

PEDESTRIAN ROUTE NETWORK

The complexity of pedestrian movement increases as we consider more than just walking within any given area. Streets with heavier traffic become barriers to safe pedestrian crossings and the pedestrian's perception of danger from adjacent traffic increases. As the complexities increase, people are less likely to choose walking as a mode of transportation and their willingness to choose transit may be affected as well if significant barriers exist en route to the transit stop. The pedestrian route network was developed to address some of these issues.

FRAMEWORK

Three elements lay the foundation for the development of the pedestrian route network:

- Enhanced bus transit corridors (as identified in Blueprint Denver)
- Green Streets (as defined in the Game Plan)
- Pedestrian Potential Model, Pedestrian Focus Areas and Pedestrian Route Network

Enhanced Bus Transit Corridors are defined in Blueprint Denver, the City's land use and transportation plan, as a tool "to improve the operation of transit travel in congested areas by using priority green phases, exclusive bus lanes and special bus stops that decrease passenger loading times and improve the ability of the bus to reenter the traffic stream." The enhanced bus transit corridors are critical routes in the pedestrian route network.

ENHANCED BUS TRANSIT CORRIDORS

The geographic information system (GIS) analysis of the five factors, as defined on the following pages, did not allow the Advisory Team to take into account all of the existing major bus lines throughout the City as part of the comprehensive model. But, because of the inherently strong relationship and dependency between transit and pedestrian accessibility, the Advisory Team designated the enhanced bus transit corridors as part of the overall pedestrian route network.

The enhanced bus transit corridors include: Federal Boulevard, Colorado Boulevard, Brighton Boulevard north of Downtown, East/West Colfax, Broadway south of I-25, Monaco Parkway, Quebec Avenue, Hampden Avenue, West 38th Avenue, East/West Alameda Avenue, East/West Evans Avenue, University Boulevard, Leetsdale Drive, Smith Road/East 40th Avenue, Speer Boulevard/1st Avenue/Alameda Avenue from northwest Denver through Cherry Creek.



GREEN STREETS

In 2003, City Council adopted the Game Plan which is a master plan developed by the Parks and Recreation Department. The driving theme of the Game Plan is to further develop Denver as a “City in a Park.” Green Streets, one element of the Game Plan, are defined as a system of continuous, safe and accessible connections among Denver neighborhoods. The Green Streets system builds upon the historic boulevards and parkways, strengthening connections between schools, parks, and other neighborhood amenities.

A joint session with the Advisory Team and key Parks and Recreation Department staff was held to discuss the similarities and differences between the pedestrian routes (explained below) and the Green Streets. It was determined that although there were slight differences in the criteria and methodology used to identify the proposed streets, the overarching goals for the pedestrian routes and Green Streets were very similar. It was agreed that both routes should be combined into one system to reinforce their importance in the Game Plan, the Pedestrian Master Plan and to the City as a whole.

PEDESTRIAN POTENTIAL MODEL, PEDESTRIAN FOCUS AREAS AND PEDESTRIAN ROUTES

The Advisory Team used a geographic information systems (GIS) tool to locate concentrations of pedestrian destination points as a first step to determining necessary connections. If the connections were already served by an enhanced bus transit corridor or a green street, that was considered sufficient. If not, the team identified additional pedestrian routes. The additional routes connected within and between the various pedestrian destinations. The analysis, or Pedestrian Potential Model, is explained below.

The goal of the GIS analysis was to locate areas throughout the City that have the best potential for significant pedestrian activity. The Advisory Team chose grid cell analysis, a GIS based analysis, for three reasons. First, it provided an objective tool that measured pedestrian potential throughout the City based on parameters defined by the Advisory Team. Second, it provided enough flexibility to measure a large geographic area. Third, the variables used in the model can be adjusted in future analyses to emphasize different features within the model or new facilities and destination points.

The model was based on five land use features that are likely to encourage walking as a primary transportation choice: light rail transit stations, schools (public and some private, K-12), parks and parkways, libraries and neighborhood destinations.

A key function of the study was to analyze the distance between features enabling the model to determine where features reach a point of critical concentration. To begin the analysis, sidewalks from an aerial photo were digitized into lines (see Sidewalk Inventory, Map 1) and then converted to grid cells. Converting the sidewalks to cells allowed each cell to be assigned its own unique mathematical value. The value for each cell is based on whether a feature, such as a school or light rail transit station, is in proximity to that cell, the level of importance or weighting of the feature that the cell is close to, and the overall distance that particular cell is from all of the other features.



The Advisory team weighted each feature for its level of importance as a destination for pedestrians. The model also evaluated the distance of any given section of a sidewalk from any of the identified land uses. The following is a list of the weighting values used in the final model.

