Design Standards

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Spring 2006
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Introduction

Champaign County Trails Design Standards were created to facilitate the development of all non-motorized paths throughout Champaign County, Illinois. Non-motorized paths include sidewalks, bike lanes, shared use trails, and nature trails. Existing trails in the area are of varying widths and materials, and there are no standard facilities or design features that show users that they are using a trail that is part of an overall countywide system. Once implemented, these design standards will help create a recognizable and consistent system of greenways and trails that Champaign County can be proud of.

These standards were developed utilizing a collection of resources to ensure that the end product meets the needs of municipalities, special use districts, grant-funding agencies, and trail users, while maintaining accessibility requirements. In compiling these standards, best practices already in use in counties across the nation were combined with standards tailored to the specific needs of Champaign County.

Objectives and Goals

The creation of countywide trails design standards is the first step in the implementation of the Champaign County Greenways & Trails Plan as adopted in February 2004. The goal related to creating countywide design standards, as stated in the Greenways & Trails Plan, is “All Champaign County residents will be provided with a greenways and trails system that emphasizes safety and user-friendliness.” The objectives of these design standards are to create a countywide system of trails that are safe, user-friendly, meet or exceed the standards of primary grant-funding agencies, and maintain environmental integrity. These standards are intended to create a system of trails that capture the community character and history of Champaign County and to serve as an educational and recreational resource for trail users.

General Standards

• All paved surfaces shall meet or exceed all applicable Illinois Department of Transportation (IDOT) standards for the installation of surface type.
• All paved surfaces shall meet or exceed all applicable locale codes.
• All paved surfaces shall meet or exceed current AASHTO standards for trail type.
Methodology

My first task was to interview participating agencies, including representatives from Champaign County, cities and villages, the park districts, the University of Illinois, the CU Mass Transit District, IDNR and IDOT, and key local developers. I asked them questions such as what they wanted addressed in the design standards, what format they preferred, what standards the agencies currently followed, and the process their agency would go through to adopt the design standards into practice if they chose to do so. Many of the representatives I spoke with were on the Greenways Steering Committee, so they were familiar with the Greenways and Trails Plan and were interested in its implementation.

Interviews:

- City of Champaign
  - Public Works: Steve Wegman
  - Planning: Danielle Rideout and Rob Kowalski
- City of Urbana
  - Public Works: Bill Gray and Doug Miller
  - Planning: Libby Tyler, Paul Lindahl, and Matt Wempe
- Village of Savoy
  - Public Works: Frank Rentschler
  - Parks & Grounds: Joshua Mikeworth
- Village of Rantoul
  - Public Works: Pete Passarelli
- Village of Mahomet
  - Village Administrator: Teri Legner
- Champaign County Highway
  - Jeff Blue
- Champaign Park District
  - Terri Gibble and Bobbie Herakovich
- Urbana Park District
  - Facilities Planning: Tim Bartlett
- Champaign County Forest Preserve District
  - Facilities Planning: Sally Prunty
- CU Mass Transit District
  - Planning: Cynthia Hoyle and Bill Volk
- University of Illinois
  - Facilities Planning: Kevin Duff
  - Facilities Engineering: Gary Biehl
- Champaign County Planning & Zoning
  - Frank Dinovo, Rita Black, and Susan Chavarria
- Champaign County Board
  - Chair: Barb Wysocki
- Illinois Department of Natural Resources
  - Marla Gursht (Springfield)
- Illinois Department of Transportation
  - Bureau of Design & Environment: Todd Hill
- Key Local Developers
In general, support for countywide trails design standards was high, although many agencies stressed the importance of keeping the standards flexible for different settings and circumstances. They wanted a short document that would be user-friendly and easy to understand, and they wanted more pictures and diagrams and less text. Safety and practicality were top priorities for each agency, with separation of pedestrians and bicyclists from vehicular traffic and low-cost construction mentioned frequently. After compiling the information from my interviews, my next task was to determine the format of the design standards. Keeping in mind suggestions made by the different agencies and formats used in other regions, I decided to separate the document by trail type: sidewalks, bike lanes, shared-use trails, and nature trails. I also included a section on connections and crossings, and facilities at trailheads and rest areas. Each section begins with a description of the feature’s use, followed by a cross-section with dimensions and engineering specifications. All design standards for Champaign County follow what is recommended by the Illinois Department of Transportation and the Illinois Department of Natural Resources for grant funding purposes, as well as accessibility.

