3

Thinking Like A Pedestrian

Chapter 2 clearly establishes that walking is an important and viable transportation mode that should be accommodated and encouraged within our transportation system. The ultimate challenge lies in translating this ideal into a physical environment that encourages pedestrian travel. A key aspect of creating such a physical environment is to understand how various situations and facilities impact pedestrian access, convenience, safety and enjoyment. To explore these impacts, this chapter is divided into two sections. The first section uses a hypothetical walking tour to investigate situations pedestrians are likely to encounter, focusing on four questions: can I walk there?; is walking convenient?; is walking safe?; and is walking enjoyable? The second section discusses various specific pedestrian facilities and how they impact walkability.

Walking Tour¹⁷

The best source of information about how pedestrians react to various physical environments is pedestrians themselves. Since each of us is a pedestrian every day, careful consideration of your own walking habits is a good place to start. What is important to *you* when you walk? Like most people, you probably put one foot in front of the other without thinking too carefully about exactly which elements in your surroundings come together to influence how accessible, convenient, safe and enjoyable your walking trip is. You likely spend little time considering how your physical environment might be improved to make walking easier.

Imagine for a moment you are on a walking tour of Madison to explore the good, the bad and the ugly of the City's pedestrian facilities. Your mission is to articulate what you like and do not like about your experiences. Based on what you have learned, you will be asked to make recommendations about what aspects of the current pedestrian network you want to change and which aspects you want to be sure to preserve.

The following 'tour' shows some images and observations you might encounter during your

¹⁷Photographs by Archie Nicolette, Heather Putnam and Arthur Ross.

expedition. The images and comments shown here reflect the results of two public information meetings that focused on identifying the essential elements of a walkable neighborhood.

Can I Walk There?

Sidewalks and No Sidewalks

Sidewalks offer many benefits to neighborhoods. They provide safe places for people to walk when they go to school, to the park, to a friend's house, to the bus stop, to shop, or to eat out. They also facilitate safe neighborhoods by encouraging self-surveillance as people commute, exercise, socialize and play.



Sidewalks are to pedestrians as streets are

to cars. Where there are no sidewalks, pedestrians must either walk in the street or develop a worn rut path adjacent to the street. Where there are parked cars or high volumes of high speed traffic, walking in the roadway travel lanes is both uncomfortable and unsafe. Worn rut paths are inaccessible for pushing strollers and people using wheelchairs.



Continuity and Connectivity of Pedestrian Network

A continuous pedestrian network connects neighborhoods and makes it possible for pedestrians to get from where they are to where they want to go. Highways can be barriers to people on foot, but this tunnel under the Beltline makes it possible for them to cross safely.

Cul-de-sacs are designed to prevent motor vehicle through traffic. Pedestrian connectors extending from the end of these dead ends maintains convenient through access for pedestrians and bicyclists.





Missing Links

Sometimes the sidewalk ends short of where pedestrians want to go, as demonstrated here by the worn rut. Businesses may not realize that although their business is indeed "on a bus line," the trip to the bus stop may require slogging through mud or snow. Workers and customers using wheelchairs must travel in the street or use relatively expensive paratransit services.

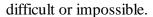


Pedestrians and Transit



When the pedestrian network is linked to transit stops, it becomes possible for pedestrians to reach destinations that otherwise would be too distant.

When pedestrian connections to transit stops do not exist, travel becomes







Sidewalk Closed: Construction

Long term road and building construction projects are often unavoidable interruptions to the pedestrian network. Generally the only accommodations made for pedestrians are signs indicating "use other side." However, sometimes pedestrians will choose to risk walking in the street rather than "using the other side" because crossing the street is inconvenient.

Concrete blockades maintain the continuity of the pedestrian network throughout construction projects, accommodating the pedestrians' desired travel path and protecting pedestrians from adjacent traffic.



Is Walking Convenient?



Pedestrians and Land-Use

Malls that extend to the sidewalk and have parking adjacent to the building, like the new Third Lake Market shown here, are convenient for pedestrians, bicyclists and motorists alike. Street trees, landscaping, and the detailed architectural style create an inviting pedestrian setting.

When stores are not directly connected to the pedestrian network, pedestrians must navigate large parking lots when they wish to shop. This can be dangerous when pedestrians are slow moving or are not tall enough to see or be visible to others in the midst of the parked cars.