Table 1: Weighting Values for each Feature

Schools	10
Light Rail Transit Stations (Existing)	8
Parks and Parkways	6
Neighborhood Destinations	6
Libraries	4

Table 2: Weighting Values Based on the cell's Distance from any of the Features

Within 600 feet	10
1/4 mile	9
1/3 mile	8
1/2 mile	5
3/4 mile	3
1 mile	1

The Advisory Team approved this weighting scheme under the premise that schools are slightly more important as pedestrian destinations than light rail stations (See Figure 1).

This model displayed an even distribution of cell values and geographically dispersed areas of potential high pedestrian use, or “hot spots,” throughout the City. These hot spots or pedestrian focus areas (PFAs) were further delineated with respect to the enhanced bus transit corridors, Green Streets and overall input from the Advisory Team based on their knowledge of the City.

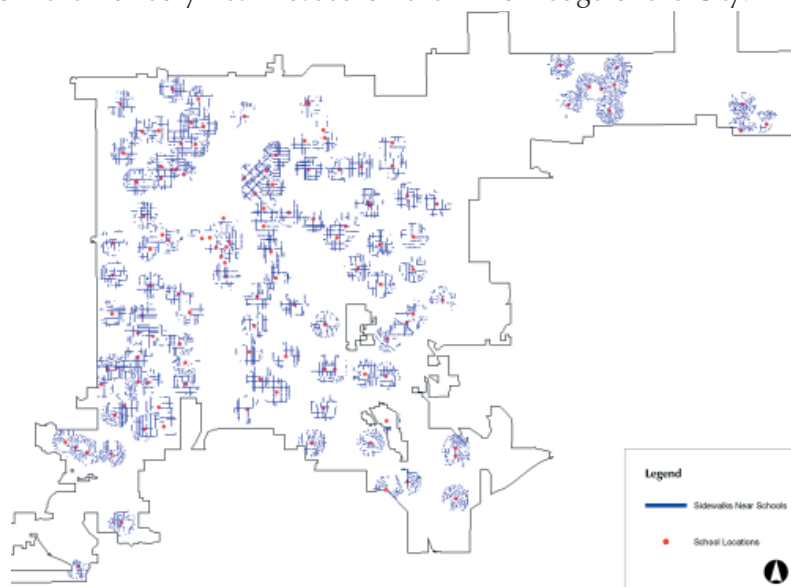


Figure 1: Grid Model for Schools

PEDESTRIAN ROUTE NETWORK

To develop the pedestrian route network, the Ped Plan adopted all of the enhanced bus transit corridors and the Green Streets as routes in the pedestrian network and supplemented those with additional pedestrian routes. City staff conducted site visits to verify that the designated routes currently have or have the highest potential to serve pedestrian needs and make the desired connections. The final citywide pedestrian route network, then, is a combination of enhanced bus transit corridors, Green Streets and supplemental pedestrian routes. The Pedestrian Master Plan recommends that an assessment be conducted to identify specific improvements along the pedestrian network.

In order to encourage walking as a mode choice for our citizens, the city must take every opportunity to protect and improve the streets designated on our pedestrian network. These are the streets that can best attract and accommodate pedestrian travel.

PEDESTRIAN LEVEL OF QUALITY

The purpose of the pedestrian level of quality (LOQ) is to identify the minimum acceptable characteristics of a pedestrian zone and the additional features the City desires to have on streets in the pedestrian network. Though adoption of this plan does not mandate that all construction comply with the LOQ as defined by the Ped Plan, it does provide guidance and support for building to these standards. The LOQ defines the pedestrian zone as the area from the back of the curb to the property line, usually including the tree lawn and sidewalk, and abutting the property/right-of-way line. Many areas of the City have different pedestrian needs and pedestrian zone characteristics but the plan process identified a need to establish a set of minimum acceptable sidewalk characteristics.

Some specially designed and protected streets – Denver’s designated parkways and boulevards – will have a dual role as Green Streets, Enhanced Bus Transit Corridors and typical streets. Because of their historic character and design, these designated (and any future designated) parkways and boulevards are protected by their own set of design and management guidelines, parkway setbacks, and Ordinances. Any changes to a parkway(s) must be approved by the Manager of Parks and Recreation. Due to these special requirements, how the pedestrian zone and level of quality is defined on these designated streets may differ from other streets.

The purpose of LOQ is to establish a different set of baseline criteria or guidelines for the Enhanced Bus Transit Corridors, Green Streets, Pedestrian Routes and other City streets (typical).

Both the level of quality and the pedestrian network will serve as tools for improving pedestrian facilities citywide. The network identifies where improvements should be prioritized and the LOQ recommends what kind of improvements should be included.



