



# MILLWOOD TRAIL: PLANNING REPORT

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City of Spokane, WA

# 1: INTRODUCTION

The Millwood Trail is a proposed shared use path that will extend from Spokane Community College (at Green St.) to Felts Field (at Fancher Way) in the City of Spokane, WA. The eventual build-out of the trail would extend through the City of Millwood and establish important connections to other bicycle and pedestrian facilities in the area. The project was awarded a grant through FHWA's Congestion Mitigation and Air Quality Improvement Program (CMAQ) which aims to support surface transportation projects that contribute to air quality improvements and provide congestion relief.

According to Spokane's Citywide 2017-2022 Capital Improvement Program, the Millwood Trail meets 34 transportation goals established by the 2015 City of Spokane's

Comprehensive Plan, including improvements to mobility and quality of life of residents, increased active transportation access to schools and promoting broader transportation options.

## Regional Context

This study addresses the extension of the Millwood Trail within Spokane city limits which stretches approximately 2.3 miles from Spokane Community College to Felts Field. The trail is planned to extend approximately 9.8 miles past Felts Field into the communities of Millwood and Spokane Valley where it connects to the Centennial Trail near Mirabeau Park. When completed, the trail will connect Tuffy's Trail on the west,

Spokane Community College, Felts Field, and Millwood City Center, providing an important amenity for nearby residential neighborhoods and commercial areas.

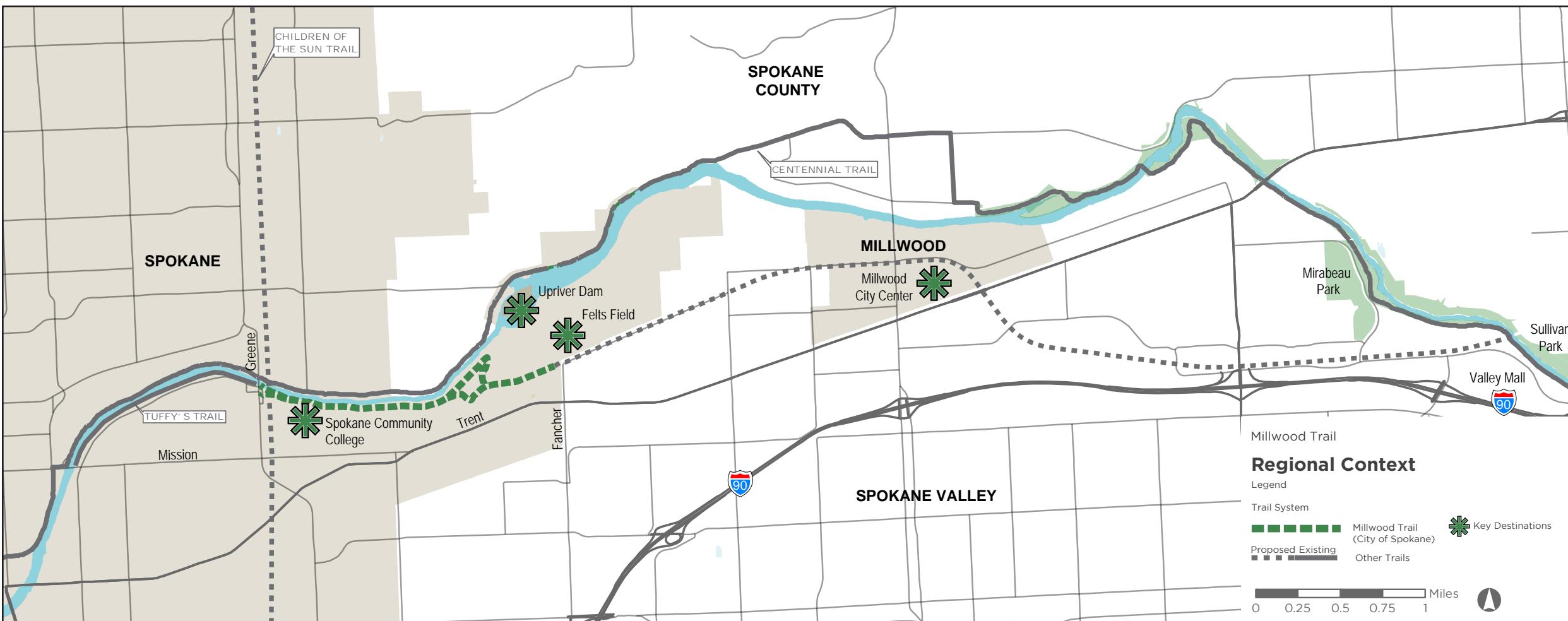


Figure 1.1: Vicinity Map

## 2: EXISTING CONDITIONS

### Review of Existing Studies

#### Spokane Regional Bike Plan (2008)

The Spokane Regional Transportation Council adopted the Spokane Regional Bike Plan in May of 2008. It updates the 1993 Spokane Regional Bicycle and Pedestrian plan, which was used to plan, prioritize and fund a substantial number of non-motorized projects throughout the county. The goals of the Spokane Regional Bike Plan are to:

1. Increase the mode share of people bicycling for transportation.
2. Identify the needs and gaps in the regional bikeway system.
3. Support recreational bicycling in the Spokane regional to promote physical activity.

4. Enhance awareness and cooperation between all road users.

The Regional Bike Plan identifies proposed or in-progress bicycle and trail projects throughout Spokane County. It lists the Spokane-Millwood Valley Trail, which is planned to connect Fancher and Evergreen roads over old Great Northern railroad ROW.

#### City of Spokane Master Bike Plan (2009)

The Master Bike Plan approved in June 2009 aims to create a vision for enhancing bicycle opportunities for all citizens of Spokane.

The goals of the plan are:

1. Increase use and safety of bicycling for all trips

2. Provide end of trip facilities such as bike parking, and encourage employers to provide showers and lockers to its employees
3. Educate the public on bicycle safety and benefits of bicycling
4. Develop a collaborative program between city departments and agencies to secure funding for the proposals established by the master plan

The Master Bike Plan displays the alignment for the Millwood Trail, connecting to the North Spokane corridor on the west and extending to the Town of Millwood in the east (Figure 1.2).

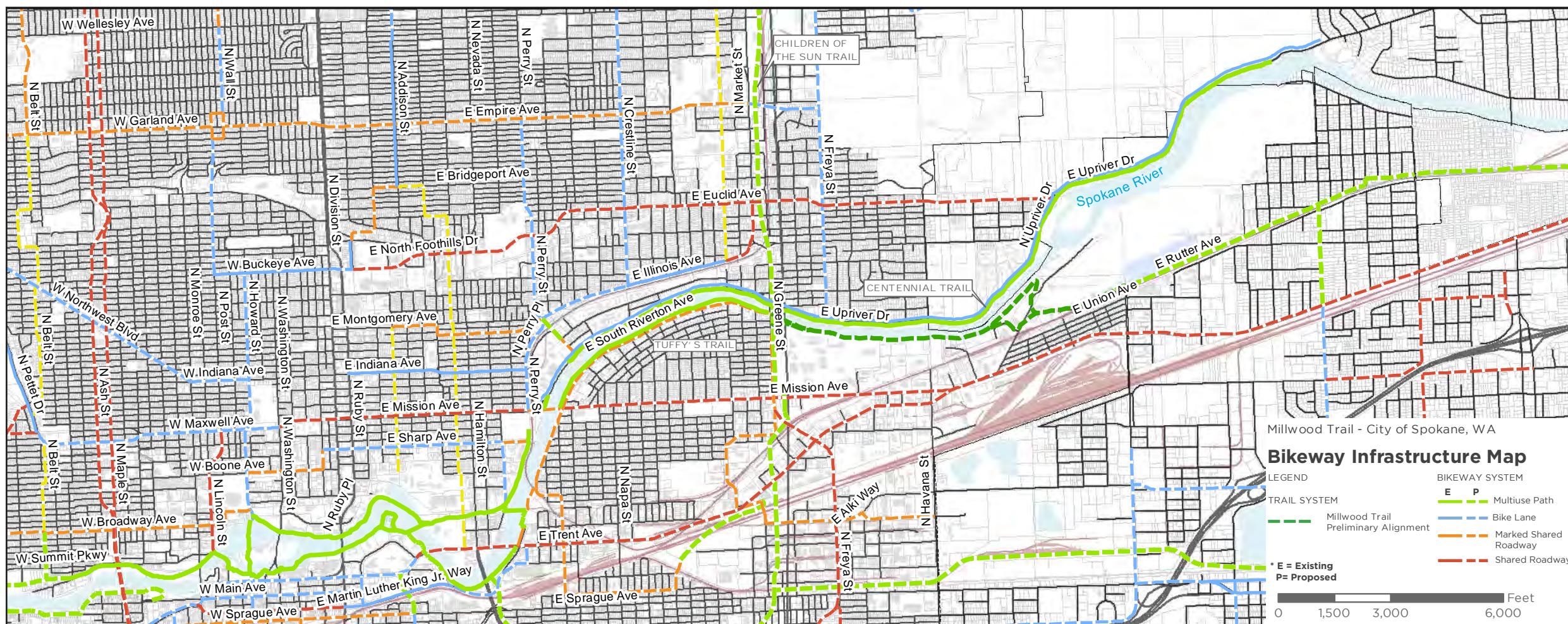


Figure 1.2: Existing and Proposed Bikeways

### City of Spokane Pedestrian Master Plan (2015)

For the past 60 years, Spokane, like many cities in the country, has focused its efforts to improve motor vehicle access and mobility. However, the demand for safe and non-motorized transportation options has increased in the region.

Therefore, The City of Spokane Pedestrian Master Plan has the goal to continue the enhancement of the pedestrian environment through:

1. A well-connected and complete pedestrian network
2. Maintenance and repair of pedestrian facilities
3. Year-round accessibility
4. Safe and inviting pedestrian setting
5. Education on the benefits of a walkable community

According to the Pedestrian Master Plan needs analysis, the area around the proposed Millwood Trail has a very high pedestrian deficiency score, meaning pedestrians are not likely to walk in the area (Figure 1.3).

The plan states that the highest deficiency scores tend to align with streets that lack sidewalks or pedestrian infrastructure. This reinforces the need for pedestrian facilities in the area, such as the Millwood Trail.

### City of Spokane's Comprehensive Plan (2015)

In 2001, a comprehensive plan was adopted by the City of Spokane to guide its growth and development while accounting for a series of factors, including land use, transportation, economic development, and the natural environment, among others. Most recently in 2015, a series of amendments were added to the plan, most of them related to updating land use and zoning within the city.

The comprehensive plan is relevant to the Millwood Trail, because it lays out the framework for the development of pedestrian and bicycle trails in the city. Within the plan's 13 main goals three of them are relevant to the Millwood Trail:

1. Transportation: encourage efficient multimodal transportation systems

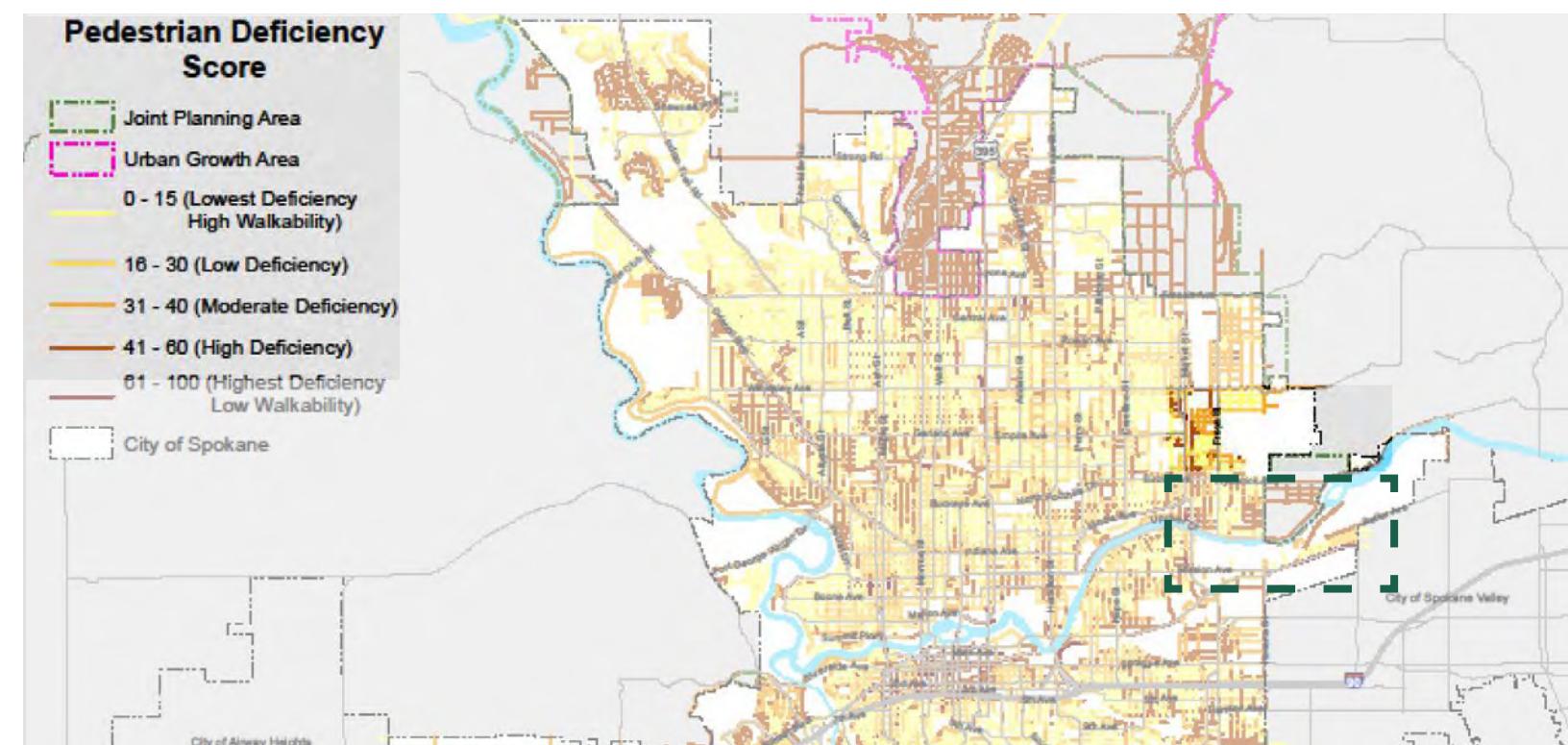


Figure 1.3. City of Spokane PMP pedestrian deficiency score analysis. The area surrounding the proposed Millwood Trail is characterized by the lack of pedestrian facilities and has low walkability scores.

