


Bennett Regional Trail Plan

January 2011



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1. Planning Process

Background

This Regional Trail Plan is the result of grants awarded to the Town of Bennett through the Arapahoe and Adams Counties' Open Space Grant Programs; and recommendations from the 2009 Bennett Parks, Trails and Open Space Master Plan which states the following goal and objectives:

Goal 2:

Meet Bennett's Growing Community Needs for Facility Improvements and Developments.

Objective 2.1

Develop new facilities which are complementary to the Town's existing parks, trails and open space systems.

Objective 2.2

Improve access to facilities through the development of pedestrian and bicycle pathways and trails

Guiding Principals

The guiding principals behind developing a Regional Trail Plan include:

- Identify a trail network system that incorporates off road greenway trails, bike routes and on-street bike lanes.
- Identify key open space corridors and essential trail easements
- Provide for transportation alternatives, recreation and a network of open space.
- Create a network that traverses the Town and serves as a starting point for a wider regional trail network.
- Connect important origins and destinations including neighborhoods, shopping centers, schools, parks and natural areas, transit stops, etc.

Project Approach

In the summer of 2010 the Town of Bennett, Co. secured professional services and commenced work on the Downtown Planning Study. The Bennett Regional Trail Plan is one (1) of four (4) components within the Downtown Planning Study document (completed in December 2010). The other planning components included a Downtown Planning/Land Use Study, Transportation Plan and Multi-Modal parking facility.

Community Input

The community was deeply involved in the regional trails planning process. Stakeholders, community members and area residents were asked to provide input at different stages on topics including trailhead amenities, locations and types of trail facilities, trail routing and design. The methods to acquire feedback included various presentations, poster board displays and a trail questionnaire. The results from the 11 completed questionnaires follow.

When asked where future trails should be located; the following comments were given:

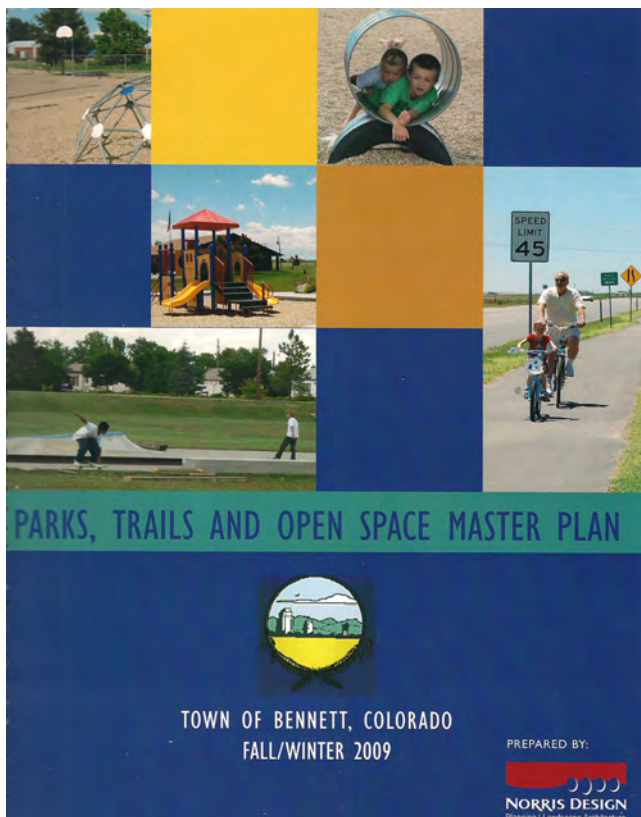


Figure 1.1 Parks , Trails & Open Space Master Plan

- between Bennett and Strasburg;
- through and encircling Town including the Antelope Hills Subdivision;
- along Kiowa Creek, I-70, woodland and wildlife areas; and
- from Antelope Hills to King Soopers/Bennett Marketplace

When asked how new trails would be used:

- 5% recreation;
- 28 % both travel and recreation; and
- 17% did not respond

When asked 'Do you have children who rely on the existing trail/pathways to get around Town?':

- 55% no
- 45% yes

Regional Trail Planning Area

The regional trail planning area is approximately 460 acres in size. The extents of the planning area are shown in Figure 1.2.

It spans over the Adams and Arapahoe county line and includes properties incorporated within the Town limits, as well as some unincorporated parcels of land adjacent to Kiowa Creek.

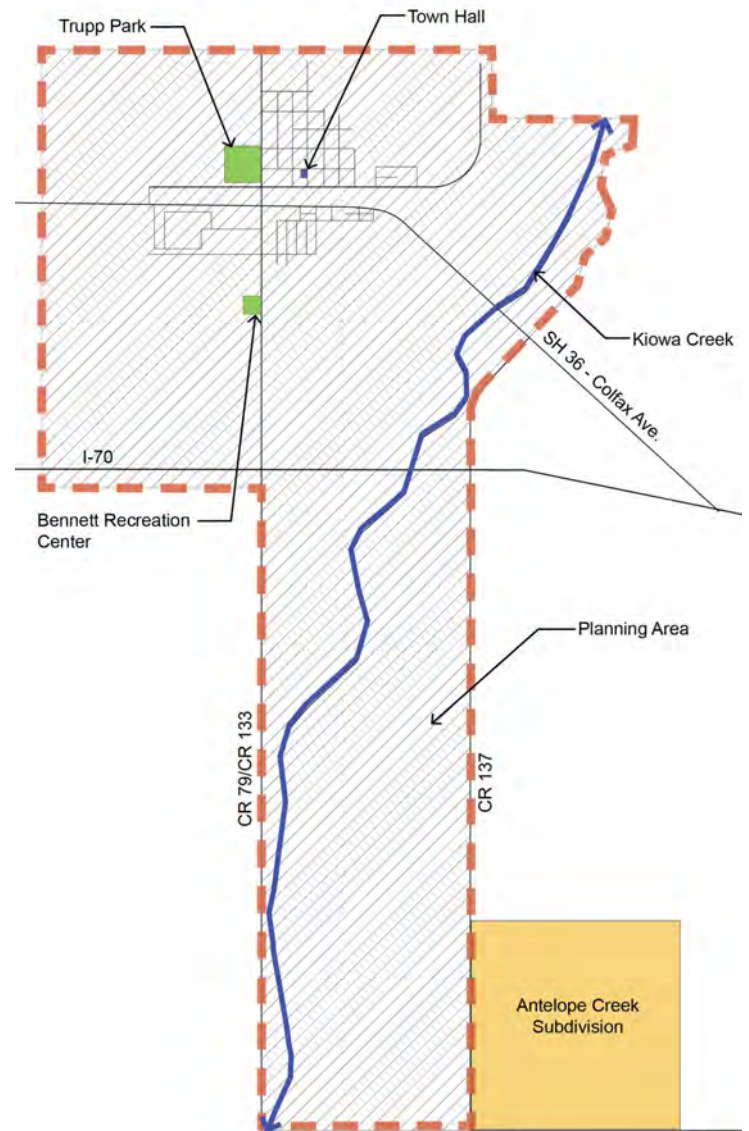


Figure 1.2 Trail Planning Area

2. Inventory & Analysis

Existing Vegetation

The Town of Bennett is located on the western edge of the shortgrass prairie ecoregion within the North American Great Plains. It is primarily comprised of a single herbaceous layer of bunch grasses about 12 to 18 inches in height. The grasslands are used as rangeland for cattle and other livestock production. Riparian corridors along the eastern plains are home to plant species that prefer high moisture levels and include cottonwoods, willows, alders, plums, cattails and tall-grass species. Invasive plant species such as Russian Olive are also prevalent along eastern Colorado's rivers and creeks.

Disturbance of native ecosystems from trail development should be limited. Disturbance during site construction should be mitigated through re-vegetation of native grass species to prevent erosion and limit the establishment of invasive plant species.

Wildlife Habitat

According to the Colorado Division of Wildlife the area provides valuable habitat for several grassland species including the Swift Fox, Burrowing Owl, Deer, Wild Turkey, Prairie Grouse and other grassland birds, mammals, rodents and reptiles. The riparian corridor along Kiowa Creek is of particular importance to local wildlife especially nesting raptors, deer and wild turkey. Much of the private land along Kiowa Creek is utilized for hunting of wild game animals. Hunting is considered one of the most useful means for controlling the deer population in the area.

The 'Railroad Grade Separation Preliminary Feasibility Study' completed by David Evans & Associates defines suitable habitat for two endangered species: the Preble's Meadow Jumping Mouse and Ute Ladies'-tresses Orchid as follows:

"Typical Preble's habitat has been described as 'well-developed plains riparian vegetation with relatively

undisturbed grassland and a water source in close proximity,' and 'dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs'. USFWS recommends, 'projects within 300 feet of 100-year floodplains associated with rivers and creeks be assessed as to their potential impact to Preble's and its habitat'.

