Chapter 9: Pedestrian Plan

Walking is an essential part of our daily activities, whether it is trips to work, shop, school, or play. Often pedestrian facilities are overlooked or merely added onto street improvement projects with little or no regard to how they fit into the overall transportation system. However, to preserve and enhance the quality of life in the urbanized areas of the region, an overarching pedestrian facility plan for new and improved facilities, as well as consistent maintenance of the existing pedestrian system, is needed.

Development of a continuous, efficient pedestrian system in Lawrence, Eudora, or Baldwin City is dependent on many factors, most notably:

- The location of existing and anticipated activity areas and districts;
- Programs to retrofit established sections of town with pedestrian-oriented activities;
- Design standards and requirements for new development;
- Desired pedestrian levels of service;
- Funding for pedestrian improvements; and,  
- Americans with Disabilities Act (ADA) requirements.

The first step in developing a plan to improve pedestrian facilities is to conduct an inventory of the existing system to show where sidewalks are in critical, poor, fair, or good condition and where gaps exist in the sidewalk system. In 2006, a Sidewalk Condition Map (Figure 9.1) was developed for the City of Lawrence to document the condition of the sidewalk system.

Figure 9.1
Sidewalk Condition Map

http://www.lawrenceks.org/map/sidewalks/SidewalkMap09242006.pdf
Pedestrian Levels of Service

In order to achieve an effective multimodal transportation system, there needs to be some way to assess capital and land development projects to determine whether these improvements enhance the pedestrian experience or impact pedestrian mobility.

Figure 9.2 shows the relationship between the pedestrian system’s level of service and the potential demand for pedestrian travel. Areas with high potential use and low service levels should be regarded as the highest priorities for pedestrian improvements.

As Transportation 2030 was developed, it was recognized that a procedure for measuring pedestrian performance did not exist in the region. The procedure recommended for the cities in Douglas County includes the pedestrian system elements of:

- Directness;
- continuity;
- street crossings;
- visual interest and amenity; and,
- security.

These Level of Service measurements are presented in the following sections.
**Directness**

Distance is critical to the walking trip. As an example, research has closely correlated transit use to distance. No matter how many buses may run up and down an arterial, ridership will be low unless the pedestrian distance to and from activities and bus stops is minimized.

The measure of directness is simply how well a community provides direct pedestrian connections to destinations such as transit stops, schools, parks, commercial centers, or activity areas. The grid street pattern, in which a pedestrian can go north, south, east, or west to easily get to a destination, typifies the ideal system with a high level of service (e.g., LOS A - B). The common curvilinear residential subdivision, which may have cul-de-sacs that back up against a commercial center, transit stop, school, or park but do not have direct connections and instead require a circuitous route, will deter potential pedestrians. These areas have lower service levels (e.g., LOS D - F).

The directness level of service standard is based on a ratio of the actual distance from trip origin to trip destination divided by the minimum distance between those two points. Actual distance is further defined as either existing or proposed.
Continuity is a measure of the completeness of the sidewalk system and avoidance of missing segments. In the highest Level of Service, LOS A, the pedestrian sidewalk appears as a single entity within a major activity area or public space. LOS B provides a quality, continuous stretch of pedestrian network that is physically separated from other modes. LOS C provides a continuous pedestrian network on both sides of each street, but they may vary in character and design. LOS D reflects areas where there may not be sidewalks on both sides of the street or there are breaches in the system. LOS E reflects areas where there are significant breaks in the pedestrian/sidewalk system. LOS F is a complete breakdown in the pedestrian flow, where each pedestrian selects a different route because no pedestrian network exists.

What we’ve heard...
In many areas, sidewalks are missing, need repair, or are not continuous.
Street Crossings

Street crossings may be the “Achilles Heel” of the pedestrian system. Because street crossings place the pedestrian in the middle of the street and exposed to potential conflicts with automobiles, the measurement of pedestrian level of service for a street crossing becomes very complex and the achievement of a high level of service requires significant investment. There are some key elements that need to be examined when measuring a street crossing’s level of service:

Number of Lanes/Pedestrian Use and Walking Speed

The greater the number of traffic lanes to be crossed, the greater the exposure of pedestrians to vehicles. In addition, wider streets tend to carry higher volumes of traffic at higher speeds.