The first draft of the Design Standards was completed by the end of October and was distributed to the agencies for comment. I gave a presentation of the draft contents to the Greenways Steering Committee in November, during which time the committee shared their comments with each other and made suggestions for revision. I then incorporated their comments into a final draft which was sent to the Committee in December for approval. The next step is to have each agency formally adopt the Design Standards and incorporate them into practice. This process is ongoing, and is anticipated to move forward in late Spring 2006.
Sidewalks

Sidewalks are used primarily by pedestrians. Sidewalks in Champaign County should be accessible to all users. It is important that sidewalks be provided extensively throughout the transportation network to provide pedestrians with a safe place to walk, ambulate, or bicycle. It should be noted that all bicyclists who choose to travel on sidewalks have the same rights as pedestrians, except where prohibited. Accessible sidewalk facilities should be provided on all new right-of-way projects in Champaign County.

Dimensions

- **Width**
  - The recommended minimum width of all sidewalks is 5 feet. Sidewalks in high traffic areas, including the commercial, downtown, and campus districts, may require a width of 6 feet or greater as determined by the appropriately designated person.
  - Transitions from existing narrower sidewalks may be made using tapers.
- **Buffer**
  - Sidewalks should have a 2 foot wide mowed shoulder on both sides of the paved surface.
- **Vegetative Distance**
  - The vegetative distance between the concrete surface and any water bodies (stream, wetland, lake) is recommended to be a minimum of 10 feet to reduce water pollution potential from runoff and chemicals associated with paved surfaces.
- Sidewalks should have a vertical clearance of at least 8 feet.
- Maximum distances for expansion joints should not exceed 75 feet.

**Sidewalk Cross-Section**

- 5-foot wide concrete sidewalk
- 2-foot mowed shoulder
- 2% maximum cross-slope
- 6-inch thick concrete
- 2-inch sand subbase
Engineering

• All engineering of sidewalks should meet the applicable agency’s accepted engineering design standards.
• All newly constructed sidewalks should comply with ADA accessibility guidelines.
• Slope
  o The longitudinal slope of all sidewalks should be a maximum of 8 percent to maintain accessibility.
  o The cross-slope of all sidewalks should be a maximum of 2 percent to maintain accessibility and should slope in one direction or be crowned.
• Ramps
  o Ramp specifications should follow the Illinois Accessibility Code.
    ▪ The least possible slope should be used for any ramp.
    ▪ The maximum slope of a ramp in new construction should be 1:12.
    ▪ The maximum rise for any run should be 30 inches.
    ▪ The minimum clear width of a ramp should be 36 inches.
    ▪ If a ramp has a rise greater than 6 inches (150 mm), or a horizontal projection greater than 72 inches (1830 mm), it should have handrails on both sides.
• Curb Ramps
  o Curb ramps should be installed in all new sidewalk construction projects wherever an accessible route crosses a curb, as well as where existing sidewalks cross a curb or other barrier.
  o The maximum slope of a curb ramp in new construction should be 1:12.
  o The minimum width of a curb ramp should be 36 inches (915 mm), exclusive of flared sides.
  o Diagonal curb ramps should not be used because they do not allow pedestrians to properly align with crosswalks.
  o Handrails are not required on curb ramps.