Ute ladies'-tresses usually occurs in 'old stream channels, alluvial terraces, sub-irrigated meadows and other sites where the soil is saturated to within 18 inches of the surface at least temporarily during the spring or summer growing seasons'. Kiowa Creek and immediately surrounding riparian habitat meet the minimum requirements for potential orchid habitat".

Construction activities and regular trail use can displace local wildlife. Trails should be located away from high-value wildlife habitats identified by the Colorado Division of Wildlife to include 'riparian zones, nesting sites, or other critical wildlife area.' Wildlife buffer areas should be identified and protected during trail development, maintenance, and use to mitigate habitat destruction and conflicts between trail users, pets, hunters and the existing wildlife population. Topography or vegetation should be used to provide visual buffers and to minimize disturbances to wildlife.

Because the Kiowa Creek and surrounding riparian areas meet or exceeds the minimum criteria for potential Preble's Meadow Jumping Mouse and Ute Ladies'-tresses Orchid habitat, an assessment should be completed prior to the horizontal design and development of any trail within this area.

Fencing along trail corridors should be limited to decrease the impact on existing wildlife circulation routes. Finally, proper trash containment should be provided along trail corridors so that human trash does not become an easy food source for existing wildlife in the area.

Soils

The US Department of Agriculture (USDA) categorizes soil texture based on the total composition of materials from the three texture categories; sand, silt and clay. The smallest soil particles are classified as clay with the largest and coarsest making up sand. Soil Texture Triangle Charts (see Figure 2.1) show that soil containing a somewhat equal percentage of materials from all three categories is classified as loam texture. Based on the map shown in Figure 2.3 and the brief soil descriptions in Figure 2.2, the composition of soils within the regional trail planning area are varying degrees of sand, sandy loam and loamy sand.

Soils will need to be evaluated further to determine specific structural properties, permeability and overall suitability for trail construction. A detailed soil report by an experienced Geotechnical Engineer will offer recommendations for trail construction based on a technical soil analysis.

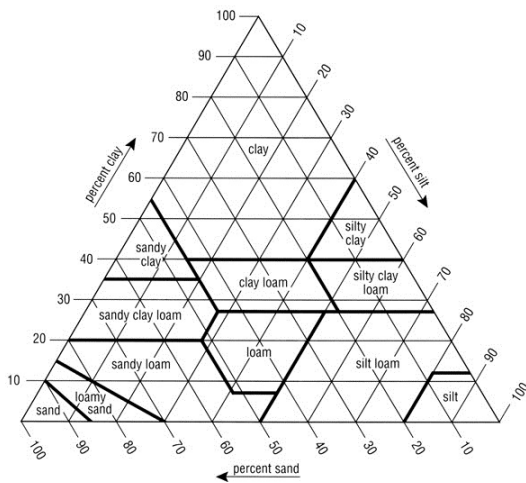


Figure 2.1 Soil Texture Triangle Chart

| Adams County Area, Parts of Adams and Denver Counties, Colorado (CO001) | | | | |
|---|---|----------------|----------------|--|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI | |
| AcC | Adena-Colby association, gently sloping | 169.4 | 1.8% | |
| AsB | Ascalon sandy loam, 1 to 3 percent slopes | 522.0 | 5.6% | |
| AsC | Ascalon sandy loam, 3 to 5 percent slopes | 148.4 | 1.6% | |
| AsD | Ascalon sandy loam, 5 to 9 percent slopes | 302.7 | 3.2% | |
| At | Ascalon-Platner association | 869.3 | 9.2% | |
| BoD | Blakeland loamy sand, 3 to 9 percent slopes | 24.0 | 0.3% | |
| Bt | Blakeland-Truckton association | 50.6 | 0.5% | |
| Lu | Loamy alluvial land | 20.0 | 0.2% | |
| Lv | Loamy alluvial land, gravelly substratum | 23.7 | 0.3% | |
| Lw | Loamy alluvial land, moderately wet | 213.5 | 2.3% | |
| PIB | Platner loam, 0 to 3 percent slopes | 110.2 | 1.2% | |
| ReD | Reno hill loam, 3 to 9 percent slopes | 9.8 | 0.1% | |
| Sm | Sandy alluvial land | 354.3 | 3.8% | |
| StD | Stoneham loam, 3 to 9 percent slopes | 205.1 | 2.2% | |
| Tc | Terrace escarpments | 0.8 | 0.0% | |
| TtB | Truckton loamy sand, 0 to 3 percent slopes | 47.5 | 0.5% | |
| TtD | Truckton loamy sand, 3 to 9 percent slopes | 200.8 | 2.1% | |
| TuB | Truckton sandy loam, 1 to 3 percent slopes | 19.2 | 0.2% | |
| VnD | Vona loamy sand, 3 to 9 percent slopes | 30.9 | 0.3% | |
| WmB | Weld loam, 1 to 3 percent slopes | 375.5 | 4.0% | |
| WrB | Weld-Deertrail complex, 0 to 3 percent slopes | 27.5 | 0.3% | |
| Subtotals for Soil Survey Area | | 3,725.2 | 39.6% | |
| Totals for Area of Interest | | 9,398.8 | 100.0% | |

| Arapahoe County, Colorado (CO005) | | | | |
|---------------------------------------|--|----------------|----------------|--|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI | |
| BkB | Beckton loam, 0 to 3 percent slopes | 5.5 | 0.1% | |
| BoE | Blakeland loamy sand, 1 to 20 percent slopes | 8.8 | 0.1% | |
| BrB | Bresser loamy sand, terrace, 0 to 3 percent slopes | 195.3 | 2.1% | |
| BsB | Bresser sandy loam, terrace, 0 to 3 percent slopes | 34.7 | 0.4% | |
| BvC | Bresser-Truckton sandy loams, 3 to 5 percent slopes | 881.0 | 9.4% | |
| BvE | Bresser-Truckton sandy loams, 5 to 20 percent slopes | 49.0 | 0.5% | |
| BwD2 | Bresser and Truckton soil, 3 to 9 slopes, eroded | 107.6 | 1.1% | |
| BxD | Buick loam, 5 to 9 percent slopes | 14.3 | 0.2% | |
| GP | Gravel Pits | 11.0 | 0.1% | |
| Gr | Gravelly land | 140.9 | 1.5% | |
| Lv | Loamy alluvial land | 6.3 | 0.1% | |
| NIB | Nunn loam, 0 to 3 percent slopes | 278.3 | 3.0% | |
| NrB | Nunn-Bresser-Ascalon complex, 0 to 3 percent slopes | 2,347.3 | 25.0% | |
| RdD | Reno hill loam, 3 to 9 percent slopes | 141.8 | 1.5% | |
| RhD | Reno hill-Buick loams, 3 to 9 percent slopes | 79.2 | 0.8% | |
| RhE | Reno hill-Buick loams, 9 to 20 percent slopes | 77.9 | 0.8% | |
| Su | Sandy alluvial land | 473.6 | 5.0% | |
| TrC | Truckton loamy sand, 1 to 5 percent slopes | 13.1 | 0.1% | |
| TrE | Truckton loamy sand, 5 to 20 percent slopes | 378.7 | 4.0% | |
| WeB | Weld silt loam, 0 to 3 percent slopes | 38.8 | 0.4% | |
| WrB | Weld-Deertrail silt loams, 0 to 3 percent slopes | 245.6 | 2.6% | |
| Subtotals for Soil Survey Area | | 5,673.6 | 60.4% | |
| Totals for Area of Interest | | 9,398.8 | 100.0% | |

Figure 2.2 Soil Map Legend

Wetlands and Floodplains

Kiowa Creek is a 729 mile tributary of the South Platte River flowing northeast through the planning area. It is a dry stream bed except during periods of high precipitation. The US Fish and Wildlife Service has inventory of wetlands located within the regional trail planning area. Figure 2.4 shows existing Palustrine wetland systems adjacent to Kiowa Creek and scattered across neighboring rural land. Palustrine wetlands include inland marshes, swamps and floodplains which lack flowing water and have vegetation dominated by trees, shrubs, herbaceous plants, mosses or lichens.

Wetlands and floodplain areas provide a valuable environmental resource and are generally not suitable for most development specifically buildings and roadways. Every effort should be taken to preserve these areas as open space or conservation easements. Trails and any related earthwork should maintain a minimum 100' distance from all wetland areas. Permanent enclosed building structures including restroom facilities should not be located within the 100-year floodplain boundary. Trail development within the floodplain is acceptable. Figure 2.5 shows the extents of the Kiowa Creek 100-year floodplain.