CITY AND COUNTY OF DENVER PEDESTRIAN MASTER PLAN

Level of Quality	Enhanced Bus Transit Corridors	Green Streets / Pedestrian Routes	Typical Streets
<i>Definition</i>	<i>As defined by Blueprint Denver</i>	<i>As defined by the Game Plan and the Pedestrian Master Plan</i>	<i>Any pedestrian way not on an enhanced bus transit corridor, Green Street, or Pedestrian Route</i>
Guidelines	<ol style="list-style-type: none"> 1. 16' minimum pedestrian zone. 2. 8' minimum tree lawn, either green or hardscaped. 3. 8' minimum continuous detached or 16' continuous attached sidewalk. 4. Curb ramps at every intersection. 5. Benches or shelters at most transit stops. 6. Pedestrian signals at all signalized intersections. 7. Crosswalks, signage, pedestrian refuges and other safety features define the pedestrian environment at major intersections. 	<ol style="list-style-type: none"> 1. 13' minimum pedestrian zone. 2. 8' minimum green tree lawn, preferably wider on Green Streets. 3. 5' minimum continuous detached sidewalk. 4. Continuous curb ramps at every intersection. 5. Benches and trash cans where appropriate. 6. Pedestrian signals at all signalized arterials. 7. Crosswalks or other features define the pedestrian environment at major intersections. 	<ol style="list-style-type: none"> 1. 13' minimum pedestrian zone. 2. 8' minimum tree lawn, either green or hardscape. 3. 5' minimum continuous detached or attached sidewalk. 4. Curb ramps at every intersection. 5. Benches at most transit stops with trash cans at heavy use stops. 6. Pedestrian signals at all signalized arterials. 7. Crosswalks or other features define the pedestrian environment at major intersections.

Enhanced Bus Transit Corridors Include: Federal Boulevard, Colorado Boulevard, Brighton Boulevard, North of Downtown, East/West Colfax, Broadway South of I-25, Monaco Parkway, Quebec Avenue, Hampden Avenue, West 38th Avenue, East/West Alameda Avenue, East/West Evans Avenue, University Boulevard, Leetsdale Drive, Smith Road/East 40th Avenue, Speer/Alameda corridor from Northwest Denver through Cherry Creek.



Denver’s Designated Parkways and Boulevards
<i>East Alameda Avenue – Steele St. to Quebec</i>
<i>Berkeley Cutoff – W. 46th Ave. at Yates St. to Sheridan Blvd.</i>
<i>Bonnie Brae Blvd. – University at Exposition to Mississippi at Steele</i>
<i>Buchtel Blvd. – Clarkson to Colorado</i>
<i>Cherry Creek Drive (north and south sides) – University to Quebec</i>
<i>Clermont Street - E. 3rd to E. 6th E</i>
<i>Colorado Blvd. south City limits to Dartmouth; I-25 to 44th Ave.</i>
<i>Downing St. – Speer to E. Bayaud</i>
<i>Federal Blvd. – south City limits to 25th Ave.; 26th Ave. to north City limits</i>
<i>Forest Street - E. 17th to Montview</i>
<i>Franklin Street - E. 1st Ave. to E. 4th Ave.</i>
<i>Gilpin Street - E. 1st Ave. to E. 4th Ave.</i>
<i>High Street - E. 1st Ave. to E. 4th Ave.</i>
<i>Hale Parkway – East 12th to Colorado to 8th Ave at Grape</i>
<i>S. Irving Street Pkwy – W. Evans to W. Jewell Ave.</i>
<i>Martin Luther King, Jr. Parkway - Elizabeth to Quebec</i>
<i>Monaco Street – 40th Ave. to Quincy Ave.</i>
<i>South Marion Street - E. Bayaud at Downing to Marion Street, south to E. Virginia</i>
<i>Montview Boulevard - Colorado Blvd. To Syracuse</i>
<i>Park Ave. – E. Colfax to E. 20th Ave. (nomination for Denver Historic Landmark underway)</i>
<i>Richtofen Place Parkway - Monaco to Oneida</i>
<i>Speer Boulevard – Federal Blvd. to Downing St.</i>
<i>University Boulevard – south City limits to Yale Ave. Iowa to 6th Ave.</i>
<i>Williams Street - E. 8th to E. 4th</i>
<i>E. 1st Ave. (Downing to University)</i>
<i>E. 3rd Ave. - Gilpin to Downing and Colorado Blvd. to Clermont Street</i>
<i>E. 4th Ave. - Williams to Gilpin</i>
<i>E. 6th Ave - Colorado to Quebec</i>
<i>E. 7th Ave. - Williams to Colorado</i>
<i>W. 14th Avenue – Bannock to Broadway</i>
<i>E. 17th Avenue - Colorado to Monaco</i>
<i>26th Ave. Pkwy. – York St. to Colorado</i>
<i>W. 46th Ave. Federal to Sheridan</i>
<i>City Park Esplanade - Colfax to 17th Avenue</i>







“Neighborhoods...are safe because people are on the sidewalk and porches with ‘eyes on the street.’”

Comprehensive Plan 2000