Before Westgate's recent refurbishing, its parking lot proved user-unfriendly for pedestrians, bicyclists and motorists alike. Things can change for the better: pedestrians now have a direct sidewalk connection to the main entrance from Whitney Way and the striped pavement markings alert motorists to watch out for pedestrians. Also, one auto entrance (on Odana Rd.) has been deleted, improving pedestrian, bicyclist and motorist safety.





Grocery stores that are accessible to adults and kids by foot, bicycle, or car are generally considered a neighborhood asset.

Pedestrians and Street Patterns



Here are two examples of neighborhood street patterns. In the first, pedestrian travel is inconvenient because route choices to destinations are limited by the lack of connections. In the second, the grid pattern provides many direct route choices.



Street Crossings

Wide, busy streets present an obstacle to pedestrians because conflicts with vehicles are likely to occur during the time it takes to cross on foot.

Curb ramps make travel convenient for all pedestrians.



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pedestrians will cross mid-block rather than at the corner crosswalk because the midblock route is more convenient, turning traffic is not an issue at mid-block, and the distance to cross may be shorter if there are turn lanes at the intersection.

September, 1997

Is Walking Safe?



Curb Ramps

Diagonal curb ramps at busy intersections pose problems to wheeling pedestrians. Cars proceeding through the intersection have a difficult time telling the direction in which these pedestrians intend to travel. The safest path up a curb cut is at 90 degrees to its slope: the steeper the angle, the more one must wheel right into the center of the intersection.







Wide curb cuts make it possible for pedestrians to proceed in a straight line to their destination. As they do, they are in the marked crosswalk, where the law defines their right of way.

September, 1997

Pedestrian Transportation Plan for Madison, Wisconsin

Sidewalks



Sidewalks in disrepair are inconvenient for some and a barrier for others.

Landscaping at parking lot entrances can make it difficult for motorists and sidewalk users to see each other.



Street Crossings



Crossing guards are crucial to the safety of untrained pedestrians. At this corner, the small turning radius also improves pedestrian safety because motorists cannot make the turn quickly, thereby increasing the chances that a pedestrian will be seen.

Free-flow turn lanes are designed to allow motorists to maintain a high turning speed. From a motorist perspective, this improves intersection operation by reducing the number of right turning vehicles that have to stop. However, because motorists expect to turn without stopping, it is less likely they will stop for pedestrians in the crosswalk, although it is required by law.





When motorists fail to yield the right of way to pedestrians in crosswalks, foot travel across any street can be dangerous.

When corners at intersections are extended to create "bulb outs", crossing the street is safer for pedestrians because the bulb out shortens the crossing distance and slows entering traffic.



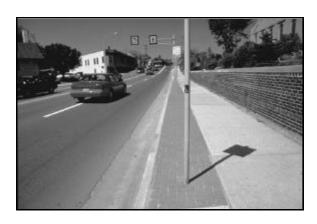
Is Walking Enjoyable?



Buffer Between Traffic and Pedestrians

Parked cars provide a buffer that makes pedestrians feel safer.

Sidewalks close to moving traffic create an unpleasant walking environment.





neighborhood feature that provides a scenic, pleasurable pathway to the nearby school and other popular destinations throughout the neighborhood.

Wide terraces, like parked cars, provide a buffer between pedestrian and motor vehicle traffic, creating a safer and more pleasant walking environment. The path on the right provides an enjoyable "secret" connection to the neighborhood.

Neighborhood Character

The Jenifer Street bridge is a defining



Pedestrian-Friendly Design

The above walking tour has provided a snap

shot of a few situations pedestrians may encounter as they travel around Madison. Some of the situations explored promote accessible, convenient, safe and enjoyable pedestrian travel; others do not. Observing situations that pedestrians encounter suggests criteria that can be used to evaluate the pedestrian-friendliness of an area and standards that should be strived for in making Madison a better place to walk. After two public workshops designed to solicit input concerning what people feel are the essential criteria of a walkable neighborhood, participant comments could be consolidated into three categories:

- , Plan, construct and maintain a continuous network of pedestrian walkways;
- , Ensure that pedestrians can safely and easily cross streets at intersections and other appropriate locations; and
- , Support and encourage compact, mixed land use patterns, traffic calming measures and neighborhood traffic management plans.