For an average pedestrian walking at 3 miles per hour (4.4 feet per second), it takes approximately 3 seconds to cross one 12’ traffic lane. If bike lanes are present, an additional 2 seconds is needed. On-street parking on both sides of the street adds another 4 seconds. When determining the total time necessary for a walk signal phase, an additional 3 second factor of safety is recommended. In addition, older adults and mobility impaired pedestrians take longer to cross. Areas with moderate to high amounts of older or mobility impaired pedestrians should allow for increased walk times.

Crosswalks

Pedestrian crosswalks should be adequately marked and signed at non-signalized locations. In some situations, the sidewalks may be raised for added visibility.
Signal Indication
Traffic signal heads should be easily visible to pedestrians and motorists. Is the length of the signal walk phase sufficient to cross the street safely?

Lighting Levels
Are the intersections and crosswalks well lit so that the pedestrian is visible at night on major streets where pedestrian volumes are moderate or high?

Pedestrian Signal Indication
Some traffic signals have a “WALK” phase automatically set for each direction of travel. Some signals have a pedestrian-actuated walk signal which provides a “WALK” phase only when pedestrians are present and have actuated a push-button or other device. The third type of signal installation does not have any pedestrian signal or specific walk phase. Pedestrians may only get a green light to cross the major street when an automobile on the side street activates the signal. Some communities are installing count down signal timing heads to tell the pedestrian how much time is left to complete the crossing before the “DON’T WALK” appears.

Median Refuge Areas
Painted medians offer minimal refuge. Raised medians of significant width and height provide increased safety for the crossing pedestrian.

Amenities
Amenities include such elements as signing and design features that indicate the presence of a pedestrian crossing.

Sight Distance
Sight distance measures the unobstructed view between the motorist and the pedestrian. Good sight distance is important for pedestrian safety.
Corner Ramps

Existing sidewalk ramps may be either ADA standard or non-standard. They are also differentiated as to whether they provide visual directness for the pedestrian and notify the driver which direction the pedestrian will cross. New sidewalk ramps should be ADA compliant.

Bulb-outs

Bulb-outs are extensions of the pedestrian walk network into the street. These bulb-outs generally extend to align with the width of the parking lane. They provide a number of benefits for the pedestrian as follows:

- They reduce the time to cross the street from corner to corner and therefore reduce the pedestrian’s exposure to the automobile;
- They provide the pedestrian with a better line of sight to the vehicle stream and also provide improved line of sight from the driver to the pedestrian; and,
- Their physical presence reduces the driver’s lateral clearance and helps regulate and slow traffic.

Right Turn on Red

One of the greatest increases in pedestrian accidents has been associated with right turns on red. Research has determined that an extremely high number of drivers do not stop at the crosswalk before making their turn and instead continue after looking to the left for approaching vehicles. Many jurisdictions have installed signs that do not permit right turns on red in high pedestrian use areas.

Visual Interest and Amenity

To promote pedestrian activity in an activity area such as Downtown Lawrence, the pedestrian system needs to be aesthetically appealing. The attractiveness of the pedestrian network can range from visually attractive, with enhancements like street lighting, fountains, and benches, to an experience of discomfort and intimidation associated with the absence of amenities. Areas to examine regarding visual interest and amenity include the following:
Pedestrian Plan

Scale
Does the urban environment reflect a pedestrian scale? Are the colors, materials, and form of the pedestrian facilities and features appropriate to the area and do they functionally unite the pedestrian network?

Attractiveness
Does the area include landscaping, vertical treatment, and sidewalk furnishings that improve the character and pedestrian scale of the urban environment?

Design
Does the area include site details, such as public art, that enhance the pedestrian scale of the street and become urban amenities?

Lighting
Does the lighting improve the safety, aesthetics, and character of the area?

Maintenance
Is the area well maintained and clean?

Adjacent Uses
Are the land uses along the pedestrian network attractive and inviting such that they encourage pedestrian activities or are they unappealing, such as non-maintained buildings and parking lots?