2. Open Space and Recreation: retain open space, enhance recreational opportunities and improve access to natural resource lands, water and parks
3. Environment: protect the environment, including air and water quality

The project area land use is mainly classified as light industrial, except for the area neighboring Spokane Community College (SCC), which is classified as institutional. The plan specifies that new development in the area should utilize buffers, landscaping, setbacks and or/fencing to separate land uses.

In regards to transportation, the comprehensive plan has the focus to "to increase transportation choices and reduce dependency on driving." The Millwood Trail will offer links to a number of nearby trails and connect residential neighborhoods

to major employers such as SCC and Felts Field. The plan also encourages the coordination of land use and transportation planning in order to provide efficient transportation alternatives, in order to reduce traffic congestion and air pollution.

The plan includes specific transportation goals and policies, including planning and designing for viable walking and biking alternatives, and the creation of bikeways and paths. This reiterates the suitability and importance of the Millwood Trail in the proposed area.

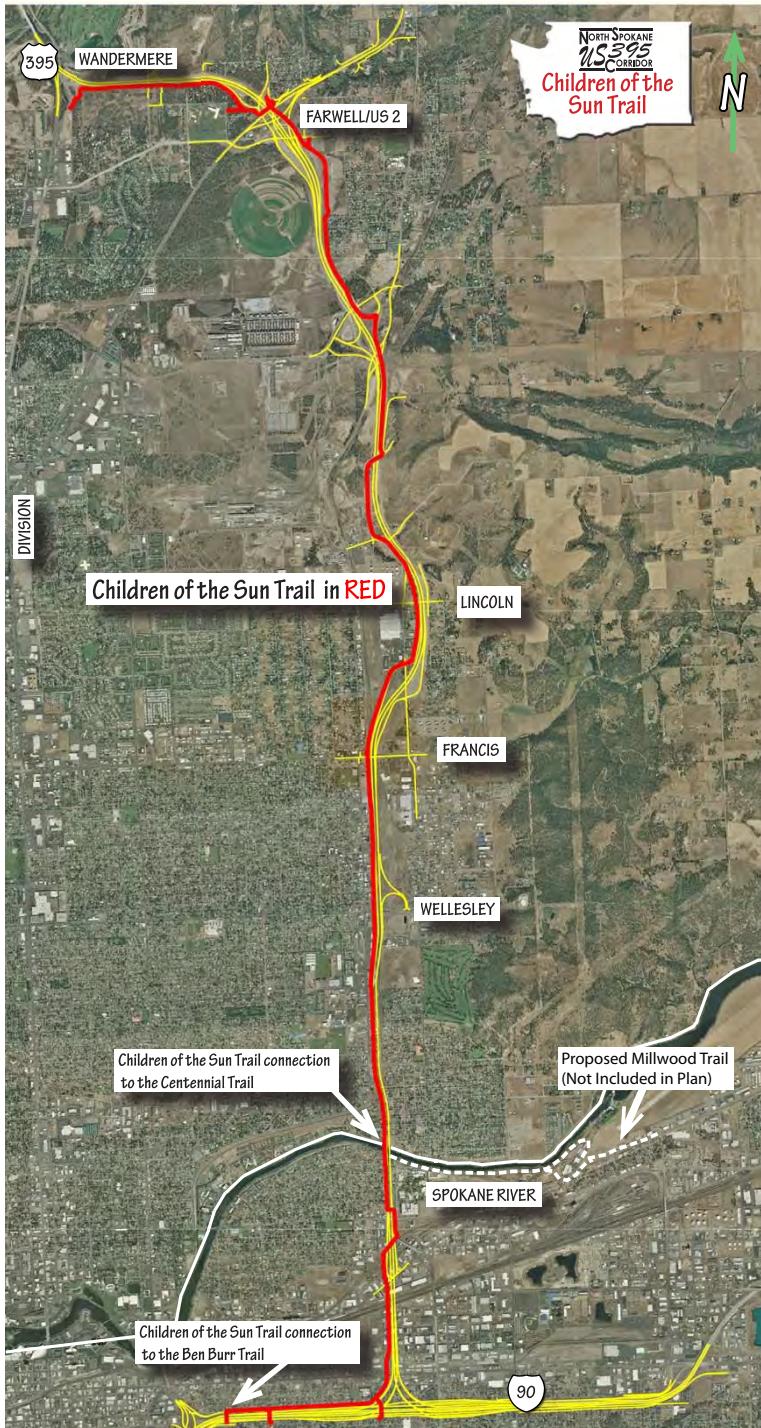


Figure 1.4. Proposed alignment for the Children of the Sun Trail. As of April 2016, the freeway and shared use path are open from I-395 (north) to E Central Avenue (south).

### North Spokane Corridor (2016)

The Washington State Department of Transportation (WSDOT) is currently overseeing construction of a freeway linking I-90 to US 395. This corridor will improve mobility of motorists and freight and it is expected to decrease travel time, fuel usage and congestion.

Additionally, a shared-use path is being built in conjunction with the North Spokane Corridor (NSC). This trail, named the Children of the Sun Trail, will extend through the corridor's full length of 10.5 miles. The 12' paved shared-use path is a separate, but adjacent, designated route for commuters and recreational users. There will be 11 trailheads along the route as well as access from the planned park-and-ride lots. It is also planned to connect with the Centennial and Ben Burr Trails.

The first half of the trail, from Francis Avenue to the Wandermere vicinity, was opened in 2012 (Figure 1.4). The Children of the Sun Trail is planned to cross the Spokane River and connect with the proposed alignment for the Millwood Trail. This connection will also link the Millwood Trail to the Centennial Trail. The final series of construction projects are projected to begin in late 2017 with the project fully completed by 2029.

### Spokane Community College Campus Master Plan (2013) and NSC Interface Planning (2016)

Spokane Community College (SCC) is located on 140 acres adjacent to the Spokane River which neighbors the proposed alignment of the Millwood Trail. The campus sits between two busy arterials - Greene Street to the west and Mission street to the south (Figure 1.5). With an enrollment of 12,000 students, SCC is an important workforce and education center in Spokane County.

The 2013 SCC Campus Master Plan seeks to guide the college's development using both short-term (5 years) and long-term (30 years) approaches. The document identifies improvements to the trail along the Spokane River as important short-term actions that are independent of limited state funding. The Campus Master Plan also provides an analysis of the impacts of the planned North Spokane Corridor as well as identifies pedestrian circulation patterns associated with the development.

Currently, the Spokane Transit Authority (STA) owns a "transit hub" north of the environmental sciences annex (111) on the north-west portion of campus, which serves one frequent and three basic bus routes. This hub will have to be relocated due to the construction of the NSC, and its location (Q) is planned on the north portion of Lot P1 (Figure 1.5). Construction of the interim transit hub will start in 2019, prior to the construction of the NSC. Additionally, the NSC Interface Planning study proposes a running track to be build adjacent to the Millwood Trail on the north-eastern portion of the campus (C).

In order to promote connectivity and mobility options , SCC primary pedestrian routes should connect to the Millwood Trail and the new STA Transit Station. There are a few potential access points to the Millwood Trail from the SCC campus:

1. Primary access to the SCC central green
2. Connection to the sidewalk and street network at the corner of S Riverton Dr. and Ermina Ave
3. Connection to the running track and Rebecca Ave (for accessing the future transportation hub).

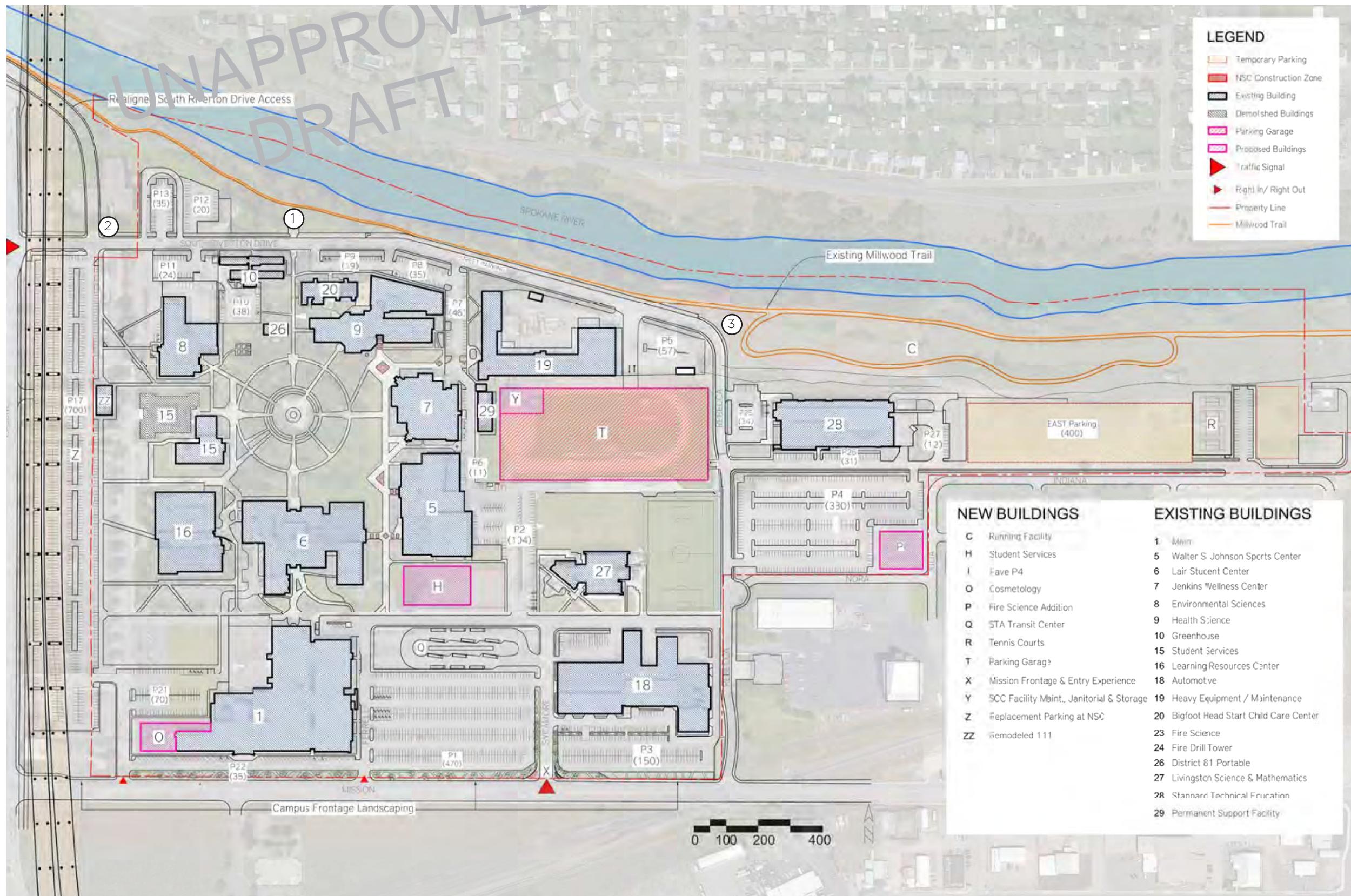


Figure 1.5. Spokane Community College Campus Master Plan prior to the construction of the NSC.

### City of Millwood: Millwood Trail Design

The City of Millwood is nearing completion of final design for their segment of the Millwood Trail and is preparing to advertise the project for construction. This section of the trail is planned to be a one-mile long, 12-foot wide asphalt trail that contains a two-foot wide adjacent gravel jogging surface (Figure 1.6). The trail will be constructed just south of the Union Pacific Railroad ROW on a parcel that formerly was held by the Spokane International Railway line and is now owned by Spokane County.