Figure 2.4 USFWS Wetlands Map



Figure 2.5 100-Year Floodplain

Topography and Climate

The topography within the area is generally level to rolling prairie broken by occasional hills and bluffs. Elevations within the regional trail planning area range from 5450-5600 feet above sea level.

The climate in Colorado’s eastern plains has large seasonal swings in temperature. Hot dry summers and highly variable winters are common with an abundant amount of sunshine throughout the year. Humidity is generally low with moderate to high wind throughout the year. Summer temperatures are often above 95 degrees with winter lows capable of reaching -10 degrees. Summer thunderstorms and winter blizzards provide up to 16 inches of moisture annually with most of precipitation falling from April through September.

Extreme changes in weather can be abrupt and with little warning. The regional trail network will need to accommodate opportunities for trail users to seek temporary relief and refuge from the elements.

Transportation Corridors

The transportation corridors with proximity to the planning area include: Colfax Ave (US36) running east-west and bisecting downtown; State Highway 79 (SH79) running north-south zigzagging through downtown; Interstate 70 (I-70) running east-west and about a mile south of downtown; Kiowa-Bennett Road (CR137) running north-south and located at the eastern edge of the planning area, Converse Road (CR133) running north-south and located at the western edge of the planning area; and the Union Pacific Railroad (UPRR) running east-west adjacent to US36. In addition to roadways there is one existing paved trail running north-south just west of SH79 between US36 and the King Soopers parking lot. The Town has current plans to extend this trail north across the UPRR tracks connecting to the school campus via a concrete sidewalk.

The Town has developed around the existing transportation corridors; and the major highways and railroad divide the Town and existing neighborhoods creating physical barriers for pedestrian and bicycle circulation. The regional trail network will need to address existing circulation conflicts and provide safe alternatives of transpiration for trail users. To help alleviate problematic conflicts between highway/ railroad traffic and emergency services, current studies are looking at alternatives for rerouting SH79 and constructing a grade separated intersection over the UPRR right-of-way. Refer to the Bennett Downtown Planning Study for additional information.



Figure 2.6 Roadway Network

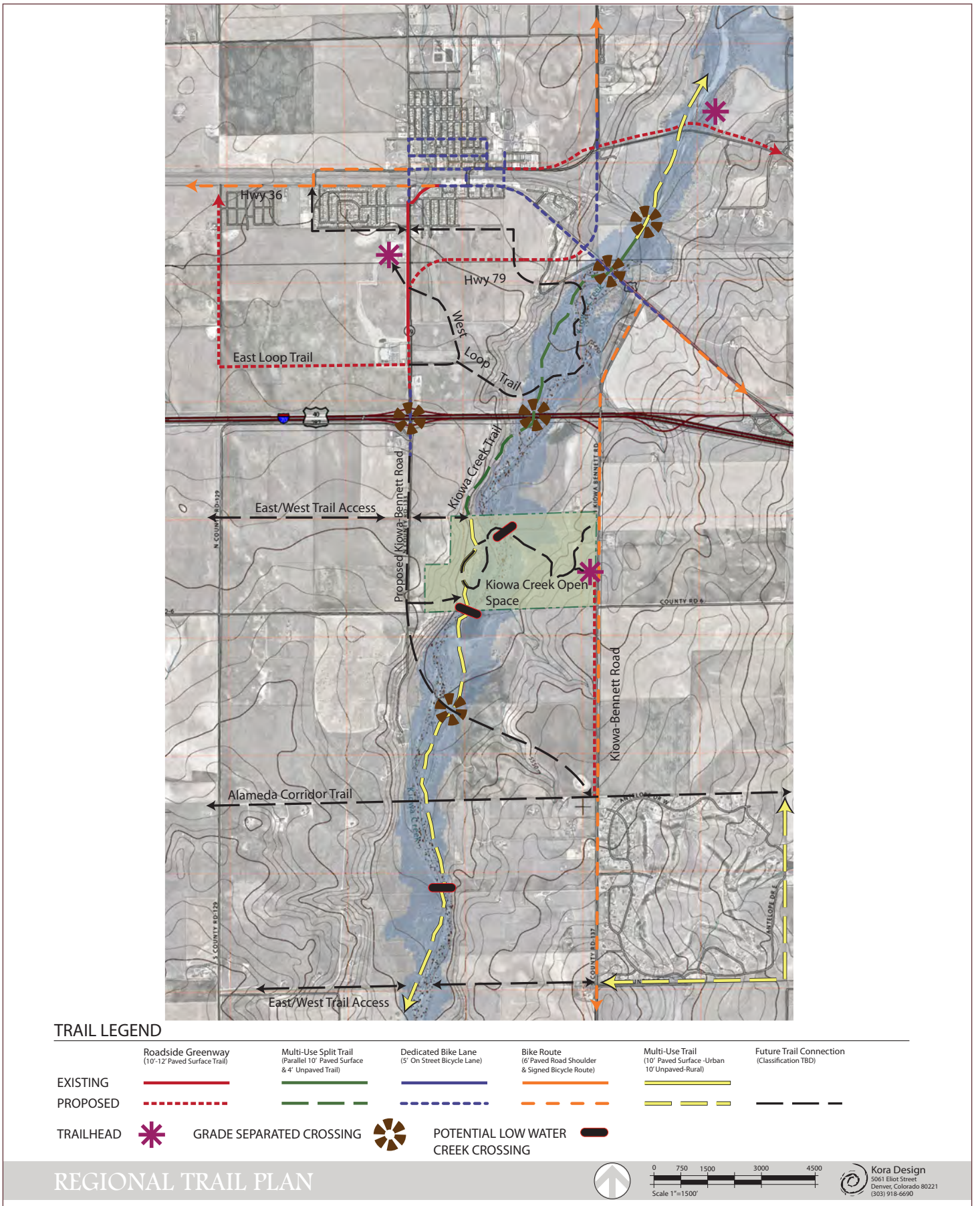


Figure 3.1 Bennett Regional Trail Plan

3. Regional Trail Plan

The Bennett Regional Trail Plan performs a very important function in achieving the community's vision for a multi-modal transportation network (see Figure 3.1). It connects residential neighborhoods to schools, business, and recreation opportunities through a system of parks, recreation facilities, open space, and trails. Connection between existing and planned development is another function of the interconnected trail system.

It is anticipated that the trail network will be used by people of all ages and abilities including area residents and regional visitors. Whether utilizing the trails for recreation or to commute to and from destinations; the trails should accommodate an assorted user group including: runners/walkers, bicyclist, pet owners, in-line skaters, persons with disabilities, equestrians, wildlife viewers and nature enthusiasts.

Trail Users

One of the primary goals of the plan is to accommodate a diverse group of trail users. For purposes of this plan, a variety of trail uses included in the development of the regional trail network were identified. These include:

- Walking, Jogging and Hiking accommodated by either paved or stable crushed rock or earth pathways of varying width (refer to Shared Use Trail Design under 'Trail Classification').
- Multi-Use Trail cycling or slower moving recreational bicyclists including families, novice cyclists, children, elderly and others who prefer a bicycling experience away from automobile traffic in a scenic corridor. Generally, a paved (minimum 10'-wide) or crushed stone surface is preferred.
- Equestrian users prefer a soft but stable natural surface. Equestrian trail users are better served with access points that can facilitate horse trailer parking/unloading and rest areas with hitching racks and drinking water sources for horses. Planning should avoid conflict between horses and other trail uses.

- On-Road Bicycling includes higher speed bicyclists skilled in riding with vehicle traffic. This use requires adequate lane width, paved shoulders, or designated bike lanes.

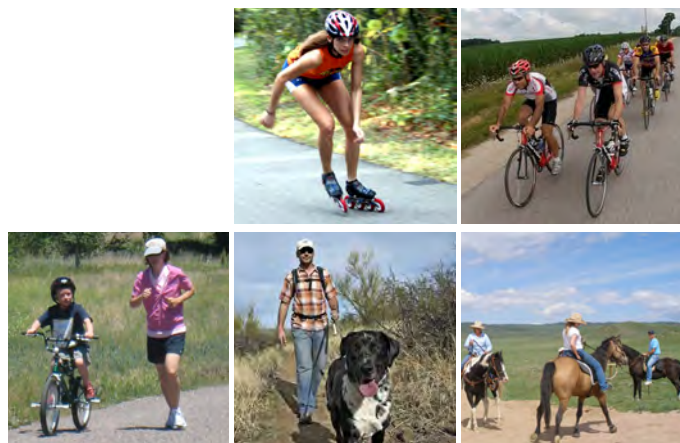
- Training and Fitness includes trail users that are training for competition or personal fitness. These users prefer the ability to maintain their pace without stops or disruptions. Distance and grade markers may be helpful.