Security
Pedestrians require a sense of safety and security, both through visual line of sight with others and separation from vehicles. Street lighting is also important for walking at night.
Pedestrian Districts and Areas

Although these measures can be applied throughout Lawrence, the acceptable performance thresholds will vary by the type of activity area. As an example, a high pedestrian performance level will be of greater importance in the downtown than in outlying, lower density subdivisions with light vehicular and pedestrian traffic.

Figure 9.3 is a map illustrating existing pedestrian activity areas in the region corresponding to the descriptions below.

The following activity areas to which differential performance standards would be applied are proposed:

**Pedestrian Districts**

The primary areas within the City of Lawrence that qualify as pedestrian districts include downtown, the University of Kansas, and Haskell Indian Nations University. These areas include locations that residents of Lawrence consider as places to go to, walk around, shop, eat, study, or conduct business.

Pedestrian standards are high in the downtown pedestrian district. In addition to the need for direct, continuous sidewalks where it is safe to cross the street, this area requires higher levels of visual interest and amenities to attract residents and visitors. Future pedestrian districts could be added to this designation where there are planned future mixed-use activity areas and districts.
Commercial Centers

These areas tend to be located along arterials and aggregated at various locations along the corridor, particularly where major arterials intersect. In the past, these locations have been more of the strip commercial and “L” shaped neighborhood shopping center style developments, which provide relatively poor pedestrian environments. Future goals include improving the directness and safety of the pedestrian network to, from, and within these locations.

Schools

Whereas it is not necessarily critical for routes to schools to be picturesque and visually captivating, there are basic pedestrian needs for the student, including a safe and secure continuous sidewalk with safe street crossings and direct connections to neighborhoods. Cities in the region have been participating in the federal “Safe Routes to School” program which funds studies that address these issues.

Transit Corridors

Both ends of all transit trips are typically pedestrian trips. The most critical elements for pedestrians in transit corridors are direct and safe connections and safe, paved, lighted, and possibly sheltered bus stops.

Other Areas

Although all other areas within the city should have safe, secure, and reasonably direct pedestrian connections, the pedestrian trip-making characteristics of these areas are not as critical as the four areas mentioned above.
Recommended Pedestrian System Plan

The following actions outline the efforts needed to further develop pedestrian facilities for Lawrence, Lecompton, Eudora, and Baldwin City.

Actions by the Region’s Cities

Each city in Douglas County should consider formally adopting pedestrian level of service standards for the categories of areas in which pedestrian use is most prevalent or desired. Table 9.1 contains examples of what these standards could be. They were prepared based on input from the public and the MPO’s advisory committees, but can be adjusted based on changing conditions and community priorities. The standards are similar to letter grades in which “A” is excellent and “F” represents a failing grade.

The level of service standards can be combined with a pedestrian facility inventory and a list of needs to prioritize improvements for funding through each City’s Capital Improvement Program. Currently there are no local dedicated funding programs for pedestrian facilities. The cities should consider setting aside an adequate portion of their transportation funding to address these improvements. Increased emphasis on alternative transportation modes as represented in the T2030 Financial Plan is a direct result of the public input process and the encouragement of the U.S. Department of Transportation.

Table 9.1
Suggested Level of Service Standards in Pedestrian Use Areas

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<th>Street Crossings</th>
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Pedestrian Action 1: *Develop Pedestrian Level of Service Standards*

Develop pedestrian level of service standards for each pedestrian use area. In an ongoing process, each of the region’s cities should create and periodically update a Pedestrian Priority Areas Map.

Pedestrian Action 2: *Inventory Pedestrian Facilities, Identify Needs, and Prioritize a Plan for Improvements*

Cities should inventory existing pedestrian facilities. This information should be used to identify specific pedestrian improvements and develop a prioritized plan for implementation. The process should seek input from the public on specific locations in need of new or reconstructed pedestrian facilities.

Pedestrian Action 3: *Notify Property Owners of Responsibility to Repair Sidewalks*

Notify property owners of their responsibility to maintain existing sidewalks and provide repairs when their condition deteriorates to a point where pedestrian safety or convenience is negatively impacted.