A number of trail amenities (Figure 1.7) were defined through public involvement efforts including:

1. Illumination: Identified by the public as one of the top priorities for safety reasons. LED lighting is suggested at a spacing of 160 feet and seeks to strike a balance between economic lighting design and prevention of light pollution for adjacent land uses.
2. Landscaping: Irrigated landscaping will be provided in spot locations where seating, interpretative signs and grass areas are provided. Other areas will consist of a hearty dryland seed with occasional trees that require minimal maintenance.
3. Amenities: Benches, trash receptacles and interpretative signage.

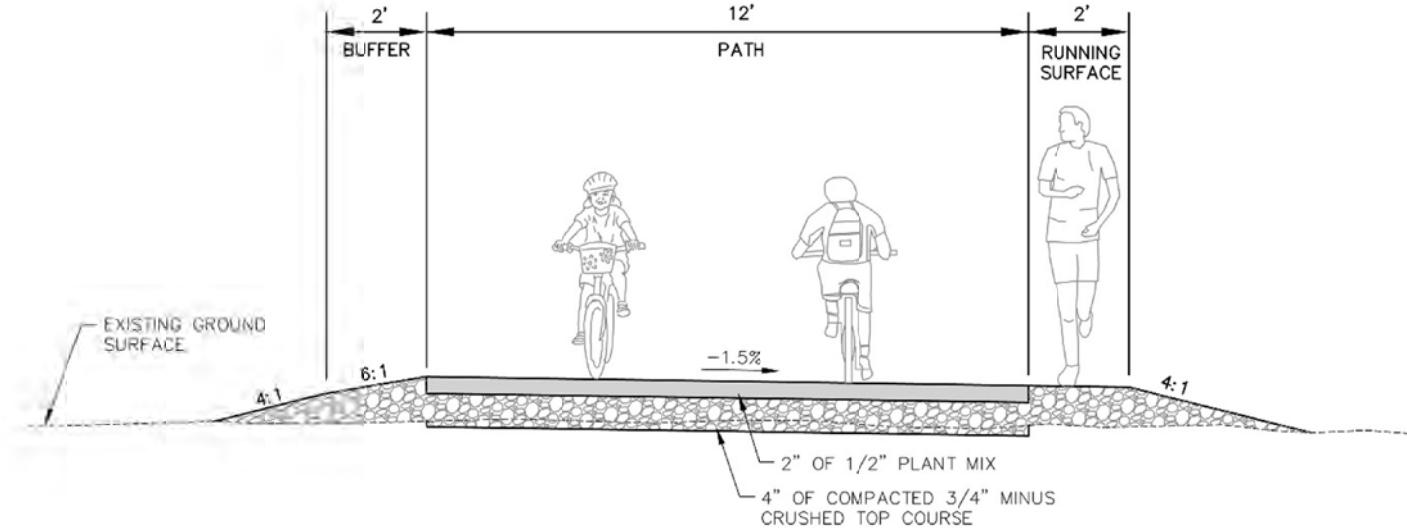


Figure 1.6. (Top) Prototype Trail Amenities Detail and (Bottom) Typical Trail Cross-Section. Source: Welch-Comer Engineers & Surveyors, and BWA Bernard Wills Architects PC.

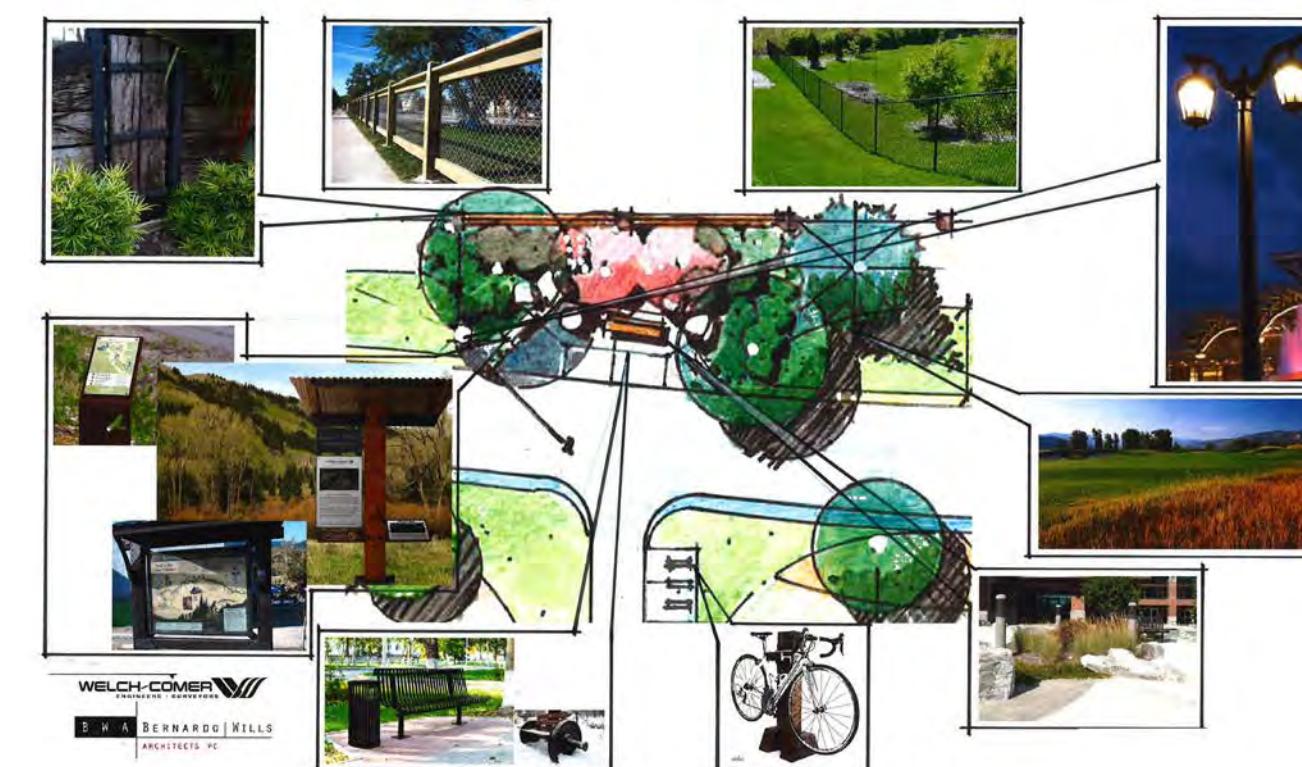


Figure 1.7. City of Millwood, Millwood Trail amenities. Source: Welch-Comer Engineers & Surveyors, and BWA Bernard Wills Architects PC.

## Site Context

The proposed alignment for the Millwood Trail runs from N Greene St to the west to N Fancher Way.

Other important destinations surround the proposed Millwood Trail:

1. Spokane County Government Office
2. Spokane County Fire Department and Fire Station 8
3. National Guard Readiness Center
4. Upriver Dam Interpretive Center
5. Felts Field Historic District



Figure 1.8. Typical conditions at potential Millwood Trail crossing of Waterworks St.



Figure 1.9. Millwood Trail Base Map

## Parcel Ownership

The Millwood Trail passes through or neighbors 45 parcels. Sixty percent of the parcels are publicly owned. Most public parcels are concentrated on the east and west ends of the proposed alignment and belong to Washington state, Spokane City and Spokane County.

The private parcels are owned by various corporations, including:

1. Avista Corporation
2. Spokane Rendering Company
3. Baker Commodities, INC.
4. Martinelli et al
5. Steiner Corporation
6. Buckwold Industrial Properties LTD
7. Pac Hide & Fur
8. Buckeye Gas Production

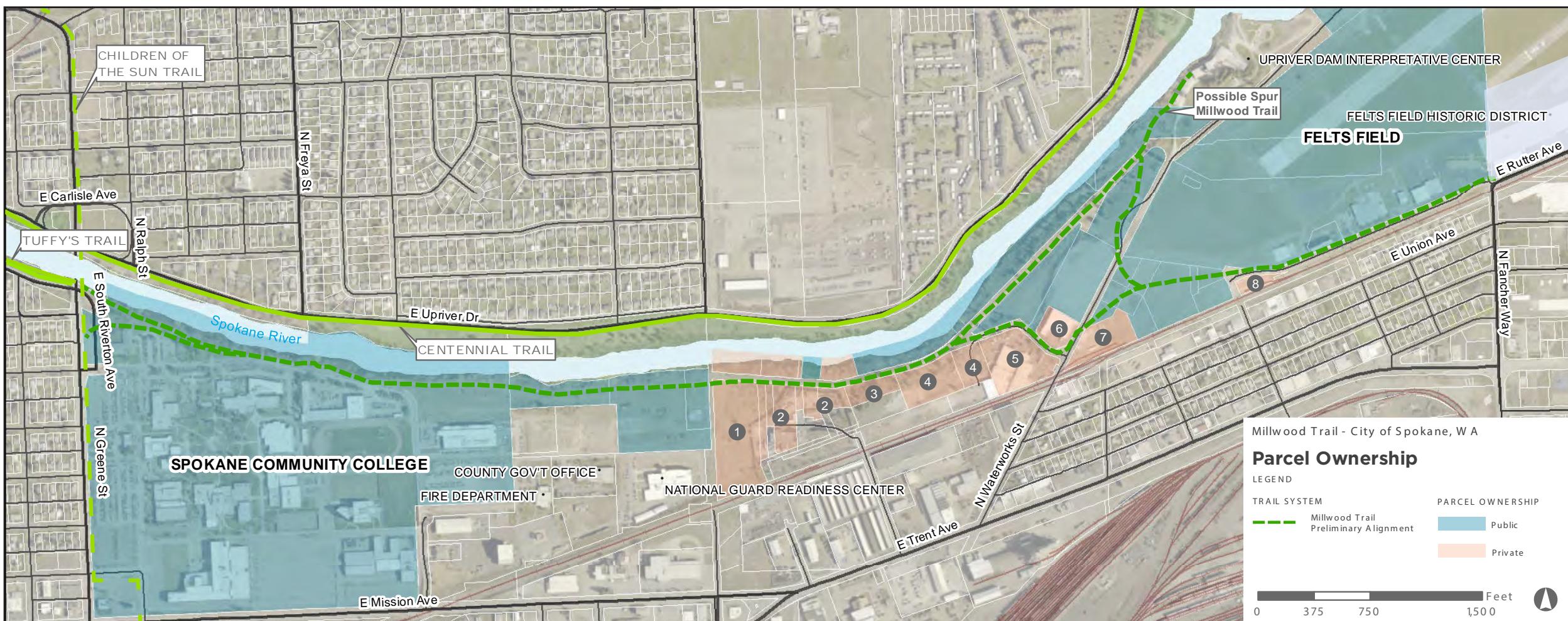


Figure 1.10. Parcel Ownership Map

## Existing Land Use

According to the City of Spokane's Comprehensive Plan (2015), the project area land use is mainly classified as light industrial, except for the area neighboring the SCC, which is classified as institutional. The plan specifies that new development in the area should utilize buffers, landscaping, setbacks and/or fencing to separate land uses. This concept of buffering should be applied to areas where the Millwood Trail interfaces with adjacent industrial uses.

Currently, most of the land use in and around the proposed Millwood Trail is industrial, with commercial and low density residential uses present in near the southeast end of the

alignment.

Due to the primarily industrial setting, there is a general lack of pedestrian and bicycle infrastructure in the area. As described by the City of Spokane Pedestrian Master Plan (2015), the project site possesses little infrastructure or areas with high walkability. This represents a barrier for walking and biking, as well as non-motorized access to public transportation located at SCC.