Participant evaluation of each criterion focused on comments related to particular pedestrian facilities. Therefore, understanding arguments for providing each facility and issues to consider when making the decision about whether or not to provide a particular facility is an important step in developing goals and objectives defining the ideal pedestrian environment that Madison would like to achieve.

Walkways

Sidewalks

Sidewalks are to pedestrians as streets are to vehicle operators. Historically, the value of sidewalks has been assumed. In fact, in many Madison neighborhoods during the early part of the century when travel by foot predominated, sidewalks were paved before the roads and sidewalks extended across roads rather than the other way around. However, today, this philosophy has been turned on its head. Many people assume that people drive everywhere, and therefore question why money should be invested to provide sidewalks. In addition, an attitude has emerged that status and sidewalks do not mix, so some people are pushing for new developments with huge lots, expensive houses, and no sidewalks.

Unfortunately, very little research has been focused on pedestrians.¹⁸ Therefore, quantitative data definitively defending the value of sidewalks and where they should be installed is lacking. However, there are nonetheless many arguments to defend the importance of sidewalks. These arguments focus on five categories: pedestrian safety, encouraging walking, neighborhood residents, pedestrian network continuity and motorist benefits.

Pedestrian Safety

With respect to safety, research has demonstrated that streets without sidewalks have 2.6 times more pedestrian crashes than expected on the basis of exposure. Streets with sidewalks on one side have 1.2 times more pedestrian crashes than expected and streets with sidewalks on both sides have 1.2 times fewer pedestrian crashes than expected based on exposure. In addition, Preusser et al state that areas without sidewalks are "special hazards that can lead to crashes involving normally cautious adults." Further, Zeeger and Zeeger suggest that sidewalks can reduce the number of pedestrian crashes in both residential and business areas. ²¹

Another safety concern is the dramatic correlation between vehicle speed and pedestrian fatalities in crashes. When the motorist is traveling at 20 mph at the time of a crash, only 5% of pedestrians are killed. However, at 30 mph, 45% of pedestrians are killed and at 40 mph, 85% of pedestrians are killed. Given that the 85-th percentile speed in Madison is generally considered to be at least 5 mph over the speed limit, even in areas where the speed limit is

¹⁸Goldsmith, Stewart A. "Reasons why Bicycling and Walking are not Used More Extensively as Travel Modes." *Case Study No. 1 of the National Bicycling and Walking Study*. Publication No. FHWA-PD-92-041. FHWA. 1992.

¹⁹Knoblauch, R.L., Tustin, B.H., Smith, S.A., Pietrucha, M.T., *Investigation of Exposure Based Pedestrian Areas: Crosswalks, Sidewalks, Local Streets and Major Arterials.* FHWA, Report No. FHWA RD-88/038. September 1988.

²⁰Preusser, David F. Et al. "Pedestrians in Peril: Streets Weren't Made for Walking." *Traffic Safety*. Jan/Feb 1988. P. 11-23.

²¹Zeeger, C. And Zeeger, S. "Pedestrians and Traffic Control Measures," Synthesis of Current Practice, Draft Report, Transportation Research Board, Nov. 1987. Cited in Preusser, David F. Et al. "Pedestrians in Peril: Streets Weren't Made for Walking." *Traffic Safety*. Jan/Feb 1988. P. 11-23.

posted as 25 mph, a pedestrian likely only has a 45% chance of survival if involved in a crash. In older neighborhoods with narrow streets and well-used on-street parking, the functional speed of the street may be lower and a pedestrian's chance of survival may be better.

However, new low density residential areas are typically designed with wide open streets and often have a strong street hierarchy with collector streets running through the neighborhood with posted speed limits of 30-35 mph. Drivers tend to drive faster in areas that feel bigger, so travel speeds are likely to be higher in these new developments, which is bad news for pedestrians involved in crashes with motor vehicles.

Another aspect of safety to consider in the argument for sidewalks is personal safety. Sidewalks serve a valuable role in neighborhood self surveillance. People who live in pedestrian-friendly neighborhoods make nearly four times as many walking and bicycling trips as people who live in neighborhoods with poor pedestrian environments.²² In addition, people who live in neighborhoods where people walk less and drive more have smaller networks of acquaintances.²³ The result of these two observations is that in neighborhoods with sidewalks, there are more eyes watching the neighborhood and people are more likely to recognize who belongs and who doesn't, so crime rates will likely be lower. Some people argue against sidewalks fearing that crime will be higher. However, criminals want to flee the scene of their crime as quickly as possible. Therefore, walking is probably the last travel mode they will choose.