![Ramp Cross-Section](image)

Components of a Curb Ramp

Source: U.S. DOT Federal Highway Administration

Ramp Cross-Section

Source: U.S. DOT Federal Highway Administration
Subgrade, Subbase, and Sidewalk Surface

- Subgrade
  - Vegetation should be cleared from the 5-foot wide sidewalk path.
- Subbase
  - Concrete should be laid on a fill sand bed of at least 2 inches deep.
- Sidewalk Surface
  - The sidewalk surface should be concrete.
  - The concrete surface should be 6 inches thick.
  - The sidewalk surface should be jointed to control cracking.
  - A rough brushed surface is recommended to increase traction.

Markings

- Truncated domes of a contrasting color should be applied at an approach to an intersection to warn pedestrians of adjacent traffic.
Bike Lanes

An on-road bike lane is a one-way path that carries bicyclists in the same direction as the adjacent motorized travel lane. Bike lanes should be located on the right side of the roadway, between the parking lane (if one exists) and the travel lane. Bicycles traveling in bike lanes have the same rights and responsibilities as motorized vehicles.

Dimensions

- **Width**
  - The recommended width of a bike lane should be 5 feet (1.5 m).
  - The minimum bike lane width should be 4 feet (1.2 m), not including gutter flag, or 5 feet (1.5 m) adjacent to curb and gutter or curbed parking.

- **Slope/Drainage**
  - To follow the road engineering standards adopted by each agency.
  - Drainage grates and utility covers should be adjusted flush with the road surface and be bike-proof.
  - Curb inlets should be used to eliminate exposure of bicyclists to grates.

- **Sub-Grade, Sub-Base, and Trail Surface**
  - To follow the road engineering standards adopted by each agency.
  - Paved shoulders marked as bike lanes should be smooth and maintained to provide a desirable riding surface.
Bike Lane Signage

Signs along bike lanes are intended to inform both bicyclists and motorists of the rules associated with roads with bike lanes. All signage should follow the Illinois Department of Transportation *Manual of Uniform Traffic Control Devices*.

- Sign 1 should be placed at periodic intervals along the marked bike lane.
- Sign 2 should be mounted directly below Sign 1 in advance of the beginning of a marked bike lane.
- Sign 3 should be mounted directly below Sign 1 at the end of a marked bike lane.
- Sign 8 should be used only in conjunction with Sign 7, and shall be mounted directly below Sign 7.
- Signs 9 and 10 should be installed no less than 50 feet from the start of the designated bike lane.
- Signs 9 and 10 should be installed where there is insufficient width for a designated bike lane.

Source: MUTCD

<table>
<thead>
<tr>
<th>Sign Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 30” x 24”</td>
<td>BIKE LANE</td>
</tr>
<tr>
<td>2. 30” x 12”</td>
<td>AHEAD</td>
</tr>
<tr>
<td>3. 30” x 12”</td>
<td>ENDS</td>
</tr>
<tr>
<td>4. 36” x 30”</td>
<td>BEGIN</td>
</tr>
<tr>
<td>5. 12” x 18”</td>
<td>RIGHT TURN</td>
</tr>
<tr>
<td>6. 12” x 18”</td>
<td>LANE</td>
</tr>
<tr>
<td>7. 12” x 18”</td>
<td>YIELD</td>
</tr>
<tr>
<td>8. 12” x 18”</td>
<td>TO BIKES</td>
</tr>
<tr>
<td>9. 12” x 12”</td>
<td>RIGHT WAY</td>
</tr>
<tr>
<td>10. 24” x 24”</td>
<td>SHARE THE</td>
</tr>
<tr>
<td></td>
<td>ROAD</td>
</tr>
</tbody>
</table>

Source: MUTCD
Bike Lane Markings
All bike lane surface markings should be retroreflectorized and be made of skid-resistant material for safety.

- **Striping**
  - 6 inch (150 mm) wide solid white line separating bike lane from motor vehicle lane.
  - 4 inch (100 mm) wide solid white line separating the bike lane from parking spaces.

- In areas where a sidewalk runs adjacent to or near a bike lane, such as on the University of Illinois campus, the bike lane should have a “Bike Only” sign painted on the surface to discourage pedestrians from using the bike lane as a walkway. Surface markings should be consistent throughout the community.