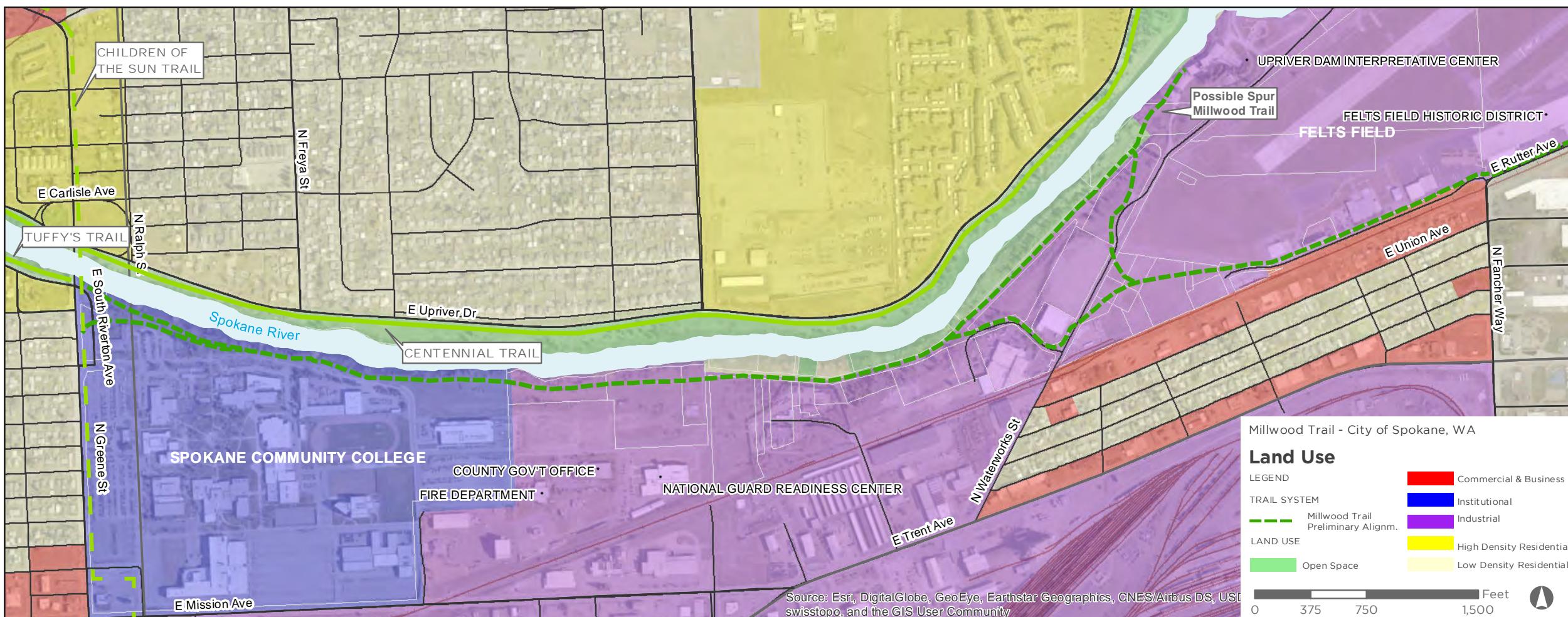


Figure 1.11. Existing Land Use Map

## Existing Utility Infrastructure

Sanitary sewer lines run along most of the corridor, primarily below the existing gravel access road. There are also a number of water and stormwater lines that intersect with the project site. Continued access to manholes and other utility access will be an important consideration in the design of the Millwood Trail. Overhead electrical lines also run throughout the former railroad ROW. Figure 1.12 generally illustrates the right-of-way characteristics through which the Millwood Trail will pass. The total ROW has an average width of 50' and is surrounded by private or public parcels.

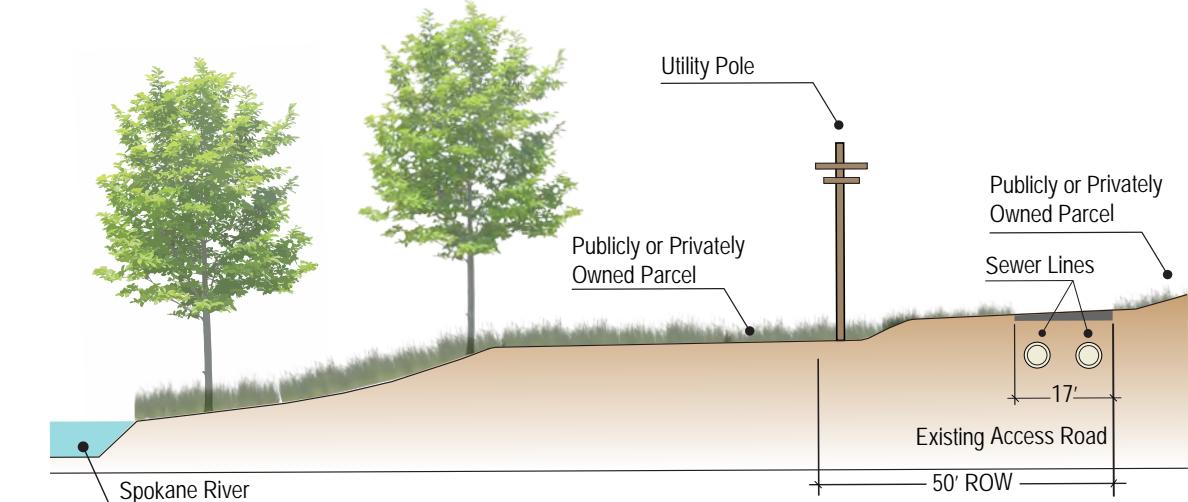


Figure 1.12. Utilities Cross-Section.

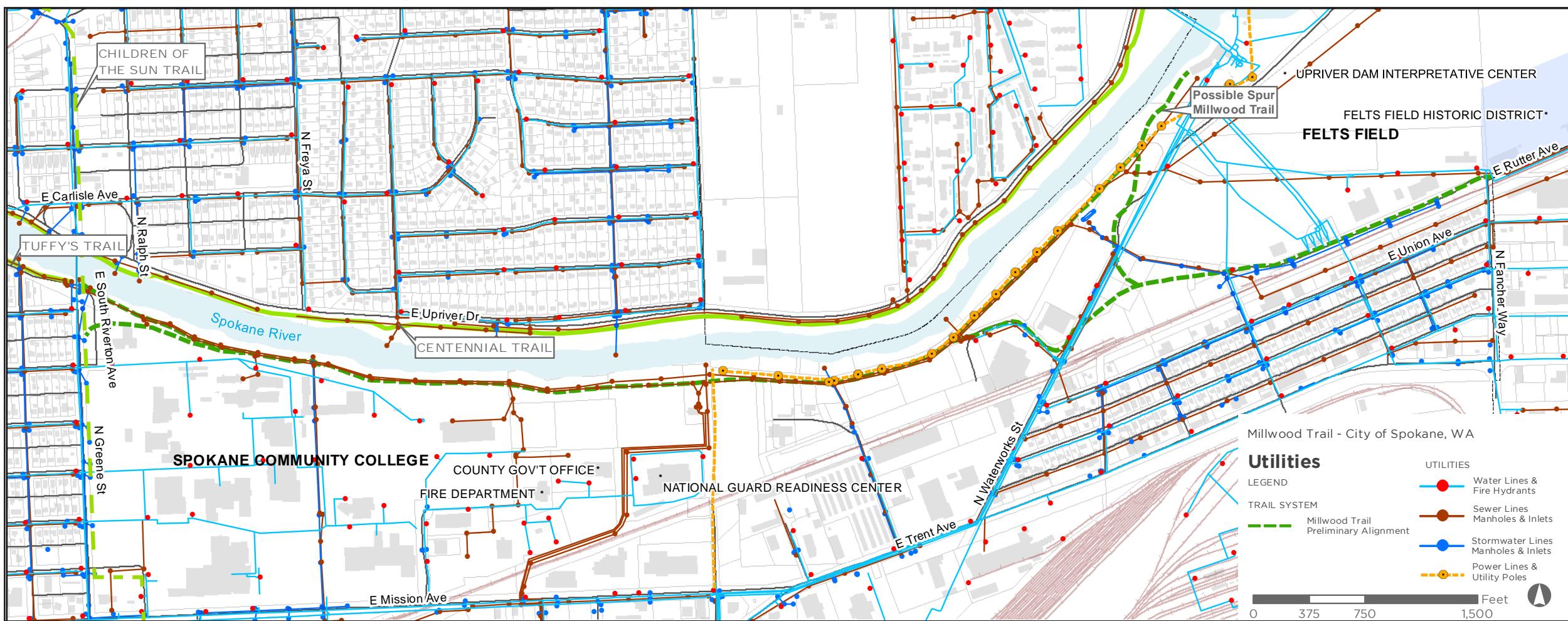


Figure 1.13. Existing Utility Infrastructure Map

## Topography

The majority of the proposed Millwood Trail consists of gentle slopes, consistent with the corridors former use as a railroad corridor. Steeper slopes are present where the alignment is required to transition from the historic railroad bench along the Spokane River, up to Rutter Ave. Depending on the alignment chosen, existing grades vary from 8% to 15% slope. These locations are identified in Figure 1.14. The AASHTO Guide for the Development of Bicycle Facilities specifies that shared use paths in independent ROW (does not share ROW with a road or highway) should have a maximum grade of 5%. This requirement may necessitate grading adjustments to steeper areas of the alignment.

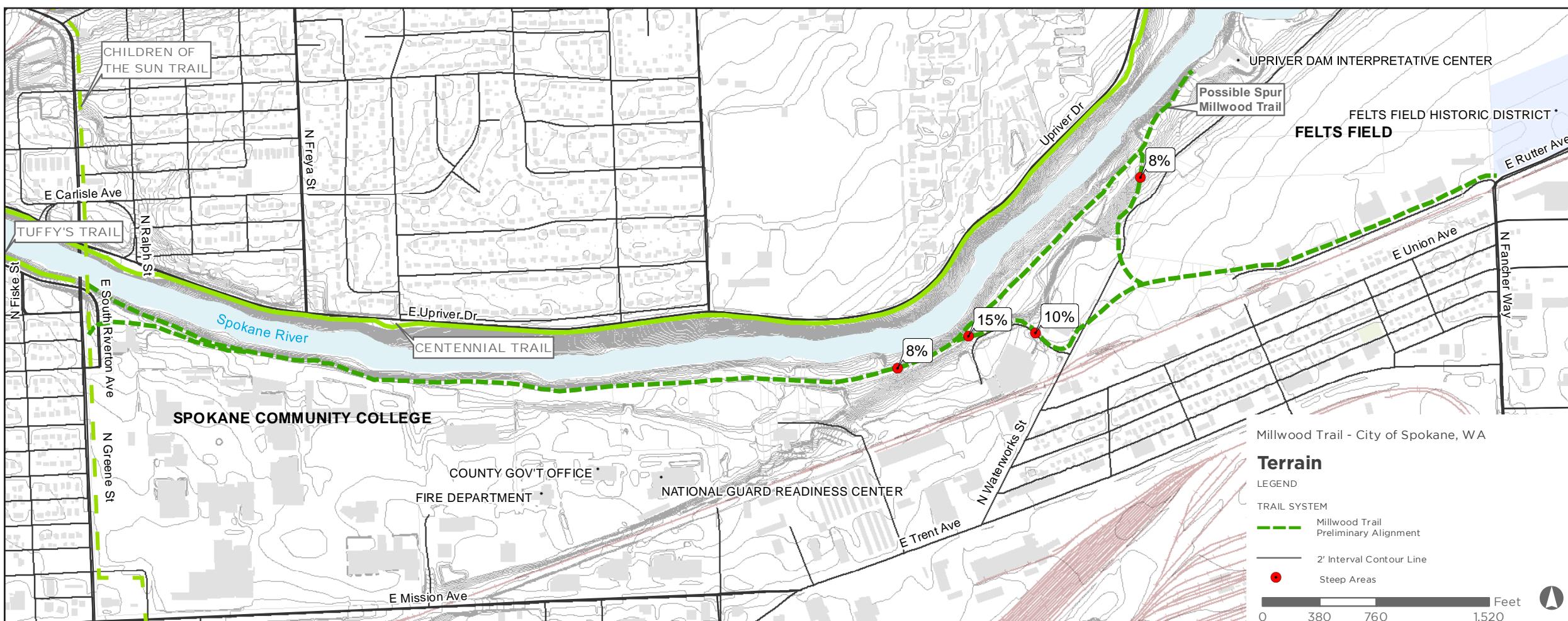


Figure 1.14. Topography Map

## Bikeway Network

The proposed Millwood Trail interfaces with the surrounding bikeway network at the east and west terminus of the City of Spokane segment of the trail. On the west end, the Millwood connects to the existing Tuffy's Trail, the future Children of the Sun Trail (CTS), and the planned Greene St./ S Riverton Ave. marked shared roadway.

The CST (proposed 10.5 miles) is planned to connect to I-395 to the north and to Ben Burr Trail to the south (Figure 1.4). Tuffy's trail (1.3 miles) offers a connection to Mission Avenue to the west, where trail users can access various amenities such as Gonzaga University and Mission Park. Finally, the with the construction of the planned CST, the Millwood Trail will also connect to the Centennial Trail on the north side of the Spokane River. Once fully developed by the City of Spokane,

Spokane Valley, and the City of Millwood, the trail will provide a comfortable alternative for Centennial Trail users seeking to avoid the constrained segment of the Centennial Trail between Green St. and Upriver Dam.