- Commuting includes use of the trail system for non-motorized transportation including travel to and from work, schools, between neighborhoods and other destinations. Commuting usually calls for a paved multi-use trail or road system with adequate width and low traffic volumes to accommodate bicycles.

- Bicycle Touring includes long distance rides of a half-day or more. Preferred facilities include a continuous paved multi-use trail or roadways suitable for bicycling. In general this user group will be drawn to the regional trails that connect towns and urban corridors via scenic trail routes.

- In-Line Skating requires a paved multi-use trail surface of adequate width (min. 10'-wide) to accommodate skating.

- Wildlife Viewing, Outdoor Education and Interpretation improvements include viewing blinds, interpretive trails, wayside exhibits and sites for stewardship projects and monitoring.



Proposed Trail Network

The Town of Bennett currently has one existing paved surface trail west of SH79 between Colfax Ave. and the King Soopers/Bennett Marketplace parking lot (see Figure 3.1). This trail segment is frequently used (despite the lack of shade and shelter along the trail) and it served as a building block in the development of the Regional Trail Network. The proposed network consists of nine (9) trail routes and three (3) trailheads that were identified as preferred routes based on input from area residents, Town staff and Downtown Planning Study team members. The proposed trail network is shown in Figure 3.2.

Trail Routes

1. Neighborhood-School Bike Route
2. East Town Loop Trail
3. West Town Loop Trail
4. Bennett-Strasburg Trail
5. Kiowa Creek Trail
6. Kiowa-Bennett Bike Route
7. Watkins-Strasburg Bike Route
8. Kiowa-Bennett Road/ SH79 Trail
9. Alameda Trail

Trailheads

- A. Downtown Trailhead/Parking Facility
- B. Arapahoe County Trailhead
- C. Adams County Trailhead

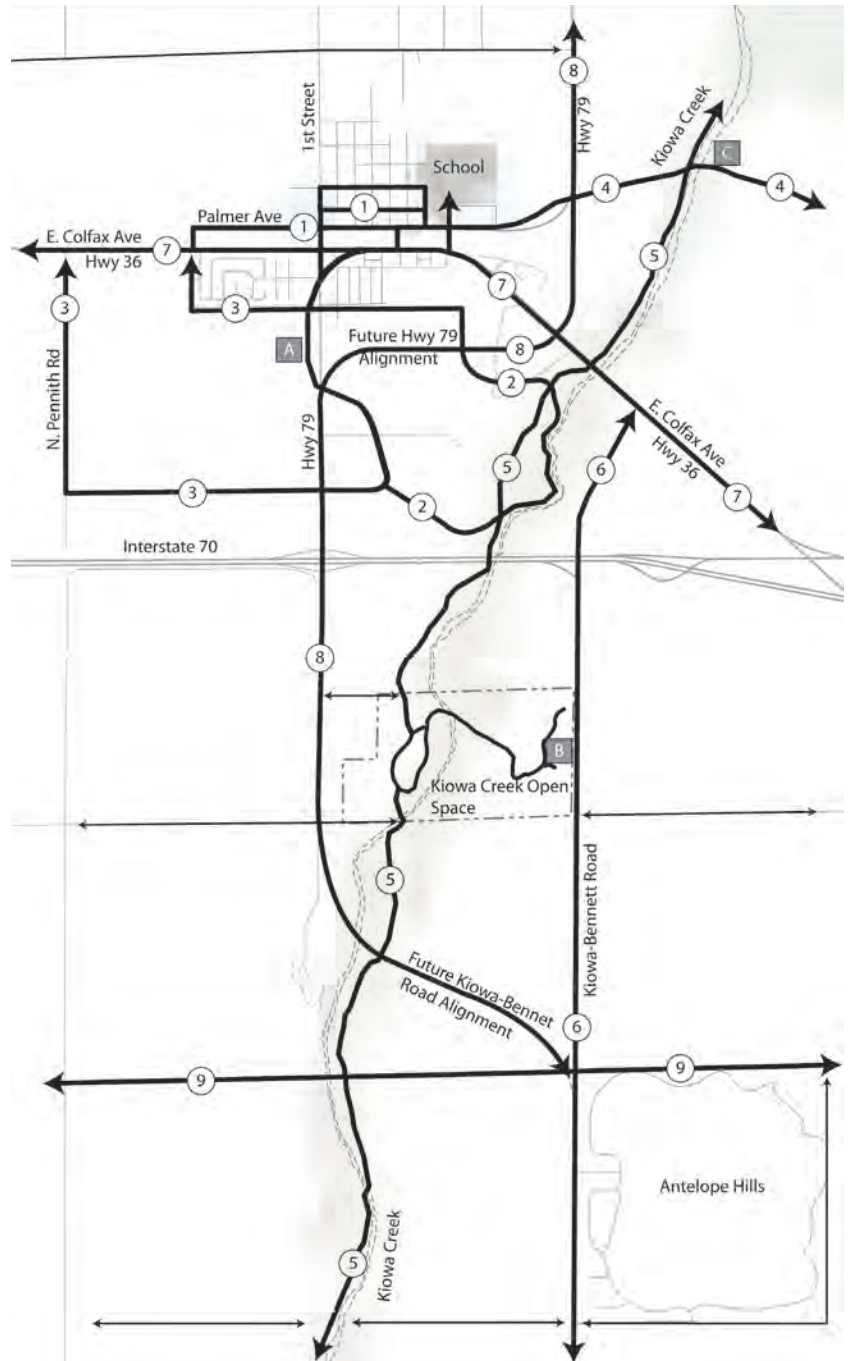


Figure 3.2 Proposed Regional Trail Network

Trail Route Descriptions

The following trail descriptions provide details concerning trail routes, trail connections, opportunities and constraints.

1. Neighborhood-School Bike Route

This on street bike route provides a direct connection for the neighborhoods and the existing trail located south of the tracks to the residential neighborhood, current Town facilities, Trupp Park and the school campus north of the railroad line. This route will also include a designated location for users to cross the UP railroad tracks via a concrete walk adjacent to the paved roadway (see Figure 3.3).

Potential Trail Connections

- Bennett-Strasburg Trail (4)
- Watkins-Strasburg Bike Route (7)
- East Town Loop Trail (2)
- West Town Loop Trail (3)

Opportunities

- This route follows existing paved road corridors, thereby minimizing construction costs and allowing the Town to execute the initial phases of the trail network immediately.

Constraints

- This bike route will have at grade crossings for both US Highway 36 and the railroad creating potential conflicts with both motorized vehicles and daily trains.