- **Intersections approaches with bicycle lanes**
  - A through bicycle lane should not be positioned to the right of a right turn only lane.
  - When the right through lane is dropped to become a right turn only lane, the bicycle lane markings should stop at least 100 feet before the beginning of the right turn lane. Through bicycle lanes should resume to the left of the right turn only lane.
  - No markings should be painted in the intersections.
  - If used, the bicycle lane symbol marking should be placed immediately after intersections and as appropriate.
Shared-Use Trails

A shared-use trail is a recreational pathway that may be used by pedestrians, bicyclists, rollerbladers, strollers, and skateboarders. They may connect parks, employment centers, shopping centers, and public places. Shared-use trails should not be located immediately adjacent to interstate highways.

Dimensions

- **Width**
  - The desired width of the surface of a shared-use trail is 10 feet. The minimum width should not be less than 8 feet.
  - Transitions between existing narrower trails and the 10 foot wide shared-use trail should be created using tapers.
- A 3-foot wide clear zone should be maintained adjacent to both sides of all shared-use trails for the use of joggers and to keep vegetation from erupting through the trail surface.
- Where a roadway runs adjacent to or near a shared-use trail, the roadway should be separated from the shared-use trail with a 5 foot wide clear zone.
  - When separation of five feet cannot be achieved, a physical barrier of at least 4.5 feet high between the trail and the roadway is recommended.
  - Smooth rub rails should be attached to the barriers at handlebar height of 3 ½ feet.
- The vegetative distance between the trail edge and any water body (stream, wetland, or lake) is recommended to be a minimum of 10 feet to reduce water pollution potential from runoff and chemicals associated with paved surfaces.
- **Vertical Clearance**
  - The vertical clearance should be a minimum of 8 feet high (or higher to accommodate maintenance vehicles).
  - Tunnels and other undercrossings should have a vertical clearance of at least 10 feet.
Subgrade, Subbase, and Trail Surface

- Subgrade
  - The trail and shoulders should be cleared of organic materials. Soil sterilants should be used where necessary to prevent vegetation from erupting through the pavement.

- Subbase
  - The sub-base should be a 6-inch compacted crushed rock.
• **Trail Surface**
  o The following are acceptable surface types for shared-use trails:
    ▪ Asphalt
    ▪ Concrete
    ▪ Compacted crushed rock
  o The paved surface should be a minimum of 4 inches thick or follow the applicable agency’s specifications, whichever is greater.
  o Shared-use trails should be designed to sustain without damage wheel loads of occasional emergency, patrol, maintenance, and other motor vehicles that are expected to use or cross the path.
  o Edge support to accommodate vehicles can be in the form of stabilized shoulders or in additional pavement width.
  o Shared-use trails should be machine laid, using the appropriate machines and tools to smooth and compact the trail surface.

**Engineering**
• Refer to the most recent adopted edition of the AASHTO “Guide for the Development of Bicycle Facilities” for engineering specifications, including design speed, sight distances, horizontal alignment and superelevation.
Shared-Use Trail Signage
Shared-use trail signage, especially Signs 1 and 2, should be shielded from road user visibility to decrease confusion. Sign 5 should be installed at the entrance to a shared-use trail. The trail should be signed at cross streets and vice versa so trail users know where they are and motorists recognize that they are crossing a trail. Stop signs should not be used where Yield signs would be acceptable.

Lateral sign clearance should be a minimum of 3 feet and a maximum of 6 feet from the near edge of the sign to the near edge of the path. The mounting height for ground-mounted signs should be a minimum of 4 feet and a maximum of 5 feet, measured from the bottom edge of the sign to the near edge of the path surface. Overhead signs should have a clearance of 8 feet from the bottom edge of the sign to the path surface directly under the sign (or higher to accommodate maintenance vehicles).