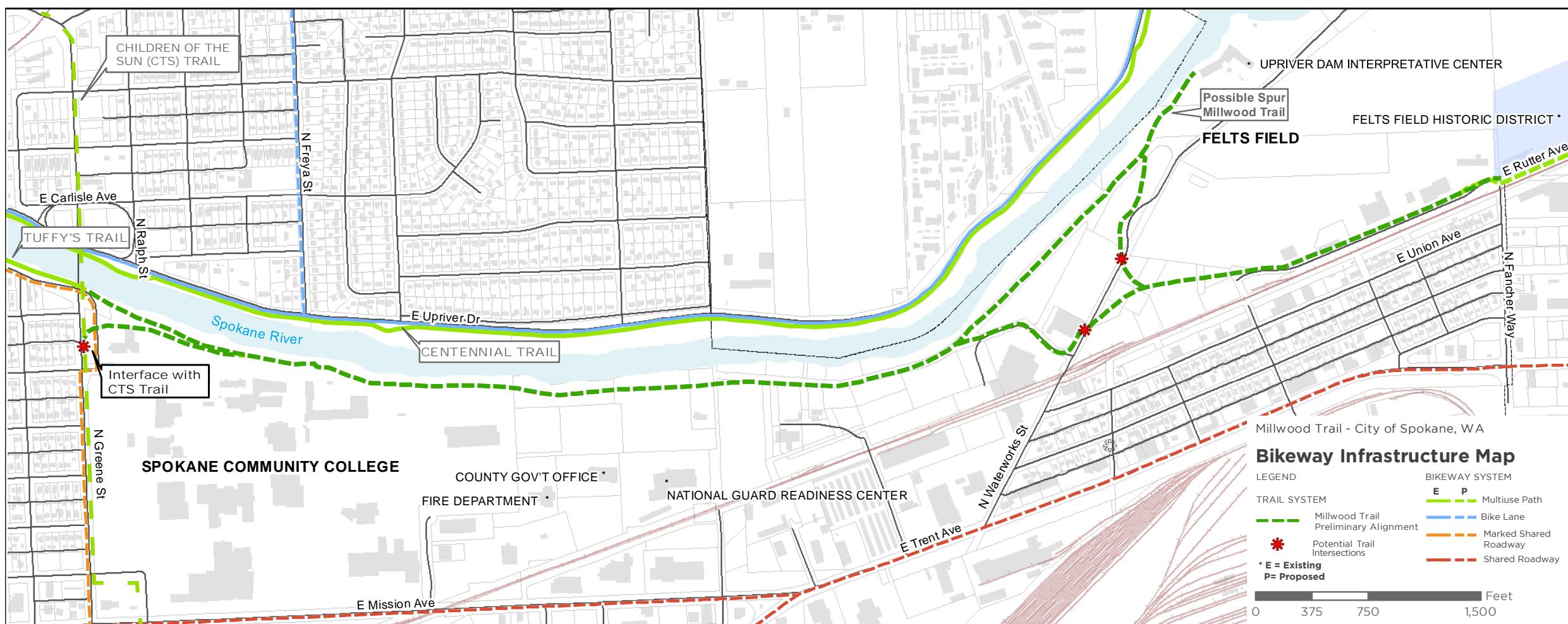


Figure 1.15. Existing / Proposed Bikeway Network Map

## Sidewalk Network

According to the 2015 City of Spokane Pedestrian Master Plan, the area around the proposed Millwood Trail is severely deficient in pedestrian infrastructure. Due to the trail's location, relatively few opportunities exist to interface with the surrounding street and sidewalk system except at either end of the corridor. The limited nature of these sidewalk connections emphasizes the importance of each access point as there are only a few opportunities to access the sidewalk system from the trail throughout the 2-mile corridor.

Waterworks St. (north of the UPRR tracks) and Fancher Way (north of Union Ave) both lack sidewalks and could offer important connectivity to the Millwood Trail for neighborhoods to the south.

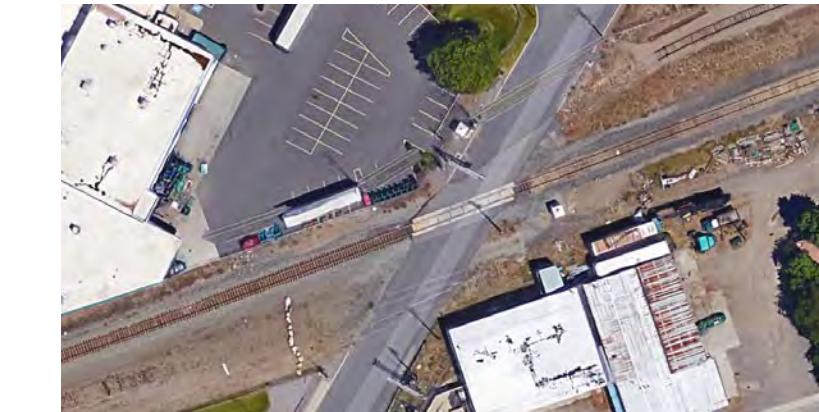


Figure 1.16. Lack of sidewalks along Waterworks could prevent residents south of the UPRR line from accessing the proposed trail

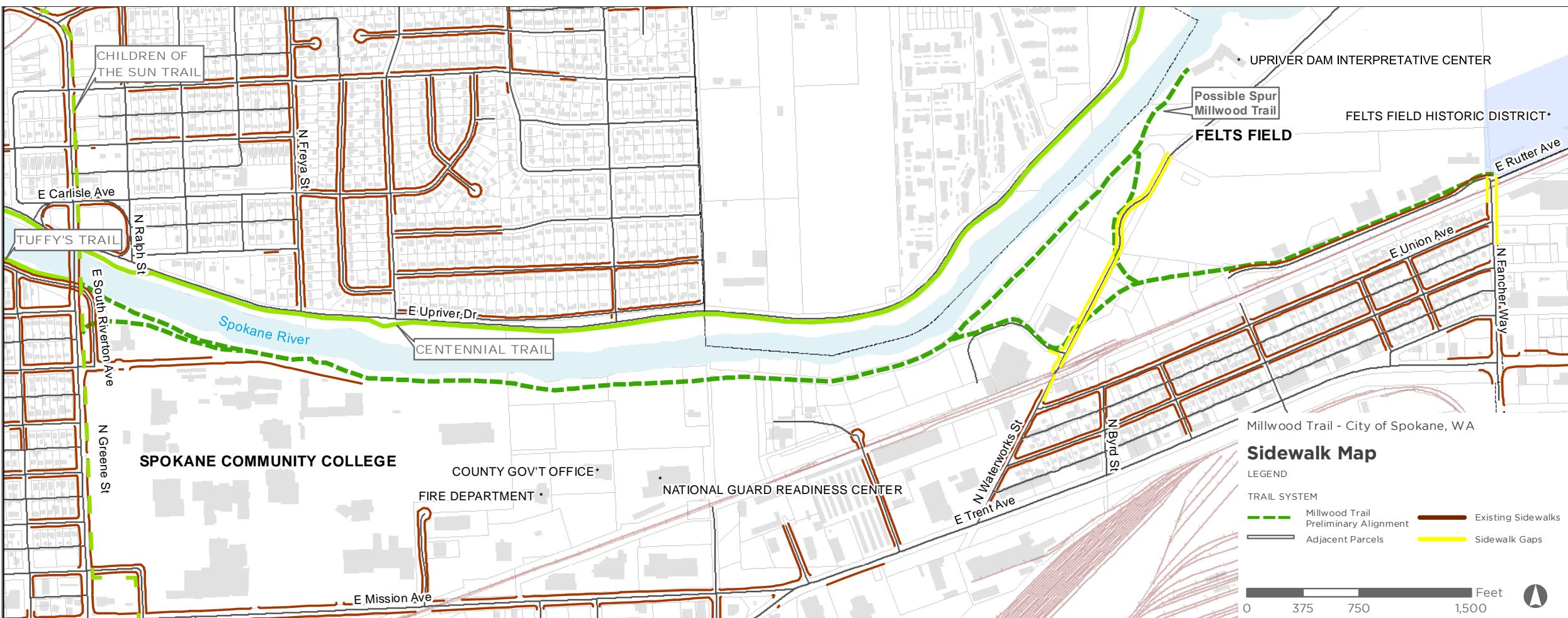


Figure 1.17. Existing Sidewalk Network Map

## Spokane River Interface

The Spokane River represents an important cultural, recreational and historical asset to the Millwood Trail corridor. The trail should seek to leverage and support the existing recreation opportunities provided by the river while telling the story of the river's historic and continued importance to the development of the region.

### SPOKANE RIVER WATER TRAIL

The Spokane River Water Trail runs along 111 miles of the Spokane River offering rafting, paddling and fishing opportunities for a wide range of users and ability levels. Experiences vary from flat-water swimming and tubing sections to Class III and IV white water.

The section of the water trail that runs adjacent to the Millwood

Trail starts near the Upriver Dam interpretive center and continues 3.5 miles down to a takeout on the Washington State-Spokane campus. Boating is prohibited past the Division St. bridge. The current boat launch is barred with a locked gate that can be opened by contacting Upriver Dam staff. Boaters currently park along Waterworks on the side of the road.

### UPRIVER DAM

The Upriver Dam Interpretive Center presents another opportunity for the Millwood Trail to interface with the river. Development of a spur trail leading to the interpretive center could help promote this little-known asset and reinforce the river's importance to the region. Access would need to be designed so that security concerns for both Felts Field and

Upriver Dam were sufficiently addressed.

### SPOKANE COMMUNITY COLLEGE WATER LAB

Spokane Community College has previously expressed interest in having a location to support field testing for biology and water resource labs along the Spokane River. The design might include a low-impact location for outdoor classes to gather and possibly a platform for water access.

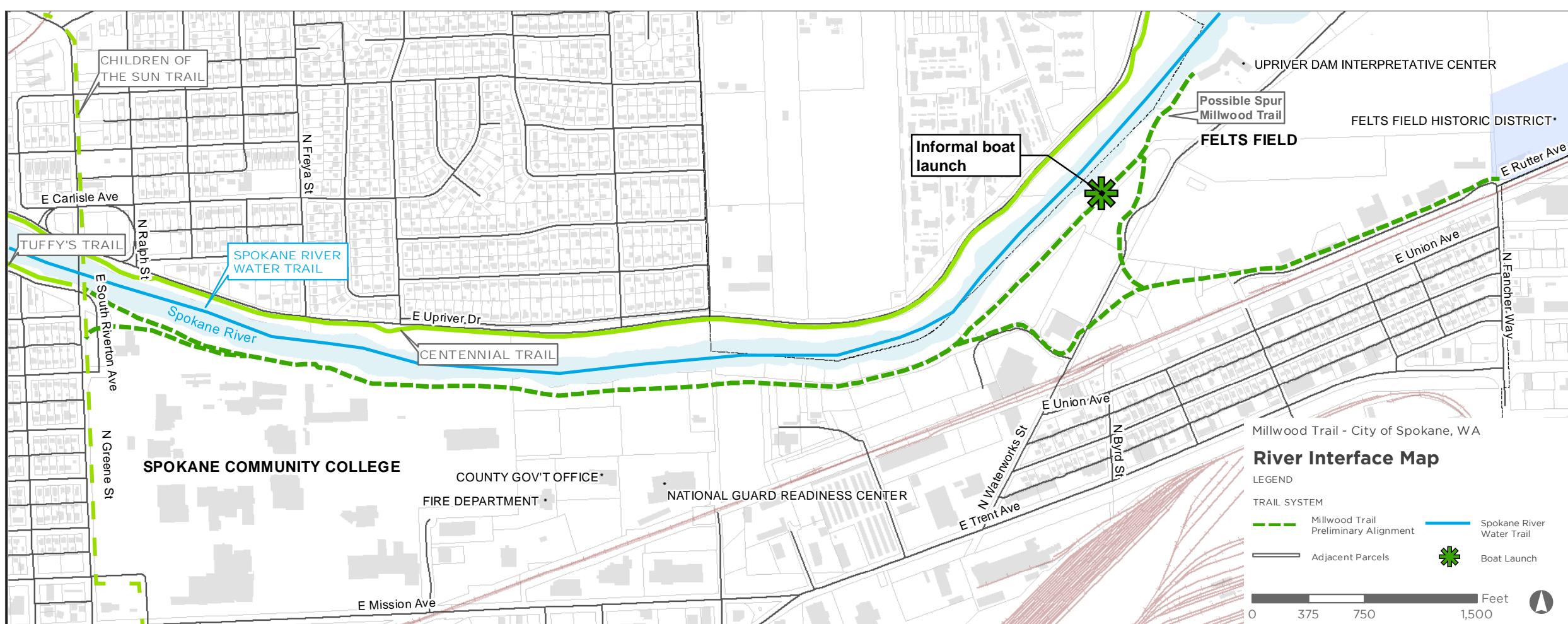


Figure 1.18. Spokane River Interface with Millwood Trail

## Opportunities & Constraints

The Millwood Trail provides opportunities to connect to locally and regionally-significant trails such as Tuffy's Trail to the west, the Centennial Trail across the river, and the future Children of The Sun Trail. It could also provide connections to the Spokane River Water Trail and the Upriver Dam Interpretive Center. Locally, the Millwood Trail represents an important pedestrian amenity in an area that is currently underserved by pedestrian infrastructure. It will connect residential neighborhoods west of N Greene St, to Spokane Community College, Felts Field, and businesses located to the east in Spokane Valley.