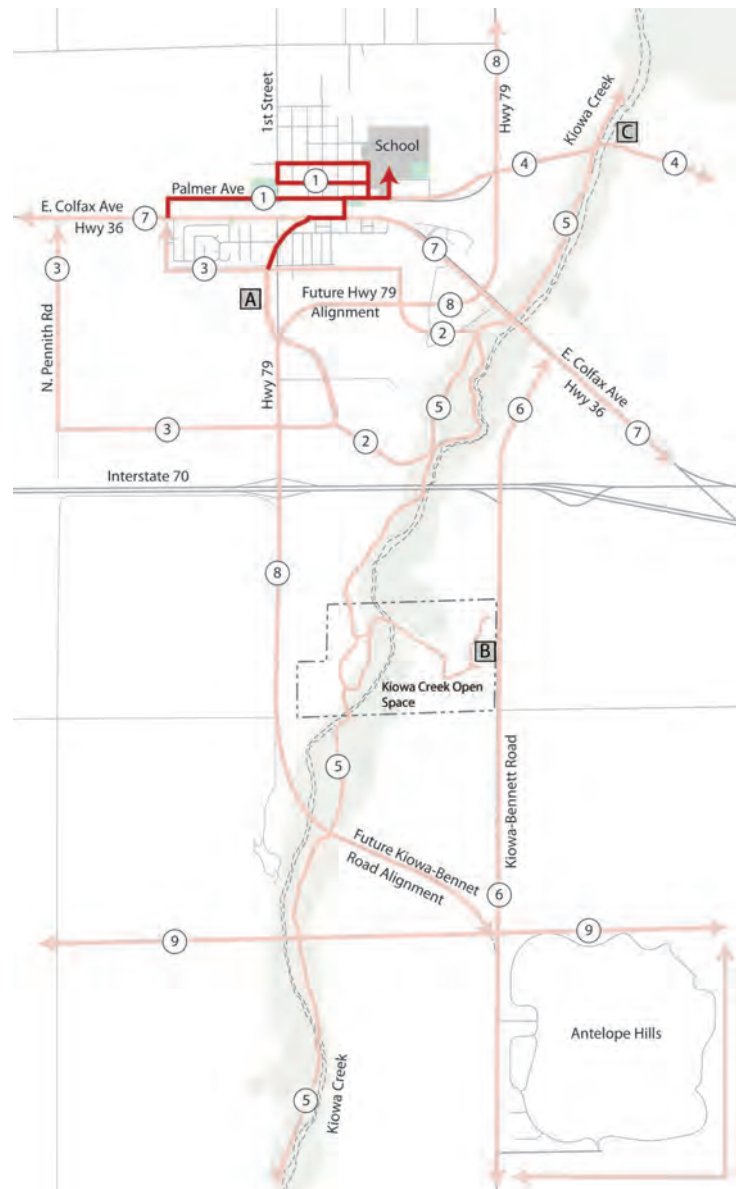


Figure 3.3 Neighborhood-School Bike Route

2. East Town Loop Trail

This trail route will include a multi-use trail that is located within future open space and greenbelts. This will be a key trail link to connect the Downtown Trailhead/Parking Facility with Arapahoe County's Kiowa Creek North Open Space (see Figure 3.4).



Figure 3.4 East Town Loop Trail

Potential Trail Connections

- Neighborhood-School Bike Route (1)
- Watkins-Strasburg Bike Route (7)
- West Town Loop Trail (3)
- Kiowa Creek Trail (5)
- Kiowa-Bennett Road/ SH79 Trail (8)

Opportunities

- This loop trail will ultimately provide direct access from Downtown Bennett to Kiowa Creek allowing trail users to experience the unique riparian environment.
- There is potential to incorporate interpretive displays that enhance user understanding of the natural and/or cultural history of the area.

Constraints

- Slopes within the 100-year floodplain may be in excess of 10%, potentially making it difficult and/or more costly to provide an ADA compliant trail.
- Private landowners may be reluctant to accommodate a trail across their land and agricultural areas.
- This trail connection may not be feasible until the planned open space/greenbelts are acquired or a trail easement is provided.

3. West Town Loop Trail

This roadside greenway trail will provide access to future development between I-70, US Highway 36 and State Highway 79. This trail will be accessible from the proposed civic center and downtown trail head (see Figure 3.5).

Potential Trail Connections

- Neighborhood-School Bike Route (1)
- Watkins-Strasburg Bike Route (7)
- East Town Loop Trail (2)
- Kiowa-Bennett Road/ SH79 Trail (8)

Opportunities

- Existing dirt roads may serve as the trail until future development or demand warrants the construction of the permanent trail.

Constraints

- Private landowners may be reluctant to accommodate a trail across their land and agricultural areas.
- The trail connection from Penrith Rd. to Highway 79 may not be feasible until a ROW or trail easement is provided.

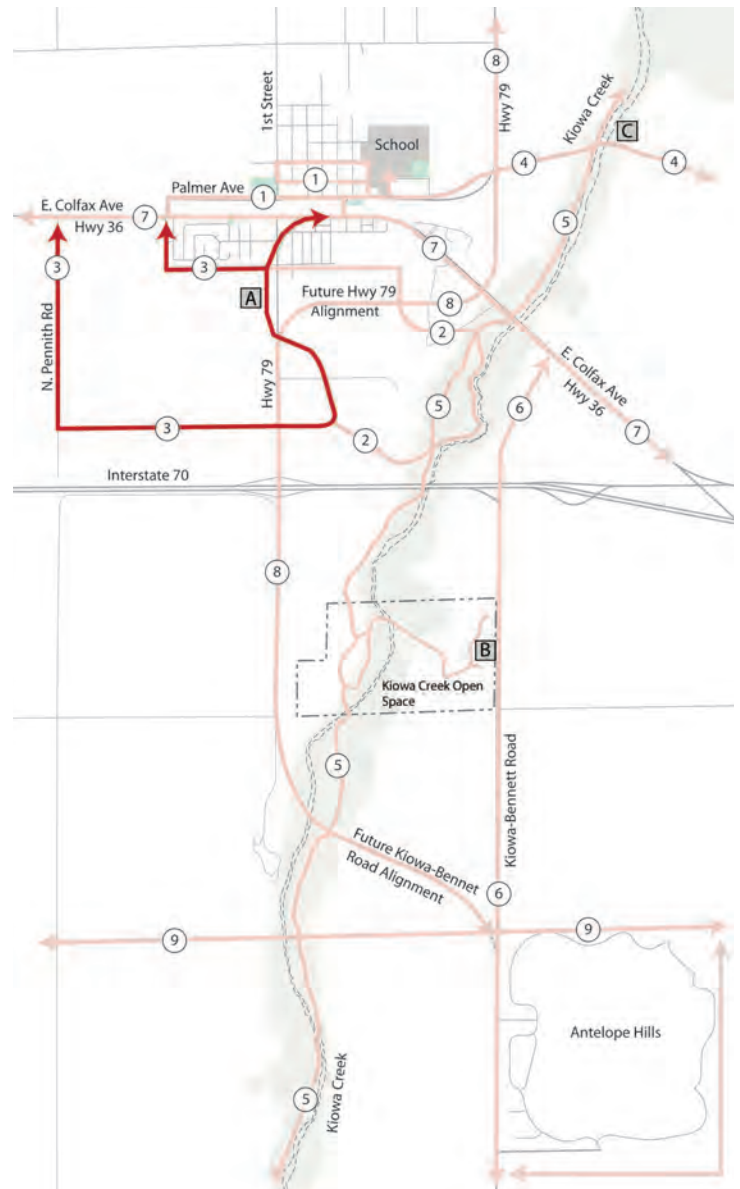


Figure 3.5 West Town Loop Trail

4. Bennett-Strasburg Trail

This trail segment will provide a regional trail connection between Bennett and Strasburg; which is a community located approximately six (6) miles to the east. It will consist of a roadside greenway trail along Old Victory Road to a point where it intersects with the Watkins-Strasburg Bike Route. This trail will also be accessible from the proposed Adams County Trailhead that is planned near Kiowa Creek (see Figure 3.6).



Figure 3.6 Bennett-Strasburg Trail

Potential Trail Connections

- Neighborhood-School Bike Route (1)
- Kiowa Creek Trail (5)
- Kiowa-Bennett Road/ SH79 Trail (8)

Opportunities

- Plans to reroute Highway 79 and the potential for a bridge that spans the Union Pacific right of way may provide the opportunity for a grade separated crossing at the trail/highway intersection.

Constraints

- This trail will need to provide a safe trail crossing for both Highway 79 and Kiowa Creek.
- A trail easement or additional ROW may need to be acquired adjacent to Old Victory Road in order to accommodate the paved surface trail.

5. Kiowa Creek Trail

This trail will run adjacent to Kiowa Creek and will provide a connection from Bennett's Downtown to the Kiowa Creek Open Space, residential properties, and neighborhoods south of I-70. It is comprised of a Multi-Use Single Trail that transitions to a Split Trail between the Kiowa Creek North Open Space and US Highway 36. This trail will be accessible from both the Arapahoe County (B) and Adams County (C) Trailheads (See Figure 3.7).

Potential Trail Connections

- Kiowa Creek North Open Space Trail
- Kiowa-Bennett Road/ SH79 Trail (8)
- Alameda Trail (9)
- East Town Loop Trail (2)
- Watkins-Strasburg Bike Route (7)
- Bennett-Strasburg Trail (4)

Opportunities

- Aerial imagery shows existing soft surface trails that may be suitable for trail access prior to construction of the Multi-Use Trail.
- Approximately 1/2 mile of this alignment will cross public land (Arapahoe County Open Space), thus reducing ownership issues along this segment.
- The topography lends itself to trail development and flood plain corridor of the creek adds visual interest.
- The planned trail cross-section will be able to accommodate several user groups including equestrians.

Constraints

- Currently much of the Kiowa Creek 100 year floodplain is private property consisting of multiple land owners; possibly making it difficult to achieve a continuous public trail access along the length of the creek.
- The Colorado Division of Wildlife has expressed concern from human-wildlife and domestic animal-wildlife conflicts in addition to concerns with issues arising from hunting activities along the Kiowa Creek.
- Alternative horizontal trail alignments may need to be investigated to achieve a continuous trail connection if current land owners are not willing to allow trail access.