Encouraging Walking

There are also numerous encouragement-related reasons for providing sidewalks. "The sidewalk ratio [street frontage miles with sidewalks to street frontage miles without sidewalks] has been found to be a statistically significant factor in explaining whether people walk-to-transit, drive-to-transit, or drive a car to work."24 Providing sidewalks sends the message that pedestrians are desired and wanted. Where there are no sidewalks, the message portrayed is that pedestrians are second class citizens left to fend for themselves and travel at their own risk. Where there are no sidewalks, there are also no crosswalks as defined by ordinance unless they are marked, so this means that where there are no sidewalks and no marked crosswalks, pedestrians never have the right of way when crossing a street. Also, state and local law require the pedestrian to walk facing traffic where no sidewalks exist. This requirement places primary responsibility on the pedestrian to get out of the way of approaching motor vehicles to avoid a crash. A system that values and encourages walking provides facilities for pedestrians where the pedestrian has the primary right of way.

²²Appleyard, Donald and Lintel, Mark. "The Environmental Quality of City Streets: The Residents' Viewpoint." In de Boer, Enne. Transport Sociology: Social Aspects of Transport Planning. NY: Pergamon Press. 1986. P. 93-120.

²³Ibid.

²⁴Replogle, Michael. "Development of a Computerized Sidewalk Inventory for Transportation and Land Use Planning." Pedestrian Conference. Bethesda, MD. October 1991.

Neighborhood Residents

Another argument for sidewalks focuses on the people who are likely and able to live in an area. Areas without sidewalks can be considered red-lining against people who depend on walking for transportation - disabled, children, elderly and people who are carless. About ten percent of the US population is impaired from free movement by some sort of handicap.²⁵ In Madison, 18.6 percent of the population is under 17 years of age, 12.4 percent of the population is 60 years of age or older and 13.8 percent of households are carless. By not providing sidewalks, travel for these individuals is difficult at best and impossible at worst. As a result, it is unlikely these people will choose to live in a neighborhood without sidewalks.

Even people who are able-bodied will likely be disabled at least temporarily at some point in their life due to illness, injury, or age. Sidewalks can help these people to maintain their independence through their period of disability. Others become permanently disabled at some point in life. Sidewalks increase the chances that these people will be able to maintain their independence and continue to live in the same home.

Some of Madison's most sought after neighborhoods are in areas with ubiquitous sidewalks e.g. University Heights, Vilas, Regent St., Dudgeon-Monroe, Marquette-Schenk-Atwood, Tenney-Lapham, First Settlement, and Old Market Place.

Pedestrian Network Continuity

Providing sidewalks throughout the City is also important from a pedestrian network perspective. A lack of sidewalks does not just affect the people living in an area. It also impacts those who wish to travel through the area. By not providing sidewalks, the pedestrian's mobility through the area and his/her ability to access destinations within and beyond the area is limited.

Motorist Benefits

Beyond direct pedestrian benefits, motorists can also benefit from sidewalks. Untermann notes "improved pedestrian facilities would benefit motorists by eliminating or lessening conflicts. Where there are no sidewalks and people must walk in the street, they interfere with the flow of traffic."²⁶

The above arguments strongly defend the value of sidewalks to all neighborhoods. So, their installation should be an integral element of all new developments. It is much easier to install sidewalks at the time a new development is being built than it is to try to retrofit an area later on. Residential support and funding are the two primary concerns. When new sidewalks are proposed for an already established neighborhood, residents often resist the change because of how they would change the neighborhood character established when the sidewalks were not present. Also, the expense is likely not to be as controversial if it is wrapped in with

²⁵Untermann, Richard.

²⁶Untermann, Richard. Accommodating the Pedestrian: Adapting Towns and Neighborhoods for Walking and Bicycling. NY: Van Nostrand Reinhold. 1984.

general development costs than if it is separated out later as a special assessment to the individual property owners.

Pedestrian Connectors

A pedestrian connector is a walkway not situated along a street. They can be designed very similarly to sidewalks (5 feet wide, concrete squares) or they can be designed as multi-use paths (typically 8-12 feet wide, asphalt). They can provide both for recreational and utilitarian walking, can be very short or long, and they can be public or private.