Although the former railroad corridor is generally conducive to

trail development, site-specific constraints do exist throughout the study area. These include:

- Steep grades where the trail is forced transition off of the former Great Northern railroad bench
- Constrained ROW along Waterworks St and Rutter Ave to support development of a trail
- Potential security issues at Felts Field and Upriver Dam
- Potential security concerns related to limited visibility along the corridor near SCC
- Adjacent industrial land uses may require buffering from the trail
- Protection of existing utilities within the corridor
- Integration with future Children of the Sun Trail and NSC bridge over the Spokane River

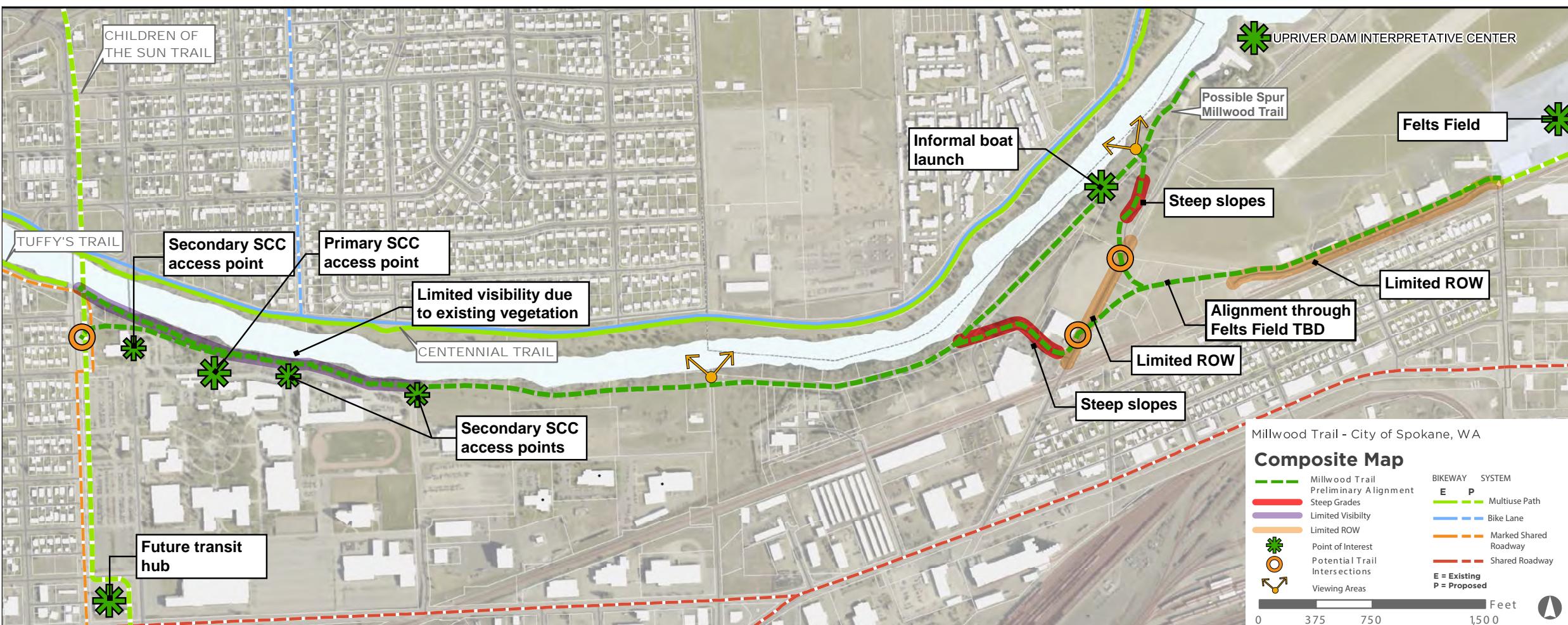


Figure 1.19. Opportunities and Constraints Mapping

## 3: STAKEHOLDER AND PUBLIC INPUT

### Outreach Strategies

In order to determine the needs and preferences of current and potential trail users, multiple public outreach efforts were conducted during the development of this plan. The public was invited to take an online survey, draw recommendations on an interactive online map, ask questions and provide insight at a public meeting, as well as follow the planning progress via a project website. The project team also met with Stakeholder groups in order to gather their input during the planning process. Suggestions made and discussions had during the public and stakeholder involvement process heavily influenced recommendations made throughout this plan.

### Project Website

The Millwood Trail Plan website displayed an array of information about the project including project goals, background, map, timeline and updates on the open houses and meetings held along the process. Meeting materials and survey were made available at the website during the entire duration of the project. This way, people that were unable to attend the open houses could follow the project's progress as well as provide their questions, concerns and opinions at any moment along the development of the project.

### Online Interactive Map

This mapping tool allowed users to provide spot comments along the trail corridor about destinations they would like to access or any site specific issues to consider. Users expressed the need for wayfinding along the trail, as well as trailhead infrastructure so that nearby neighborhoods are not affected with lack of parking due to people trying to access the trail.

### Stakeholder Listening Sessions

During the planning process, the project team met with stakeholder groups to gather their input regarding the Spokane Millwood Trail. These include:

- Spokane Community College
- WSDOT
- Spokane City Streets
- Spokane City Water
- Felts Field



Figure 3.1 Spokane Millwood Trail Plan Website

### Online Survey

About 20 people took a short, 7-question online survey about trail usage and amenities. Four optional questions about demographics and e-mail addresses (in order to receive updates about the plan) were also included at the end of the survey.

### RESPONSES

Most people reported that their preferred uses for the Millwood Trail were:

1. Fitness, walking and jogging
2. passive recreation and;
3. access to the Spokane River.

Respondents' preferred destinations include the Centennial Trail and Felts Field. Additionally, when asked about types of amenities they would like to see along the trail, most respondents identified trash receptacles, river access points and trail lighting. Open-ended comments suggested that people are concerned about Millwood Trail's connection to the North Spokane Corridor, and safe trail access points while also expressing enthusiasm towards a new bicycle and pedestrian facility in the area.

### DISTRIBUTION

The survey, as well as the mapping tool, were promoted on the City of Spokane's social media accounts, through official City press releases, and via events such as bike swaps and neighbor day.

### Public Meeting # 1

The Design Team collected input from approximately 100 people and talked to many more during the first Millwood Trail public meeting, held on June 3rd, 2017, during the Neighbor Day event at Felts Field. Participants were encouraged to place "like" and "dislike" stickers next to trail themes and materials, amenities, alignments and design options. They also provided input via sticky notes on the physical trail map provided (Figure 3.4).

Additionally, most participants were asked to indicate aesthetic preference for the design of the amenities and wayfinding package. Attendees overwhelmingly preferred the "Aviation Theme" (Page 22). Results from the online survey and first public meetings are summarized on Figures 3.2 and 3.3.

### Online Survey & Public Meeting Results

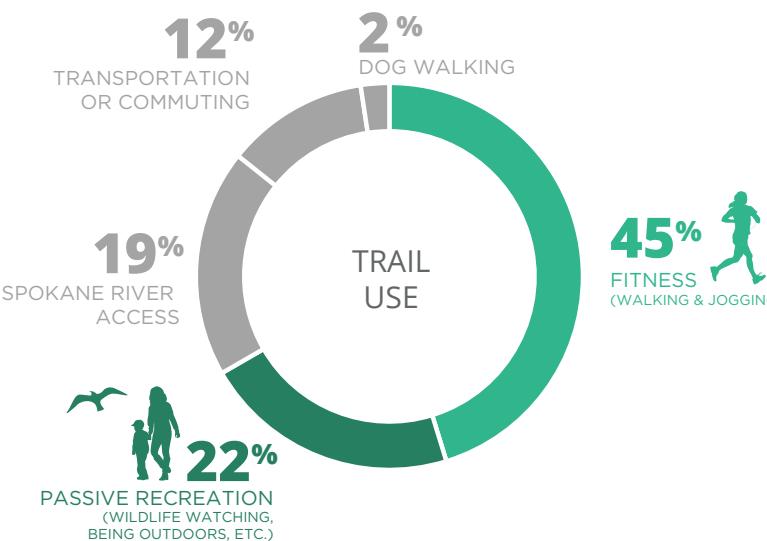


Figure 3.2 Trail uses reported by the public.



Figure 3.3 Most important amenities chosen by the public.

### Public Meeting # 2

On November 3rd, 2017 The Design Team conducted public outreach at Spokane Community College to gain feedback on the preferred Millwood Trail alignment. The Design Team spoke with students and faculty in the LAIR Student Center. Participants voted on amenities they'd like to see incorporated into the trail design such as wayfinding and dog waste stations. The Planning Team visited with approximately 75 people over the course of three hours. In the evening of November 3rd, a Public Open House was held at the same location to cater to members of the general public beyond the College. Postcards advertising the meeting were sent out to 300 local residents and businesses. Attendance for the evening event totalled 10 people.



## 4: TRAIL THEMES AND MATERIALS

### Aviation Theme

Adjacent to the Millwood Trail sits a historically significant airport: Felts Field. Founded in 1927, Felts Field was the original site of the Washington Air National Guard and served as Spokane's municipal airport in the 1930's and 1940's. Nowadays, Felts Field hosts over 59,000 aircraft operations each year and is home for 250 aircrafts. Additionally, Spokane Community College utilizes Felts Field resources for their Aviation Maintenance Technology program which prepares students to be entry-level technicians in the aviation industry. The elements for the trail are inspired on the overall architecture and materials used at Felts Field, as well as its Art Deco inspired logo. Aluminum and stained concrete, as well as sand and blue colors can be used on trail furniture and signage.

### Character Images



### Color Theme & Materials

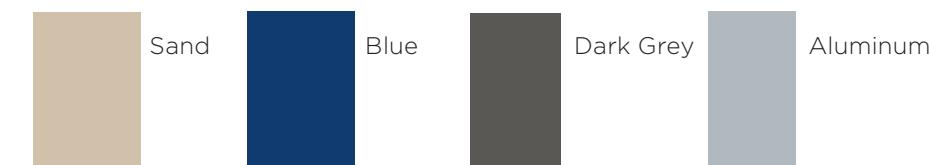
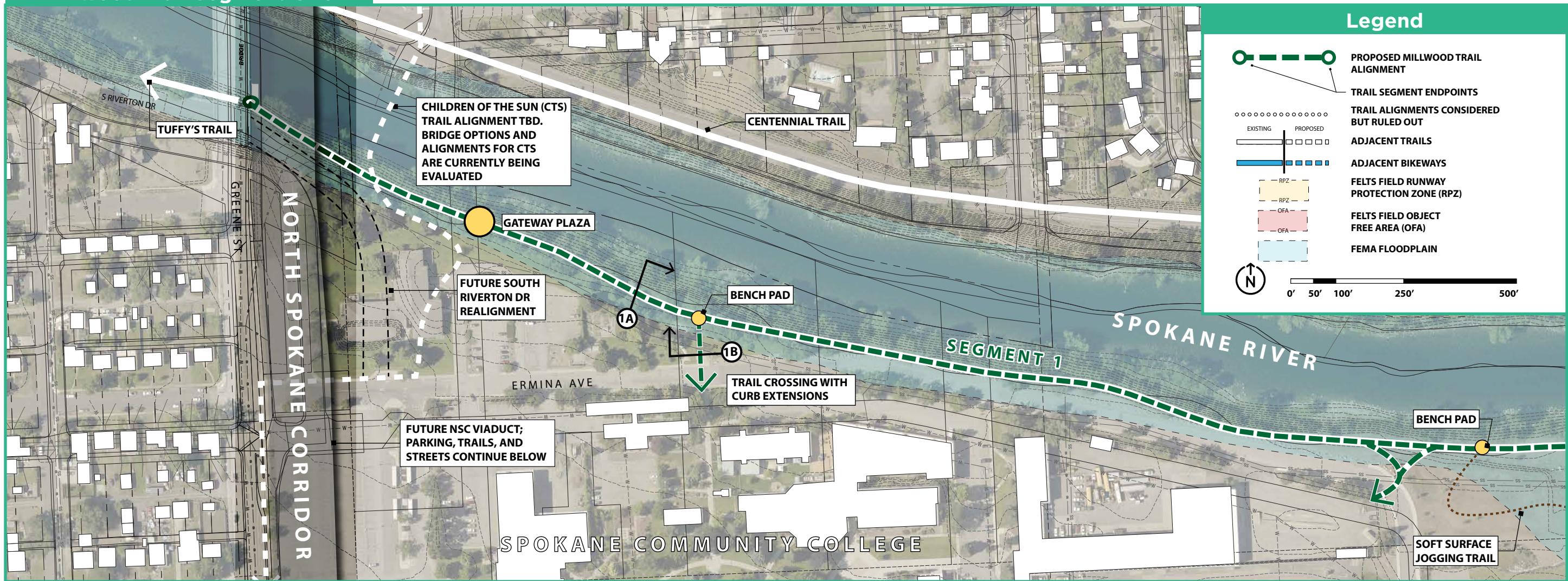


Figure 3.4 Summit Bike Rack and Knigh Bench and Receptacle from Forms + Surfaces. Source: [www.forms-surfaces.com](http://www.forms-surfaces.com)