Figure 3.7 Kiowa Creek Trail

- The Kiowa Creek Trail alignment will ultimately cross the interstate (I-70), two highways (US36 and Old Victory Road), the Union Pacific Railroad (UPRR) and the proposed Kiowa-Bennett Road alignment. A grade separated trail crossing will need to be provided for several if not all intersections. The Federal Highway Administration (FHWA), Colorado Department of Transportation (CDOT), UPRR, Adams County Department of Public Works (DPW) and Arapahoe County Public Works and Development are

the agencies that would need to be approached prior to upgrading existing underpasses.

6. Kiowa-Bennett Bike Route

This on-street Bike Route will run north-south along Kiowa-Bennett Road from the Antelope Hills Subdivision to US Highway 36. It will serve to provide access for users to the Kiowa Creek Open Space and the Watkins-Strasburg Bike Route (see Figure 3.8). As an alternative, additional user groups could be served by this trail route by constructing a multi-use trail for the trail segment between Antelope Hills Subdivision and the Kiowa Creek North Open Space.



Figure 3.8 Kiowa Bennett Bike Route

As an alternative, additional user groups could be served by this trail route by constructing a multi-use trail for the trail segment between Antelope Hills Subdivision and the Kiowa Creek North Open Space.

Potential Trail Connections

- Watkins-Strasburg Bike Route (7)
- Kiowa Creek North Open Space Trail
- Kiowa-Bennett Road/ SH79 Trail (8)
- Alameda Trail (9)

Opportunities

- This route follows the existing paved Kiowa-Bennett road which is owned and maintained by the Town.
- Discussions with Town residents revealed that this roadway is currently utilized by cyclist despite the lack of a paved shoulder; indicating the need for a dedicated bike route in this location.

Constraints.

- The current pavement width of two traffic lanes lacks a shoulder and does not safely accommodate a dedicated bike route. Pavement will need to be extended on both sides to provide a sufficient shoulder width based on AS-SHTO and Arapahoe County requirements.
- Higher speed limits combined with commercial trucks that utilize this roadway may create conflicts with cyclist that share the roadway.
- The bridge over I-70 is narrow and does not currently have enough width to safely accommodate the proposed bike route. Improvements to the bridge will be costly and might delay the implementation of the trail segment north of Kiowa Creek Open Space.

7. Watkins-Strasburg Bike Route

This Bike Route will provide a regional connection from Watkins to Strasburg running east-west along the US Highway 36 Road corridor. It will consist of a signed bike route that transitions to a dedicated bike lane through the down-town core (see Figure 3.9).

Potential Trail Connections

- West Town Loop Trail (3)
- Kiowa-Bennett Road/ SH79 Trail (8)
- Neighborhood-School Bike Route (1)
- Kiowa-Bennett Bike Route (6)
- Kiowa Creek Trail (5)

Opportunities

- Since this route follows an existing highway, it already has a 'Shared Roadway' designation that can easily be upgraded to a Signed Bike Route with the implementation of shared roadway signs. Improving and widening the paved shoulder (especially within the Town limits) will improve the safety and convenience of both bicyclist and motorist.
- This route along with the other planned regional bike routes will all traverse through the town creating a hub and potentially an area destination for regional cyclists.

Constraints

- As a state highway that traverses through the Town core, Highway 36 has posted speeds that range from 35-45 mph within the Town limits. The speed of traffic and the condition of the road shoulder may potentially limit use of this route to advanced or more confident riders.
- Existing highway segments through the Town do not include a paved shoulder that can accommodate a signed bike route. Pavement will need to be extended on both sides to provide a sufficient shoulder width based on ASSHTO requirements.



Figure 3.9 Watkins-Strasburg Bike Route

8. Kiowa-Bennett Road /SH79 Trail

This trail will run adjacent to the proposed SH79 alignment north of I-70 and the Arapahoe County 2035 Transportation Plan alignment of Kiowa-Bennett Road. It will consist of a roadside greenway trail to the south of the US Highway 36 intersection and a dedicated bike lane that transitions to a bike route to the north of US36. This trail will be accessible from the proposed Downtown Trailhead/Parking Facility (A) and will have three (3) grade-separated bridge crossings located at I-70, Kiowa Creek and the UP Railroad (see Figure 3.10).



Figure 3.10 Kiowa-Bennett Road/ SH79 Trail

Potential Trail Connections

- East Town Loop Trail (2)
- West Town Loop Trail (3)
- Kiowa Creek Trail (5)
- Watkins-Strasburg Bike Route (7)
- Bennett-Strasburg Trail (4)
- Kiowa-Bennett Bike Route (6)
- Alameda Trail (9)

Opportunities

- The planning effort for the roadway alignment is in the early phases and the trail design can be incorporated into the final roadway design. In addition land acquisition for the trail and roadway can be part of the same effort either within the ROW or as an adjacent trail easement.

Constraints

- The proposed road alignment traverses private property consisting of multiple land owners; acquiring the necessary ROW may take several years.
- This trail and bike route will likely be contingent on the construction of the proposed roadway alignments and is likely to be one of the later trail routes to be completed.

9. Alameda Trail

The Alameda Trail corridor identified in the Arapahoe County Open Space Master Plan will serve as one of the primary east-west routes south of I-70; ultimately connecting several of the eastern plain's linear riparian systems (see Figure 3.11).

Potential Trail Connections

- Kiowa Creek Trail (5)
- Kiowa-Bennett Road/ SH79 Trail (8)
- Kiowa-Bennett Bike Route (6)
- Antelope Hill Subdivision Perimeter Trail

Opportunities

- This planned trail corridor will ultimately connect the eastern plains communities with the metro area trail network.
- Initially, this trail will serve as one of the East-West access corridors connecting current residents to the Kiowa Creek Trail and Open Space.
- The Antelope Hills subdivision has an existing perimeter equestrian trail easement; potentially serving as the first segment within this trail corridor.

Constraints

- Private landowners may be reluctant to accommodate a trail across their land and agricultural areas.



Figure 3.11 East-West Access Corridors

East-West Access Corridors

East-west trail connectors will need to be provided as the Town continues to develop and grow; especially south of I-70. These trail connections will provide access to the Kiowa Creek Trail for existing and future residents and should occur at mile or half mile increments (see Figure 3.12).

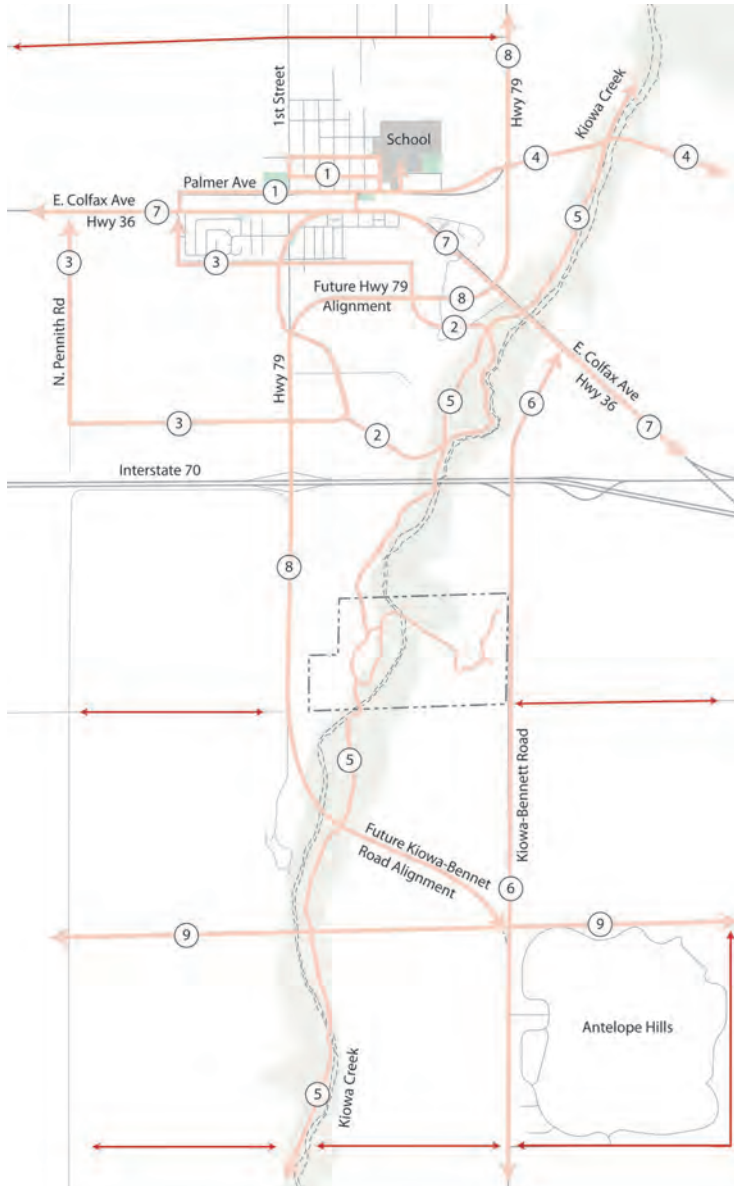


Figure 3.12 East-West Access Corridors

Trailheads and Access points

Trailheads are critical to the trail network system. The trailhead serves as a link between various transportation systems and the trail network while establishing access points that are accessible to everyone. Trailheads should be highly visible and should take into consideration the diversity of trail users and the overall function of the specific trail. For example, a trailhead with access to an equestrian path might also accommodate trailer parking and access to drinking water for horses. Trailheads provide the necessary useful information to tell the user where they are along certain trails, where specific trails lead and more importantly, how to get there.