Very short pedestrian connectors often serve the purpose of making a direct connection between the sidewalk network and a building, such as at Knickerbocker Place or Westgate Mall. Used in this way, pedestrian connectors serve a valuable role in enhancing pedestrian access to destinations because they either minimize or eliminate pedestrian/motorist conflicts in parking lots. Short pedestrian connectors are also used in the public right-of-way to maintain pedestrian access through cul-de-sacs or dead ends where vehicular through traffic is not allowed.

Pedestrian connectors can also be blocks or even miles long such as the East Rail Corridor path, the path going between Island Dr. and Jefferson Middle School/Memorial High School, or the extensive private path network in the Wexford area. These types of pedestrian connectors are valuable for enhancing pedestrian mobility, especially where they provide pedestrians with short cuts. For example, pedestrian connectors can be used in areas with culde-sacs and loop streets to maintain pedestrian mobility on a pedestrian scale grid where streets are designed to limit motor vehicle mobility. The availability of direct routes plays an important role in people's decision about whether or not to make a trip by foot. Therefore, if walking is to be encouraged, it is critical to provide pedestrian connectors between culde-sacs and winding streets to provide direct pedestrian route options.

In addition to enhancing pedestrian access and mobility, pedestrian connectors also often provide very enjoyable walking environments, especially when they follow natural landscape features such as Wingra Creek.

Crossings

Curb Ramps

Curb ramps provide a gradual transition between the level of the sidewalk and the level of the street. Originally, curb ramps were installed to provide accessible routes for people with disabilities. They are indeed a vital feature of the pedestrian environment for providing mobility to people with disabilities. However, today it is recognized that curb ramps benefit a far more diverse group than just people with disabilities. All the pedestrians pushing or pulling strollers, wagons, shopping carts, suitcases or other wheeled devices also clearly benefit where curb ramps are provided. Therefore, a pedestrian-friendly environment will provide curb ramps at all corners.

Crosswalks

Crosswalks define locations where pedestrians have a legal right of way when crossing streets. They can be at intersections or mid-block, at controlled intersections or uncontrolled intersections, be mark or unmarked and be raised or at street level. Each of these configurations has different implications for pedestrian travel.

Most crosswalks are at intersections and represent the natural extension of the sidewalk across the street. Sometimes crosswalks are provided mid-block when blocks are long and when there are many destinations in between intersections that pedestrians want to access.

Most crosswalks are at street level. In this case, different pavement markings are used to draw attention to the crosswalk depending on its location and the number of pedestrians using the crosswalk. Standard crosswalks are delineated with a single stripe at either edge of the crosswalk. Zebra crosswalks are used in situations where it is desirable to make the crosswalk more visible to motorists. Raised crosswalks, although not currently used very often, are another useful tool to make crosswalks more visible to motorists. At a raised crosswalk, the vehicular traffic raises its level to that of the sidewalk, rather than the pedestrian adjusting its level to that of the street as usually happens. In addition to making crosswalks more visible, raised crosswalks serve a useful traffic calming function by tending to slow down traffic as it approaches the crosswalk.

Crosswalks should be wide enough to accommodate the pedestrian flow in both directions within the duration of the pedestrian signal phase (AASHTO).

Traffic Signals

Pedestrian signals are installed at signalized intersections to indicate when pedestrians may and may not enter the intersection. They can be valuable for creating breaks in heavy traffic to facilitate crossing. However, when traffic is light, pedestrians are less likely to comply due to inconvenient delay.

Pedestrians are allowed to enter the intersection only when the pedestrian signal indicates 'walk'. If the pedestrian signal is flashing 'don't walk', a pedestrian is allowed to finish crossing the street, but may not enter the intersection if s/he has not already begun crossing. If the pedestrian signal indicates a constant 'don't walk', pedestrians are not allowed to enter the intersection. An important issue to consider in planning for pedestrians is the wide-spread confusion about the meaning of these cycles. Lalani and Baranowski have proposed a sign to post at push buttons as a tool to reduce this confusion.²⁷

A common predicament for pedestrians is that in a typical 1-2 minute cycle for a signal, there will only be a few seconds during which it is legal for pedestrians to enter the intersection. If there is 6 seconds of 'walk' time during a 2 minute traffic signal cycle, this means it is legal for pedestrians to step into the crosswalk 5% of the time (6 seconds for a 1 minute cycle

²⁷Lalani, Nazir and Baranowski, Bill. "Reducing Public Confusion About the Use of Pedestrian Signals," *ITE Journal*. Jan 1993.

translates to 10% of the time). This arrangement represents a significant delay for pedestrians and rapidly results in non-compliance when a gap in traffic appears during the 'don't walk' phase. This situation is further complicated when turning motorists fail to yield to pedestrians although they are crossing legally, thereby reducing the time that pedestrians have to legally cross.

