very few facts or out-of-date information. For example, the downtown in West Palm Beach is still considered a dangerous place by many people who live and work in the suburban communities to the west. Five or more years ago, people's perceptions caused them to leave the downtown and the inner city and they have not come back. Their perceptions of the downtown have evolved into a reputation that they spread to newcomers moving into the suburbs. The facts are that downtown is not dangerous, informed people are filling every residential space as it becomes available, redevelopment activity regularly breaks records, and children and families routinely enjoy the downtown.

Reality seems to be easier to change than reputation. An example of this was most evident when the South Florida Water Management District (SFWMD) was considering relocating their headquarters from the suburbs to downtown. As a matter of interest, one of the roles of the SFWMD is to promote urban infill and redevelopment in order to discourage the region's sprawling development into the Everglades. In an effort to "practice what they preach," the SFWMD had selected a site for its new headquarters on Clematis Street. The SFWMD decided to allow its employees to vote on the issue and they voted against it. The most frequently cited reason was that the downtown was dangerous, particularly for women. Coincidentally, the SFWMD pays its employees fairly well and most of them reside in the suburbs.

By using professional judgment, dealing with perceptions, and dividing traffic calming resources among a cross-section of neighborhoods, districts, and street types, the city has taken a more direct and organic approach to traffic calming. In this way, the bigger picture is kept in mind, compared to the narrow statistical view inherent in first generation approaches. It is somewhat analogous to putting together a large mosaic of colored tiles. To understand the big picture, one does not rely on statistical measurements such as the 85th percentile area of each tile, the frequency of light being reflected by each tile, the weight of each tile, etc. In fact, the more statistical detail one has, the less likely one will understand the mosaic. Instead, the better approach is to blur one's vision and look at all the tiles together and in context. Once that is accomplished, one understands the picture and can consider adjusting one or more tiles to improve it. Similarly, if one understands the vision for the city, its neighborhoods, districts, and corridors, it becomes readily apparent what needs to be done for modifying an individual street or several streets in an area. This is particularly the case when the city has professionals trained and experienced in the area and when there is a lot of public education and involvement in creating the vision and understanding the pieces of the puzzle.

## **CONCLUSIONS: "TRAFFIC CALMING: THE SECOND GENERATION"**

In West Palm Beach today, traffic calming is used to accomplish much more than the reduction of motor vehicle speeds, collisions, and cut-through traffic. The conventional goals are still a consideration, but the challenges in the city require a much more holistic approach. The city's Traffic Calming Program involves changing the design and the role of the streets to reduce the negative social and environmental effects of motor vehicles on individuals and on the community in general. Traffic calming can affect the area's surroundings and can provide private investors with confidence that the local government is an interested and involved partner. It is a powerful tool to help improve downtown, revitalize challenged neighborhoods, create street and civic pride, beautify the public realm, create the sense of safety, and provide the feeling of place and community. In order to achieve these benefits, traffic calming needs to affect people's perceptions. Compared to typical North American programs that narrowly focus on driver behavior, speeding, and collision reduction, the program in West Palm Beach is different enough that it can be considered the second generation of traffic calming.

## ACKNOWLEDGMENTS

The authors would like to thank Mayor Nancy Graham (1992–1999) for her vision and perseverance in making West Palm Beach a great city. Her dedication and commitment have allowed the Transportation Division to achieve national and international recognition for traffic calming and other initiatives. The authors would also like to thank Mayor Joel T. Daves (1999–2002) for his continued support. The city Commission has also been extremely supportive of the Division's efforts. Most of all, the residents of West Palm Beach deserve a great deal of the credit. Without a dedicated and open-minded citizenry, developing and carrying out the program would have been very difficult. The success of the program could not have been possible without their involvement and support.

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