Primary Access Point

Trailheads that serve as a primary access point will be the most complete of all the trailhead types discussed in this section. All three trailheads identified in the Regional Trail Network are primary access point trailheads. They will serve a diverse user group with a high volume of trail users and should be established near commercial developments, transportation nodes, civic centers or public open space destinations. In general a primary access trailhead will serve as a gateway to the trail network and should include an intricate system of parking, future transit access and trail information.

When possible it will be necessary to explore shared used parking options with other parking facilities. Parking for this type of trailhead should be provided in a specific parking lot configuration, rather than shoulders of roadways and may either be paved, unpaved or a combination of both.

Required Amenities

- Parking
- Water fountains

- Trash Receptacles
- Lighting
- Bike Racks
- Benches
- Trail Signs/ Maps

Recommended Amenities

- Restrooms
- Public Art
- Playground
- Picnic Shelter

Secondary Access Point

Trailheads that serve as a secondary access point include simple pedestrian and bicycle entrances with parking available near adjacent streets, neighborhood parks or schools. These access points are generally located at junctions where streets bisect trails, or where trails have access but no parking. They should be readily accessible by a variety of trail users, visible from the street and fit within the environment of the neighboring development.

Required Amenities

- Trail Signs/ Maps
- Lighting
- Benches

Recommended Amenities

- Trash Receptacles
- Water fountains
- Bike Racks

Tertiary Access Point or Trail Junction

Tertiary access points within the trail network will occur when trails spur off of one another. They serve to inform the user of intersecting trails which leads to a safer trail environment and a cohesive trail network. At a minimum a tertiary trail access will consist of a sign with trail name and

directional arrows.

Required amenities

- Trail Signs
- Lighting

Recommended amenities

- Trash Receptacles
- Benches

Trail Amenities

Consideration of trail amenities should occur at the time a specific trail route is developed. The following are recommendations with regards to placement of specific trail amenities.

- Benches should be placed at major trailheads and at waiting/resting areas.
- Bike racks should be placed at locations where cyclists are likely to dismount.
- Bollards should have reflective surfaces, be removable and be placed where motor vehicles have potential access to trails.
- Delineators should be used in place of guard rails and in areas where the trail is adjacent to water features or slopes in excess of 1:4.
- Distance markers should be placed at the beginning of major trailheads and at locations where there is high recreational use. The markers should be placed at ½ mile to 1 mile intervals otherwise.
- Guard rails/ fences should be a minimum height of 42" and used where there is more than 30" vertical drop-off at edge of the trail shoulder.
- Informative areas should be located at major trailheads and parking areas.
- Maps should be placed at informative areas or at other major/minor trail junctions.
- Signage adjacent to roadways should be in accordance

with the Federal Highway Administration’s Manual on Uniform Traffic Control Devices

- Trash receptacles, as well as provisions for recycling, should be provided at informative areas of trailheads.
- Water fountains should be placed at some informative areas, as well as some waiting/resting areas.

Trail Maintenance

Maintenance of the trail network will be necessary for the sustainability and longevity of the trail. Prior to the construction of any trail segment, careful consideration should be given to the financial responsibility of maintaining the trail network. Selected trail furnishings and amenities should be consistent throughout the network to accommodate efficiency in repairs. They should also be durable enough to withstand generations of public use and exposure to the elements. Seasonal and weekly maintenance including traiside mowing, snow removal, trash collection and surface repairs will require equipment and valuable man hours.

Trail Classification

The trails within the Regional Trail Network have been grouped into two (2) categories: Shared-Use Trails and Bike Routes/Bike Lanes. The specifics for each category follows:

Shared Use Trails

Shared use paths will accommodate multiple user groups including pedestrians, cyclists, and equestrians and are typically located within open space corridors or adjacent to roadways with a designated landscape strip, tree lawn, tree grates or landscape buffer separating the trail path from the road edge. Roadside greenways, detached sidewalks, and multi-use trail classifications are included in this group. (Refer to Figures 3.13-3.15 for typical cross sections)