## Millwood Trail Segment One



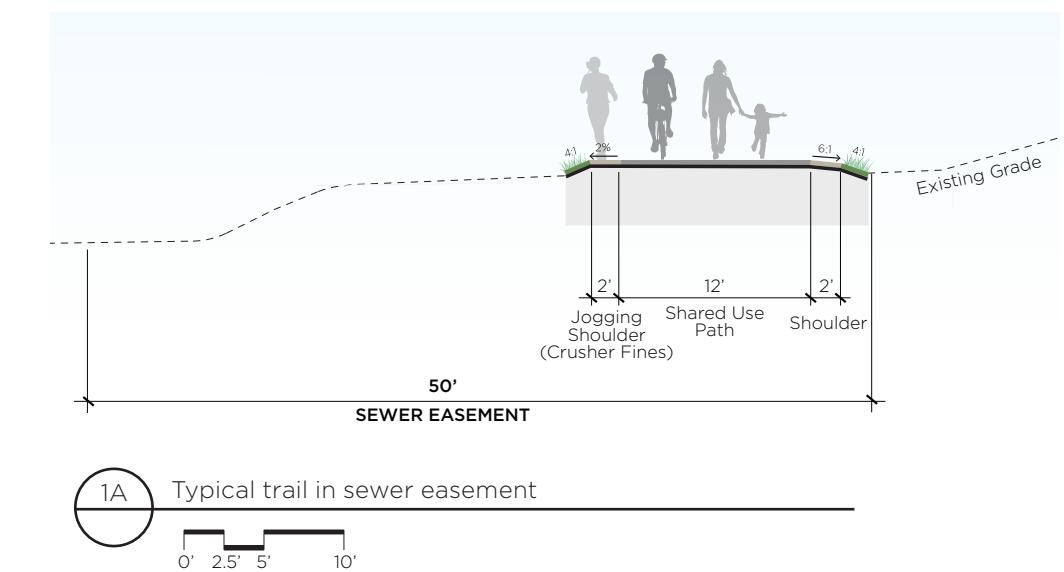
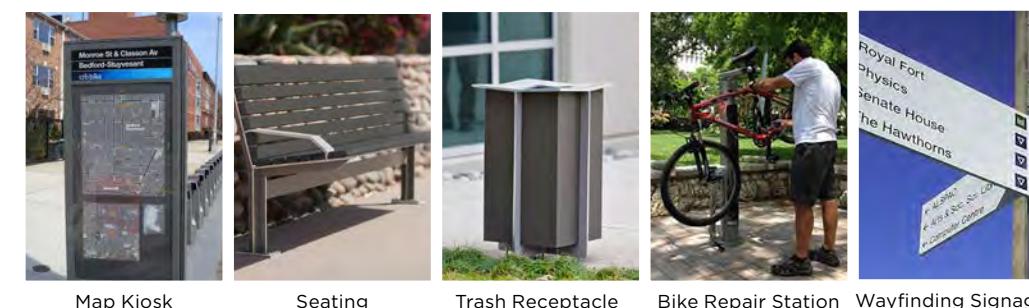
## 5: TRAIL ALIGNMENT AND ALTERNATIVES

## Segment One Summary

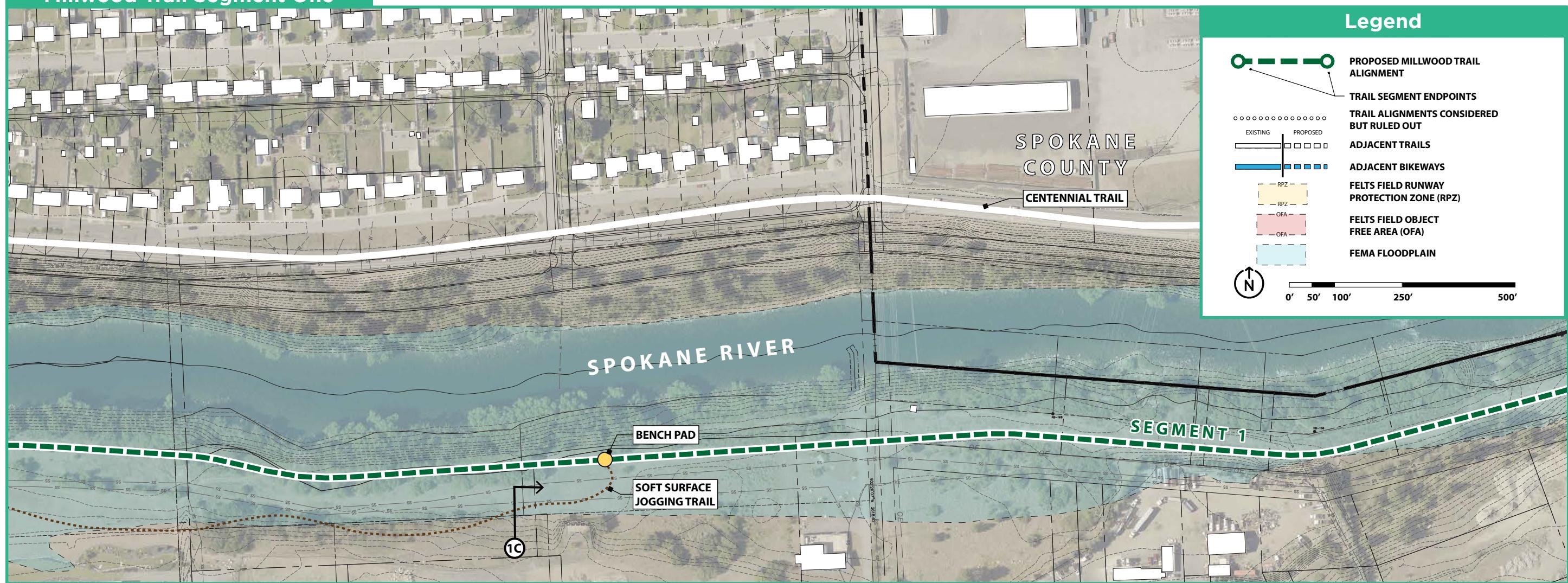
Segment one of the Millwood Trail starts at Green Street where it connects to Tuffy's Trail. Proceeding east, the trail follows the former BNSF railroad alignment and existing Spokane City and Spokane County sewer corridor. East of Greene the trail will cross below the proposed North Spokane Corridor (NSC) which will be elevated as it travels adjacent to Spokane Community College. In this area, the Millwood Trail should connect to the proposed Children of the Sun Trail (CST) which is a component of the NSC project. As of May 2017, final design and alignment of the CST has not been determined. Trail access points should connect Spokane Community College to the Millwood Trail at the existing plaza/area off Ermina Ave. and at the 90-degree turn on Ermina.

## Gateway Plaza

Where the Millwood Trail and CST connect, a small plaza should be developed. The plaza should contain seating, a map kiosk with wayfinding information, a wayfinding fingerboard sign (for more concise communication of basic wayfinding information), a bike repair stand, and trash receptacles. It should be situated to take advantage of views of the Spokane River and serve as a resting spot for trail users.

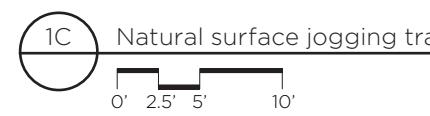
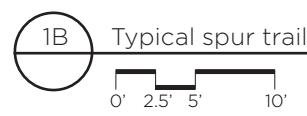
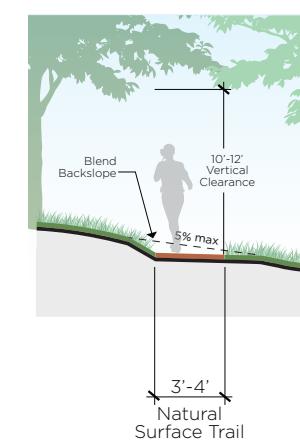
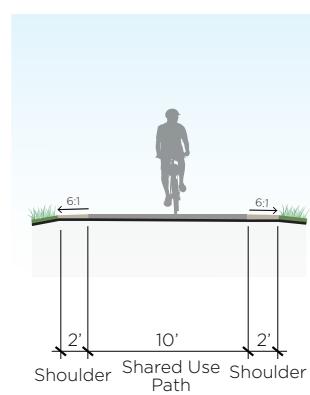


## Millwood Trail Segment One

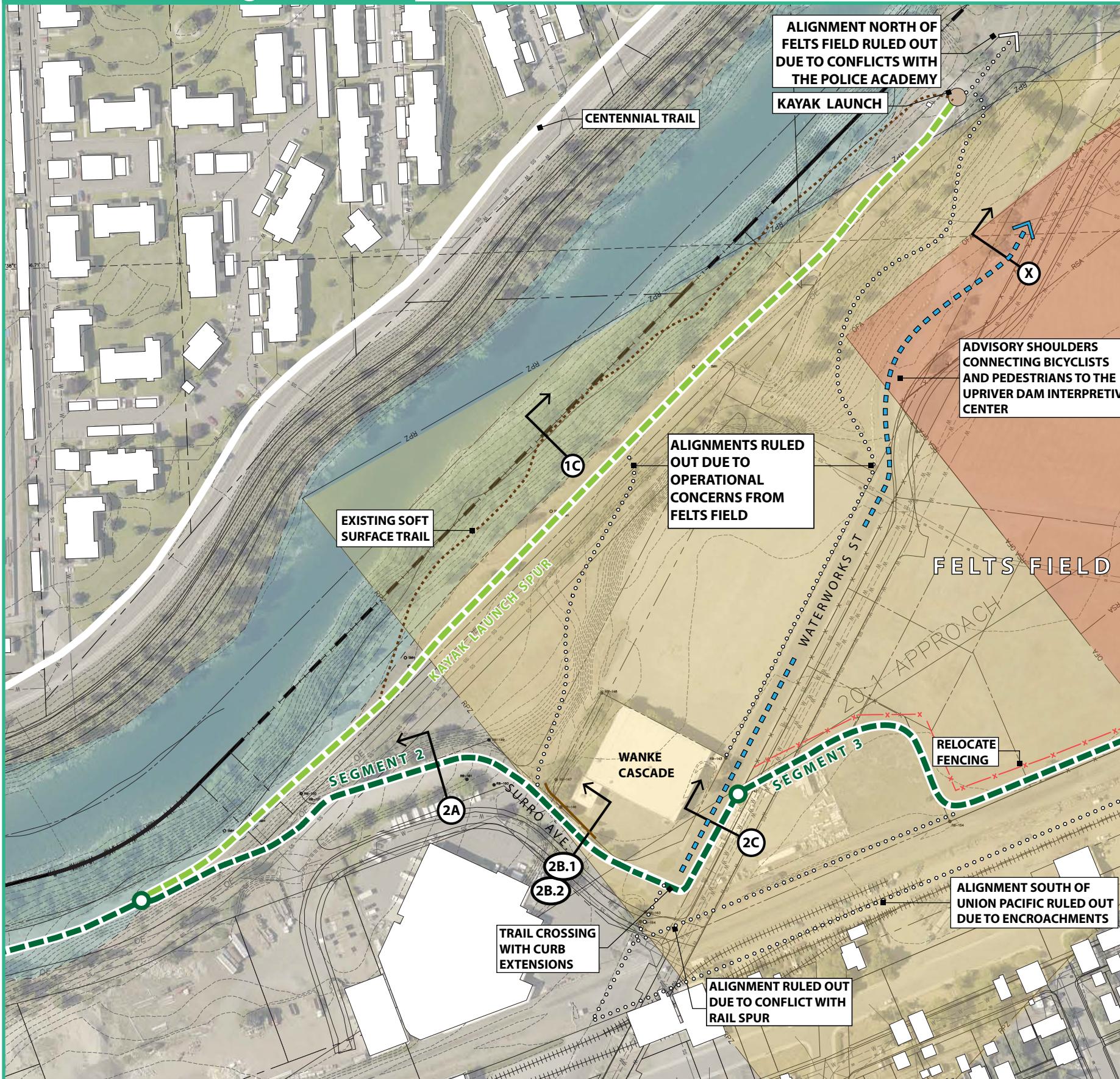


## Segment One Design Considerations

- Interface with the proposed CST is unknown at this time
- Connection to Spokane Community College may require renovations to the plaza adjacent to Ermina leading to the campus green
- Construction in the FEMA flood plain will require concrete paving and turn-down edges to withstand periodic flooding
- Access to sewer line manholes must be maintained



## Millwood Trail Segment Two



## Segment Two Summary

Segment two of the Millwood Trail transitions out of the sewer line corridor negotiating about 30' of elevation gain to connect to Waterworks Street. Any potential alignment through this area must cross Felts Field's runway protection zone (RPZ). FAA Advisory Circular 150/5300-Change 17 describes the function of RPZ's to "enhance the protection of people and property on the ground". Many preliminary alignment alternatives were considered for this segment, however only the Surro Ave. alignment was deemed feasible due to the RPZ and Felts Field's operational constraints. An optional spur trail to the kayak launch may provide an additional recreational benefit to the project and meet the public desire for increased river access. Approval from FAA will be required prior to developing the Millwood Trail through this area.

## Kayak Launch

The Kayak Launch would include a staging area for launching non-motorized watercraft on the Spokane River. A small plaza would contain a map kiosk illustrating the Spokane River Water Trail and water trail wayfinding information such as put-in and take-out sites. Seating and a trash receptacle would also be provided. The kayak launch ramp would also be improved by providing a more accessible ramp for launching kayaks and non-motorized watercraft.