*Sign Placement on Shared-Use Paths*

Source: MUTCD
Shared-Use Trail Markings

All surface markings on shared-use trails should be retroreflectORIZED and be made of skid-resistant material for safety. Obstructions in the traveled way of a shared-use trail should be marked with retroreflectORIZED material. Striping should not be used on shared-use trails to separate directions; yield signage should be used instead. Where there are curves with restricted sight distance, a 4” wide yellow centerline stripe may be used to separate opposite directions of travel.
Nature Trails

Nature trails are a form of shared-use paths, although they typically run through environmentally sensitive areas. The surfacing and width specifications are more flexible than for shared-use paths; for example, nature trails may have a soft, permeable surface, such as bark, wood chips, or crushed aggregate in lieu of asphalt. Therefore, nature trails are not designed to be ADA accessible. The width of the nature trail may be as narrow as 18 inches to allow for passage through densely vegetated areas and hilly terrain.

Dimensions

- Nature trails should maintain a width of no less than 18 inches.
- Where a roadway runs adjacent to or near a nature trail, the roadway should be separated from the nature trail with a 5 foot wide mowed shoulder or vegetation.
  - When separation of five feet cannot be achieved, an approved, crash-tested physical barrier of at least 4.5 feet high between the trail and the roadway is recommended.
    - Smooth rub rails should be attached to the barriers at handlebar height of 3 ½ feet.
- The vegetative distance between the trail edge and any water body (stream, wetland, or lake) should be maintained at a minimum distance of 10 feet to reduce water pollution potential from runoff and chemicals associated with paved surfaces.
- Vertical Clearance
  - The vertical clearance should be a minimum of 8 feet high (or higher to accommodate maintenance vehicles).
  - Tunnels and other undercrossings should have a vertical clearance of at least 10 feet.

Subgrade, Subbase, and Trail Surface

- In general, earthen trails do not require a subbase.
  - If soils are particularly wet, a layer of geotextile fabric covered with a layer of aggregate may be placed between the ground and trail surface to provide a moisture barrier.
- Trail Surface
  - Nature trails may use a variety of alternative surfacing, some of which are listed below:
    - Bark or wood chips
      - A 4-inch layer of bark or wood chips is recommended.
      - Bark or wood chips should be replaced every year due to compaction and dislocation.
      - Bark or wood chips should not be used near streams or wetlands or on portions of the trail with cross-drainage.
    - Crushed Aggregate
• Well-graded, crushed rock of 1 inch or smaller diameter is recommended.
• A 4-inch thick layer of crushed rock compacted to 95 percent is recommended.
• The sub-grade should be prepared and compacted to prevent vegetation encroachment.

- Plastic lumber
  - Plastic lumber is suitable for boardwalks in wet areas.
  - Plastic lumber may be colored or painted to blend in with the surroundings.

**Engineering**
• Due to their often-varied topographic setting, nature trails are not designed to be handicap-accessible.
• Design Speed should be 15 mph for unpaved trails.
• The trail should be sloped to drain at 3 to 5 percent.
Connections & Crossings

Tunnels
- Existing tunnels should be inspected by an engineer.
- Tunnels should have a 10 foot vertical clearance.
- Tunnels should be 14 feet wide to accommodate maintenance and emergency vehicles.
- Long tunnels should have postings to use flashlights and dismount bikes.

Bridges
- Newly constructed bridges on trails should be engineered based on use and span.
- If the trail corridor contains an existing bridge, the bridge may have architectural or historic features which should be evaluated by an engineer, architect, or historian.
- Decking
  - The decking should be made of 4-inch thick pressure-treated planks (2 inches thick for pedestrian-only bridges).
  - Planks should be laid perpendicular to the beams of the substructure.
  - Planked should be laid with gaps of 1/8 to ¼ inch between planks for drainage and to maintain accessibility.
- Railings
  - Vertical posts should be spaced evenly apart, no more than 6 feet apart.
  - Railings should support a vertical load of 50 pounds per linear foot of rail height.
  - Top rail height should be at least 54 inches above the deck surface for bicyclists (at least 42 inches for pedestrian-only bridges).
  - Middle rail height should be 33 to 36 inches from the deck surface, and no wider than 1 ½ inches.
  - Bottom rail height should be no higher than 15 inches from the deck surface.
  - There should be no more than 15 inches of vertical opening between railings.
- Approaches
  - Approach railings should be constructed the same as the bridge railings.
Railroad crossings