Kaiser²⁸ notes that if pedestrians are delayed by 10 seconds or less, they tend to obey pedestrian signals. However, if the delay is greater than 15 seconds, he observed that they tended to ignore the signal.

In considering the implications of pedestrian non-compliance to pedestrian signals, it is interesting to note that Khasnabis et. al. found no correlation between increased pedestrian compliance with the law and improved pedestrian safety (fewer crashes).²⁹

Pedestrian Overpasses/Underpasses

Pedestrian overpassess and underpasses separate pedestrians and vehicular traffic into different levels to provide pedestrian access across a street either through a bridge over the street or a tunnel going under it. In some situations where there are wide, high traffic volume, high traffic speed streets, pedestrian overpasses and underpasses can serve an important role in maintaining continuity of the pedestrian network by providing safe access across a street that would otherwise pose a significant barrier to pedestrian travel. Overpasses and underpasses can be particularly valuable for providing access across limited access highways such as the Beltline.

Pedestrian safety is an important reason for installing pedestrian overpasses and underpasses. Because pedestrians and vehicular traffic are completely grade separated, conflict between modes eliminated. However, pedestrians have a basic resistance to changes in grade or elevation when crossing roadways and tend to avoid using special underpass or overpass pedestrian facilities if they perceive the safety gained does not outweigh the convenience of crossing at street level (AASHTO Highway Design Manual). In addition to these issues, night safety, ice/drainage, multi-mode and wheelchair access should be considered when making the decision to construct a pedestrian overpass/underpass.

Medians/Refuge Islands

Multi-lane arterial streets can pose significant barriers to pedestrians, especially young children, elderly and mobility impaired people who require more time to cross streets. The long distances, high speeds and high volumes can make it very difficult for these people to

²⁸Kaiser, Steven. "Urban Intersections that Work for Pedestrians: A New Definition for Level of Service." Transportation Research Board 73rd annual meeting, 1994.

²⁹Khasnabis, Snehamay, Zeeger, Charles V., and Cynecki, Michael J. "Effects of Pedestrian Signals on Safety, Operations and Pedestrian Behavior - Literature Review," Transportation Research Record. Vol. 847 (1982): p. 78-86.

cross these streets safely. Medians can provide a safe refuge in the middle of the street, so pedestrians can cross these streets one half at a time. As a result, the AASHTO Geometric Design of Highways and Streets recommends that medians are a highly desirable element on all arterials carrying four or more lanes. They are particularly valuable where the distance between signalized intersections is great.

By dividing the street into two manageable parts, medians and refuge islands increase pedestrian safety and reduce pedestrian delay. Because pedestrians only have to look for oncoming traffic from one direction at a time, street crossings are less complicated and safety therefore increases, encouraging walking. With respect to pedestrian delay, Smith notes "on a typical four-lane arterial street without a median, the delay to a pedestrian waiting for an adequate gap in traffic would typically be 4-5 times longer than it would be for a street with a median refuge area."³⁰

There are a couple unique elements to consider with pedestrian refuge islands. Relative to medians, refuge islands are inexpensive. Also, they have a limited impact on vehicular delay. In addition, pedestrian refuge islands are good for areas with concentrated pedestrian activity where it is not feasible to provide a full median.

In summary, the quality of the pedestrian environment varies significantly depending on what pedestrian facilities are provided, how they are designed and maintained, as well as the broader land use and street patterns in which they are placed. The description of the ideal pedestrian vision that Madison would like to strive to achieve should therefore outline how to design, construct and maintain the elements of a pedestrian-friendly environment including general planning considerations, walkway elements and street crossing elements. In addition, some issues raised in this and the previous chapter suggest that education, encouragement and enforcement programs should also be important elements of the ideal we wish to strive to achieve.

³⁰Smith, Steven, A. "The Suburban Pedestrian Crossing Dilemma." TR News. Jan-Feb 1993. P. 11-14.