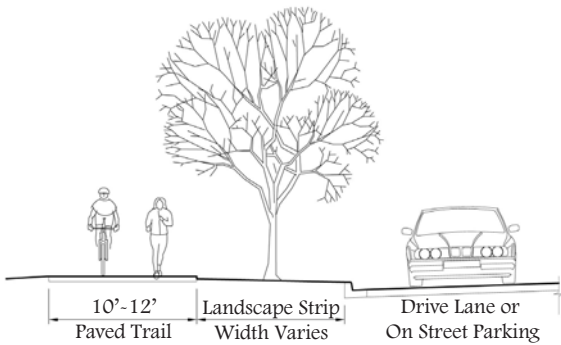


Figure 3.13 Roadside Greenway Trail/ Sidewalk

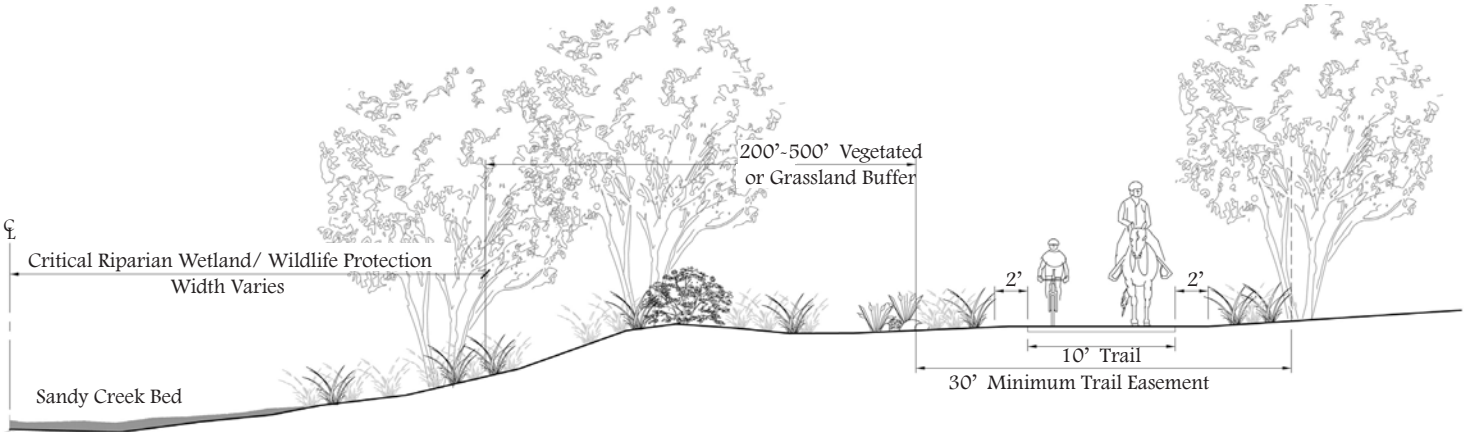


Figure 3.14 Multi-Use Trail

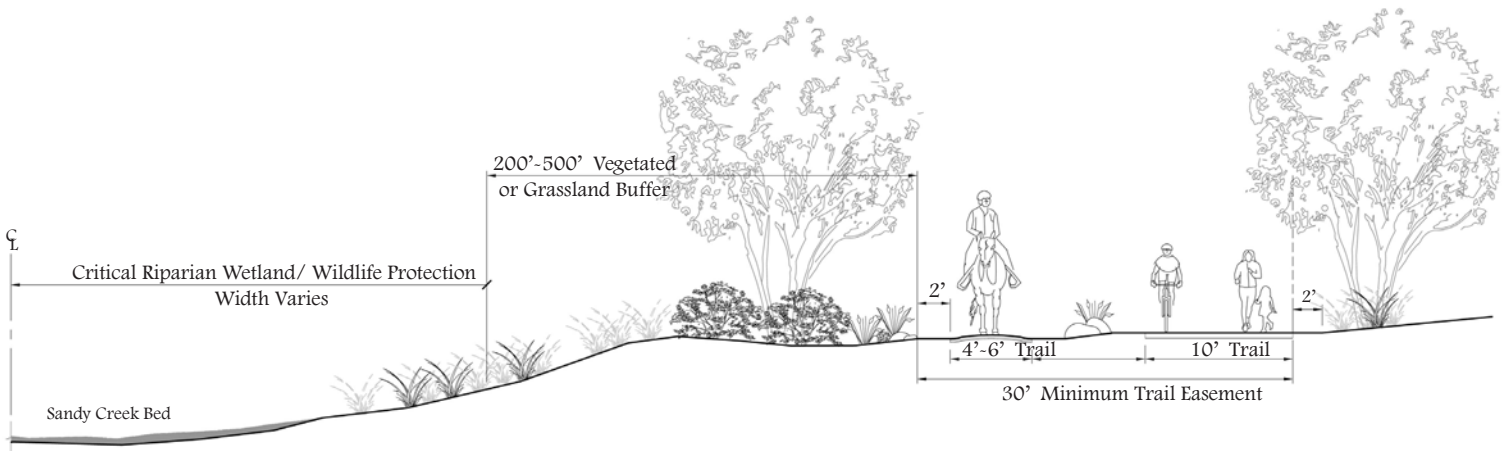


Figure 3.15 Multi-Use Split Trail

Shared Use Trail Design

| | Roadside Greenways & Sidewalks | Multi-Use Split Trail | | Multi-Use Single Trail |
|----------------------|--------------------------------|-----------------------|-----------------------|---|
| | | Paved | Unpaved | |
| Width | 10'-12' | 10' | 4'-6' | 8'-10' |
| Surface | Concrete / Asphalt | Concrete/Asphalt | Gravel, Crushed Stone | Urban-Concrete/Asphalt Rural-Gravel, Crushed Stone, or compacted natural surface |
| Vertical Clearance | 10' | 10' | 10'-12' | 10'-12' |
| Trail Shoulder Width | 2' | 2' | 2' | 2' |
| Maximum Slope | 8% (5% preferred) | 8% | 8% | 8% |
| Cross Slope | 2% | 2% | 2% | 2% |

Bike Routes & Bike Lanes

Bike lanes and bike routes will accommodate a single user group; the cyclist. They are on-road routes including local roads and highways. Design requirement will vary based on roadway grade, speed limits, and traffic volume. Bike lanes and bike routes shall be in compliance with AASHTO requirements. (Refer to Figures 3.16-3.17 for typical cross sections)

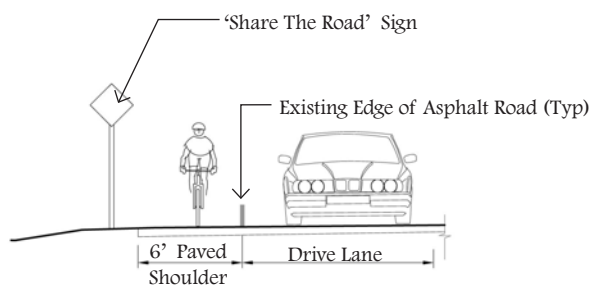


Figure 3.16 Signed Bike Route

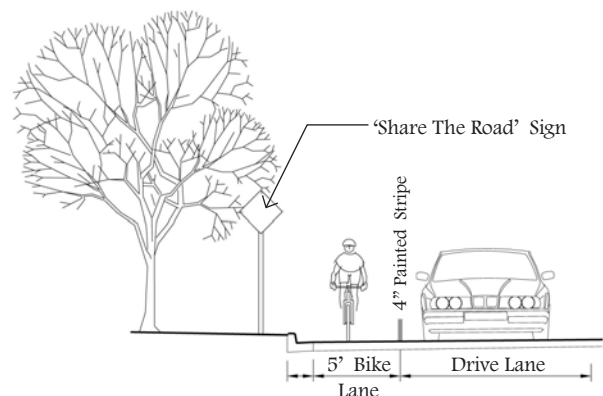


Figure 3.17 Dedicated Bike Lane

Trail Intersections

The Bennett Regional Trail Network identifies several locations where trail routes will intersect another transportation corridor or natural feature including roadways, the UP Railroad, and Kiowa Creek. Intersections should provide the trail user a safe environment to cross other transportation routes. Two primary types of intersection crossings have been identified in the Bennett Regional Trail Plan: 'At-grade' and 'Grade Separated'.

At-grade

An at-grade trail crossing will be at the same level as the roadway or rail line as shown in Figure 3.18 & 3.19. At-grade intersection crossings require both the motorist and the trail user to be aware of the potential conflicts and the risk of collisions. Methods of traffic control like signage, painted cross walks, flashing lights, illumination, full stop intersections, reduced speed limits and high-profile crossings (or hump/speed bumps) should be considered at locations where a trail users will cross roadways or rail lines.

Grade Separated Crossings

Some of these intersections have been selected for a grade separated crossing where the trail will cross above via a bridge as shown in Figure 3.20 or below via a trail underpass as shown in Figure 3.21. Additional grade separated crossings may be necessary as the regional trail plan develops to provide trail users safe and convent intersection crossings.



Figure 3.18 Railroad/Trail Crossing



Figure 3.19 Highway/Trail Crossing



Figure 3.20 Trail Bridge



Figure 3.21 Trail Underpass

4. Conclusion

Based on community input from questionnaires and community meetings, there is a strong need for additional local and regional trail routes. The construction of new trails will provide additional transportation and recreational choices for residents and adjacent communities in Adams and Arapahoe Counties. Highest priority should be given to trail routes that provide safe travel routes from residential neighborhoods to the school and between neighborhoods and commercial corridors especially those divided by I-70.

Recommendations

- Consider planting drought tolerant deciduous shade trees along the existing SH79 trail at a spacing of one (1) tree per 40 linear feet of the trail.
- Utilize volunteer community members to plant trees.
- Focus efforts on constructing segments of trail that will connect Antelope Hills Subdivision, Kiowa Creek Open Space and Bennett's Downtown.
- Implement additional trail segments as funding becomes available or when development and infrastructure improvements take place.
- Consider modifications and/or upgrades to existing facilities to implement these initial trail segments. Begin discussions with landowners along the Kiowa Creek to negotiate trail easements. With upgrades to the Converse Road Bridge & Kiowa-Bennett Road Bridge over I-70 not likely to happen for several years, the safest and likely most cost effective method to get trail users across the interstate will be under the I-70 Bridge that spans the Kiowa Creek floodplain.
- Continue seeking annual grant funding from the respective County Open Space programs and organizations like the Great Outdoors Colorado (GOCO) for trail development & construction.
- Prior to design and development of the Kiowa Creek Trail, additional detailed site information will be needed.
- Plan for the costs of Topographic and Boundary Surveys in addition to environmental studies that will identify potential impacts of trail routes associated with critical wildlife habitat, established wetlands and riparian areas.
- Utilize and upgrade as necessary existing roadways to provide safe access for bicyclist.
- Work with CDOT to improve Kiowa-Bennett Road and the bridge over I-70 as a safe on-street bike route.
- Work with landowners along Kiowa Creek to preserve floodplain, agriculture lands and the riparian environment.

- Work with adjacent communities and counties to pursue development of proposed regional trail routes.
- Pursue with Adams County the Kiowa Creek Trail link from I-70 north to the proposed Adams County Trailhead
- Pursue with Arapahoe County the Kiowa Creek Trail link from I-70 south to the Kiowa Creek North Open Space, continuing on to connect with the recently acquired Kiowa Creek South Open Space at the southern county boundary.
- Encourage future developments that will have an impact on the existing I-70/Converse Road Bridge to contribute funds for future bridge improvements that incorporate a safe on-street bike route.

Final Thoughts

The Bennett Regional Trail Network will improve the connectivity between the two sections of Town divided by I-70. It will also serve as a conduit for regional access between Adams and Arapahoe Counties. Serving as an alternative mode of transportation and providing additional recreational opportunities, the trail network will be an invaluable resource to the town, adjacent communities and the counties.

The five (5) month planning process allowed residents to shape the outcome of the proposed trail network. The community has shown an interest in the development of local and regional trail routes and should continue to be used as a resource as the project progresses. The Regional Trail Plan should be used as an evolving tool that is modified as the town continues to grow and as proposed trails are constructed.