- Trail should cross railroad at no less than a 75-degree angle.
- Gates should be installed at all trail crossings where feasible to increase safety and awareness of train crossing.
- At railroad crossings, path users should yield and watch for trains. A Yield sign may be used to facilitate this behavior.
Facilities at Trailheads and Rest Areas

A trailhead is a public access point at the beginning of a trail or at designated access points along a trail. Trailheads will usually have varying levels of services for trail users, depending on anticipated trail use, proximity to other developments, and site inventories. Rest stops are areas adjacent to the trail corridor that typically have a seating area, whether that is a bench or a gathering of boulders. Rest areas are also appropriate locations for trail art.

The following are a list of trail support facilities that may be included at trailheads and rest stops in Champaign County.

**Information Kiosks**
- All trailheads should have an information kiosk with the following:
  - Trail system maps and brochures
  - Trail Rules and Regulations
  - Distances between rest areas along the trail
  - Interpretive information

**Trail Art**
- To highlight an important trail head in the Champaign County trail system, trail art may be displayed.
- Preferably, the trail art will depict something of local significance or be designed by a local artist.
- Care should be taken to ensure that vandalism is minimized, including securing the art to a heavy base.

**Bicycle Racks**
- Bike racks should be located at trailheads and destinations along trails, as well as at employment centers, schools, public buildings such as libraries and post offices, and shops. Bicycle storage facilities may be used in high traffic areas where users will be away from their bicycles for long periods of time (employment centers, shopping malls, schools) to protect bicycles from weather.
  - Recommended Bike Rack Placement:
    - Located no more than 50 feet from the building entrance or trail entrance.
    - A Minimum of 24 inches from a parallel wall and 30 inches from a perpendicular wall.
    - A minimum of 4 feet from curb ramps, fire hydrants, building entrances, etc.
    - Facilities should not interfere with pedestrian flow. If located on sidewalks, racks and the bicycles linked to them should provide sufficient clearance around them for all types of pedestrians, including wheelchair users.
• Bicycle racks should be mounted on an 6-inch thick concrete slab
• Bike racks should support both wheels to prevent bent rims.
• Bike racks should be fabricated of pipe or other durable material.

Motorized Vehicle Parking
• At major trail access points, motorized vehicle parking may be provided.
• Parking lot specifications should follow the agency’s adopted parking specifications.

Landscaping
• Landscaping at trail heads and along trail corridors should be in reference to the agency’s landscaping ordinance.
• Wherever feasible, use noninvasive native plant species without invasive roots.
• Vegetation may be planted beyond the grading area to discourage users from wandering beyond the trail boundary.
• Trees and shrubs should be set back at least 5 feet from the trail’s edge.
• Where trail users would be exposed to increased wind, sun exposure, or snow, it is recommended to plant evergreens on the north side of the trail and deciduous trees on the south side of the trail (Evergreens will serve as a windbreak year-round, and deciduous trees will provide shade).
• Trees and shrubs may be planted in clusters and groves rather than in straight lines to break up the viewshed and add visual interest.