Pedestrian Action 4: *Fund Pedestrian Improvements*

T2030’s Financial Plan earmarks $7.4 million for bicycle and pedestrian improvements. The region’s Transportation Improvement Program should be adjusted annually to reflect these allocations. Cities should consider an annual funding set-aside for improvements to the system of pedestrian facilities. Developers should continue to be responsible for providing pedestrian facilities on their sites.

**Public and Private Development Proposals**

In order to create multi-modal opportunities for Lawrence, Eudora, and Baldwin City, two specific actions are required. The more difficult of the two is retrofitting and fixing the existing environment where pedestrian access was not originally anticipated but is now needed. The easier opportunity, is to establish standards and guidelines to accommodate the pedestrian in future private and public developments.
From the standpoint of public development, particularly in the construction of new multi-modal corridors and the reconstruction of existing roads, pedestrian amenities and design features should be considered and embraced in all new projects. These may include safe street crossings with pedestrian-actuated walk signals, crosswalk enhancements, median refuge islands, bulb-outs, and other design features. In the built environment, design considerations should be flexible to minimize impacts to adjacent uses.

Pedestrian standards need to be established for new private developments. Both applicants and City staff should review the proposed development against standards and checklists to assure that future pedestrians that desire to travel to, from, through, and within the development can do so.

These standards and guidelines do not need to be onerous, but they do need to be realistic. Requirements should include recognition of on- and off-site destinations, transit stops, and how the plan can accommodate the pedestrian to and from those locations. Particularly important destinations would include schools, libraries, downtown, recreation centers, parks, citywide trails, and activity areas.

**Pedestrian Action 5: Develop Street Design Standards**

Develop minimum pedestrian standards and guidelines for all new roadways and reconstruction of existing roadways. These standards shall include street crossing treatments, sidewalk design, and landscaping.

**Pedestrian Action 6: Develop Pedestrian Standards for New Developments**

Develop public and private development standards for providing pedestrian facilities that connect the development to key destinations and activity centers. Each City’s Development Review process should be amended to include requirements for new developments in this regard.

**Sidewalk Surveys**

One method that each City can use to obtain information regarding the condition of sidewalks and the maintenance and improvement needs of the pedestrian system is through the use of Sidewalk Evaluation Surveys. The City of Lawrence recently inventoried all public sidewalks and evaluated sidewalk connectivity, type, and condition. The surveys discovered that a number of sections of sidewalks required attention throughout Lawrence.

Sidewalk Surveys can be used to generate important information for city planners and public works officials. They could be used to prioritize funding requests for non-motorized improvements. These surveys can also motivate local citizens to have a stake in their neighborhoods and take proactive measures with or without a city’s guidance.
Coordination of Pedestrian Planning in Lawrence

Currently, there is not a single-point clearinghouse for pedestrian planning, design, and engineering in the City of Lawrence. Instead, several departments address pedestrian mobility and sidewalks with varying perspectives as part of other job assignments. Often either these conflict with the objectives for pedestrian design or specific job descriptions put pedestrian planning, design, and engineering at a lower priority than other tasks.

The City Traffic Engineer is generally responsible for overseeing pedestrian planning and design in the city. In addition, a pedestrian advisory committee has been formed to provide pedestrian-related input and recommendations. The goal was to establish an organizational responsibility to coordinate all pedestrian planning activities, to oversee all pedestrian activities within the City, to address pedestrian improvement needs, to seek out state and federal grants, and to prioritize pedestrian improvements.

Public education and outreach are key organization principles to complete the pedestrian system planning process. These include ongoing education on air quality and vehicle laws as well as the health benefits of pedestrian transportation and its contribution to the reduction of congestion. This should be part of the overall communication and education program. In addition, enforcement of the vehicle code for both the pedestrian and automobile driver is necessary to promote a safe environment.

**Pedestrian Action 7: Coordinate Pedestrian Planning Issues**

The MPO will consider forming a pedestrian advisory committee to coordinate pedestrian planning activities and to participate in all pedestrian activities within the city. Coordinating pedestrian facilities and transit routes should be a focus.

**Pedestrian Action 8: Develop Pedestrian Education Program**

Develop a pedestrian education program as part of City’s overall communication and education program. Provide police resources and manpower to enforce pedestrian and vehicular traffic laws.