Benches
• Benches may be placed at rest areas along the trail and at trailheads.
• All benches should meet or exceed ADA accessibility requirements.
• Benches should be set back three feet from the trail edge.
• Bench back should be tilted at a slope of 1 to 2 degrees to prevent standing water
• Bench Dimensions:
  o Length should be 72 to 90 inches.
  o Seat should be 16-20 inches above the ground.
  o Back supports should be 15 to 18 inches high and extend the full length of the bench.
  o Armrests should be provided on both ends of the bench, 6 to 12 inches above the seat.
Bollards

- Bollards are posts or other forms of barricades that prevent unauthorized vehicles from entering a trail.
  - Bollards should be placed 10 feet from the road.
  - The bollard post should be permanently reflectorized for nighttime visibility and painted a bright color for improved daytime visibility.
  - A clearance of at least 32 inches wide should be provided for wheelchair access.
  - When more than one post is used, 5-foot spacing is recommended.
  - The recommended height for bollards is 3 feet.
  - Bollards should be designed to be removable for maintenance and emergency vehicle access.

![Bollard Diagram](image-url)
Drinking Fountains

- Adults: spigot height should be 42 inches above the ground;
- Children: steps should be provided for children to access adult spigot.
- Accessible: spigot should be no higher than 36 inches, with at least 27 inches below the basin

Lighting

- Pedestrian level lighting may be used on Champaign County trails where nighttime accessibility is desired.
- The average maintained horizontal illumination level should be 0.5 foot-candle to 2 foot-candles.
- Lighting should be at the pedestrian scale.
- Lighting is recommended for long overpasses and tunnels.

Trash Receptacles

- Trash receptacles may be located at trail entrances and bench seating areas.
- Trash receptacles should be set back at least 3 feet from the trail edge.
- The container should be secured to a buried concrete slab.
- Dog Cleanup Facilities should be located at trailheads.

Accessible Bathroom

- Accessible bathrooms may be located at major trail heads for trail users’ convenience
- Bathrooms should meet or exceed ADA accessibility requirements.

Payphone

- Payphones located at major trail heads are a useful amenity for the safety and convenience of trail users.
- Payphones should meet or exceed ADA accessibility requirements.
Glossary

- **Accessibility** — The extent to which facilities are barrier-free and usable by people with disabilities, including those using wheelchairs.
- **Amenity** — A useful or attractive feature or service, for example, leisure facilities (encarta.msn.com).
- **Bike lane** — The portion of a roadway surface that is designated by pavement markings and signing for the exclusive use of bicyclists.
- **Bollard** — A vertical barrier installed in the trail surface to prevent unauthorized motorized vehicles from entering the trail.
- **Clear Zone** — An area adjacent to a trail surface that is free of any unyielding obstacle.
- **Nature Trail** — Facilities used exclusively by pedestrians, and are typically found in natural areas.
- **Interpretive information** — Parts of a trail or recreational facility that offer the opportunity to educate the user on various aspects of the landscape, including native plants and animals, geologic history, local history, and local economy.
- **Intersection** — An area where two or more pathways or roadways join together.
- **New construction** — A project in which an entirely new facility is built from the ground up or where a new facility is added to an existing facility.
- **Obstacle** — An object that limits the vertical passage space, protrudes into the circulation route, or reduces the clearance width of a sidewalk or trail.
- **Pedestrian** — A person who travels on foot or who uses assistive devices, such as wheelchairs, for mobility.
- **Rest area** — A level portion of a trail that is wide enough to provide wheelchair users and others a place to rest and gain relief from the prevailing grade and cross slope demands of the path.
- **Rub Rails** — Attached to barriers, such as guardrails, between a shared-use path and a motorized vehicle lane to give bicyclists a smooth surface to come in contact with.
- **Shared use path** — A trail that permits more than one type of user and that has a transportation and recreation function.
- **Sidewalk** — The portion of a highway, road, or street intended for pedestrians.
- **Trail** — A path of travel for recreation and/or transportation within a park, natural environment, or designated corridor that is not classified as a highway, road, or street.
- **Trailhead** — A parcel of land specifically designed as primary means of accessing a trail.
Research Resources

Champaign County Environmental Concerns: A Report to the Champaign County Board from the Environmental Advisory Panel. Champaign County, 2004.


Illinois Trails Grant Program. Illinois Department of Natural Resources. http://dnr.state.il.us/ocd/newtrail2.htm