Map Kiosk



Seating



Trash Receptacle

## Legend

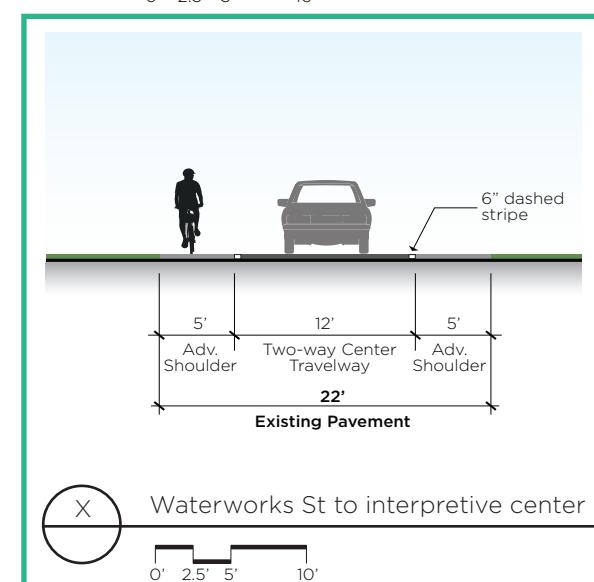
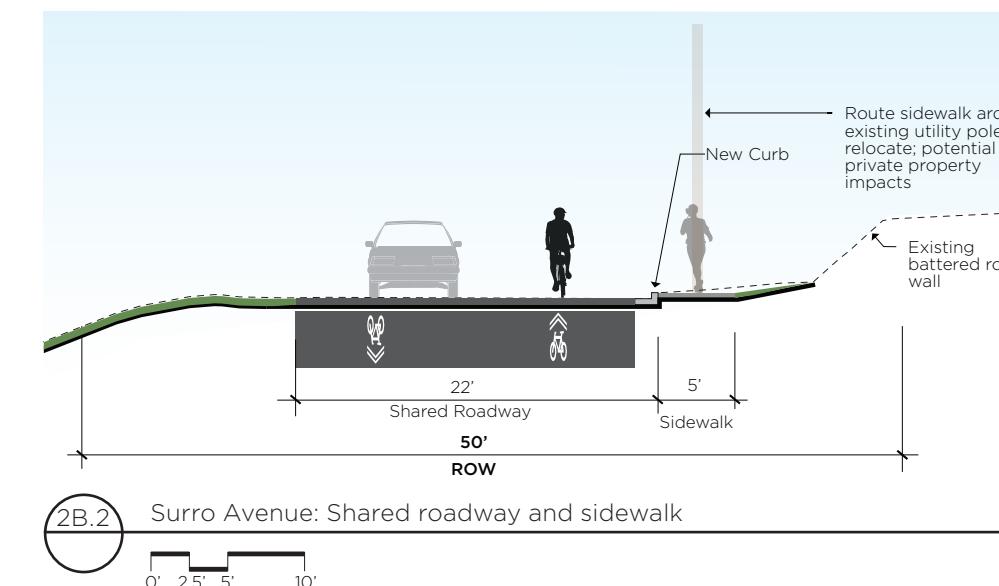
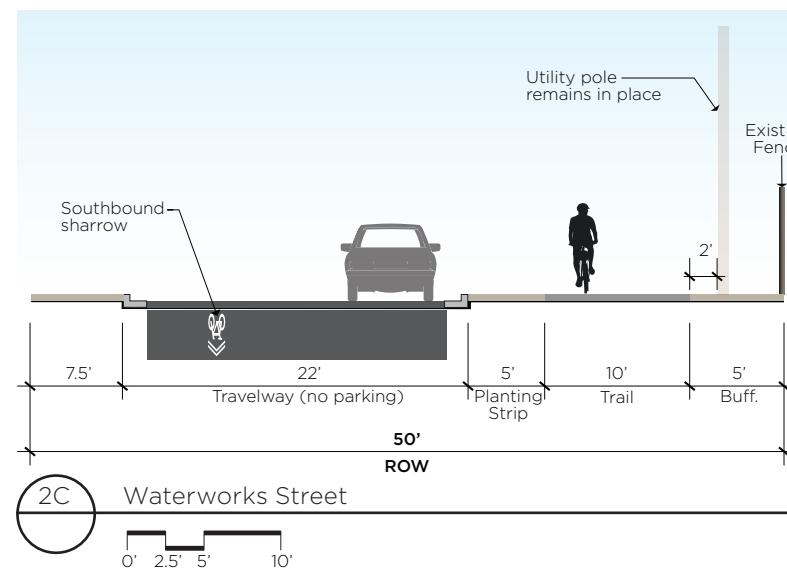
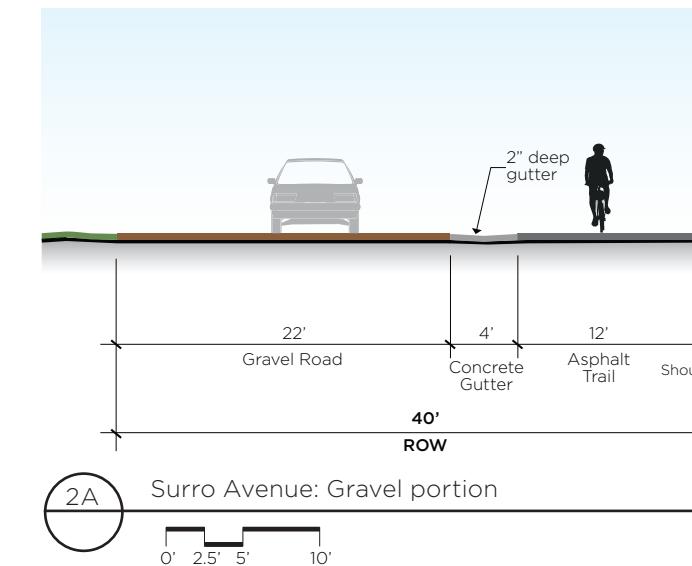
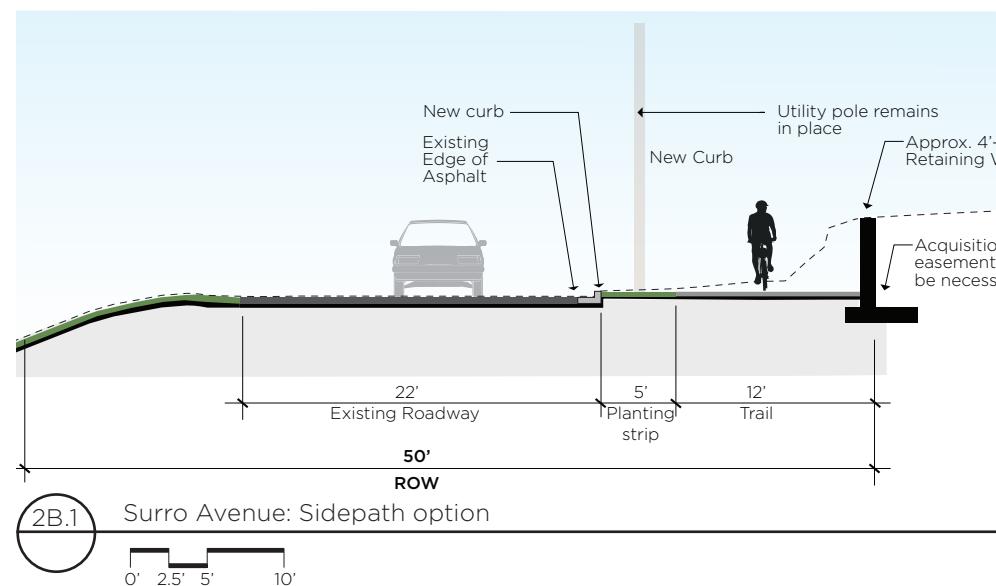
- PROPOSED MILLWOOD TRAIL ALIGNMENT**
- TRAIL SEGMENT ENDPOINTS**
- TRAIL ALIGNMENTS CONSIDERED BUT RULED OUT**
- ADJACENT TRAILS**
- ADJACENT BIKEWAYS**
- FELTS FIELD RUNWAY PROTECTION ZONE (RPZ)**
- FELTS FIELD OBJECT FREE AREA (OFA)**
- FEMA FLOODPLAIN**



0' 50' 100' 250' 500'

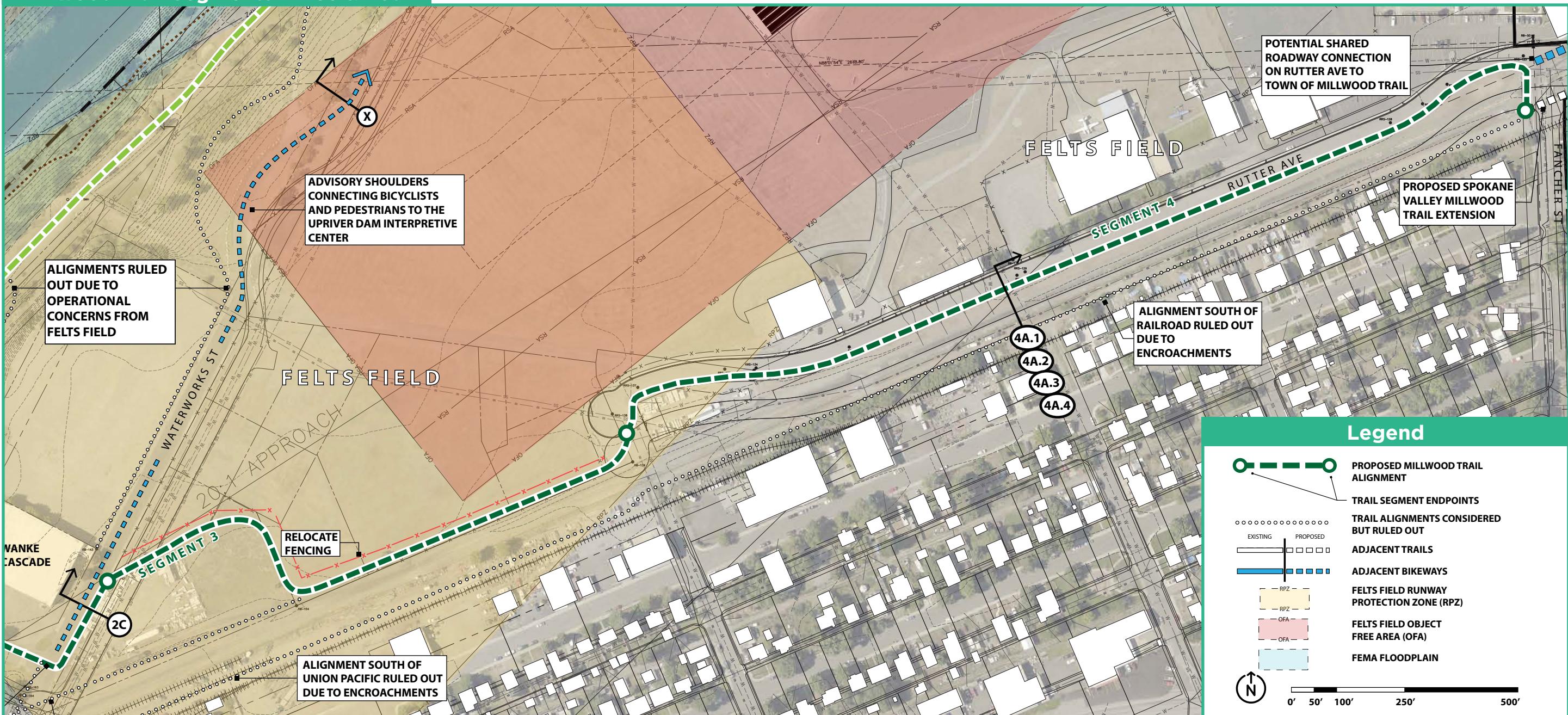
**Segment Two Design Considerations**

- Grading easements or retaining walls may be necessary where the trail ramps up to meet Surro Ave.
- Access must be maintained to the combined sewer overflow basin at the end of Surro Ave.
- Alignment is not ADA-accessible with slopes on Surro Ave. reaching 10-12%
- Acquisition or grading easements may be required near Wanke Cascade
- Two to three street trees along Surro Ave. are likely to be lost if the trail is developed

**Advisory Shoulders**

Advisory shoulders create usable shoulders for bicyclists and pedestrians on roadways that are otherwise too narrow to accommodate them. The shoulder is delineated by pavement marking and optional pavement color. Motorists may only enter the shoulder when no bicyclists or pedestrians are present and must overtake these users with caution due to potential oncoming traffic. Advisory shoulders represent a cost-effective and efficient way to connect trail users to the Upriver Dam interpretive center.

## Millwood Trail Segments Three &amp; Four



## Segment Three Summary

Segment three of the Millwood Trail crosses Felts Field property connecting Waterworks St. to Rutter Ave. The trail through this segment would consist of a 12' paved shared use path. A new perimeter fence would need to be constructed north of the trail to prevent trail users from accessing the airfield. A potential trail alignment south of the existing propane gas facility was ruled out due to conflicts with a railroad spur in the area. Also, an alignment south of the railroad tracks was deemed infeasible in response to numerous encroachments due to the property's informal use as an ally servicing adjacent homes. As with

Segment two, any trail alignment through Felts Field's RPZ is subject to FAA approval.

## Segment Three Design Considerations

- Trail alignment through RPZ subject to FAA approval
- New perimeter fencing required to keep trail users off of Felts Field's airfield

## Segment Four Summary

Segment four extends from the culdesac at the end of Rutter Ave east to the intersection of Fancher Rd. Multiple cross-section configurations exist for developing a bicycle and pedestrian connection through this segment. Rutter's ROW ends approximately at the existing back of curb on the south side of the street, however, Rutter appears to increasingly encroach onto Union Pacific property up to a maximum of 13.3' near the Fancher Rd. intersection. Coordination with Union Pacific will likely be required to establish any of the alternatives that place trail users on the south side of Rutter Ave.

**Segment Four Design Considerations**

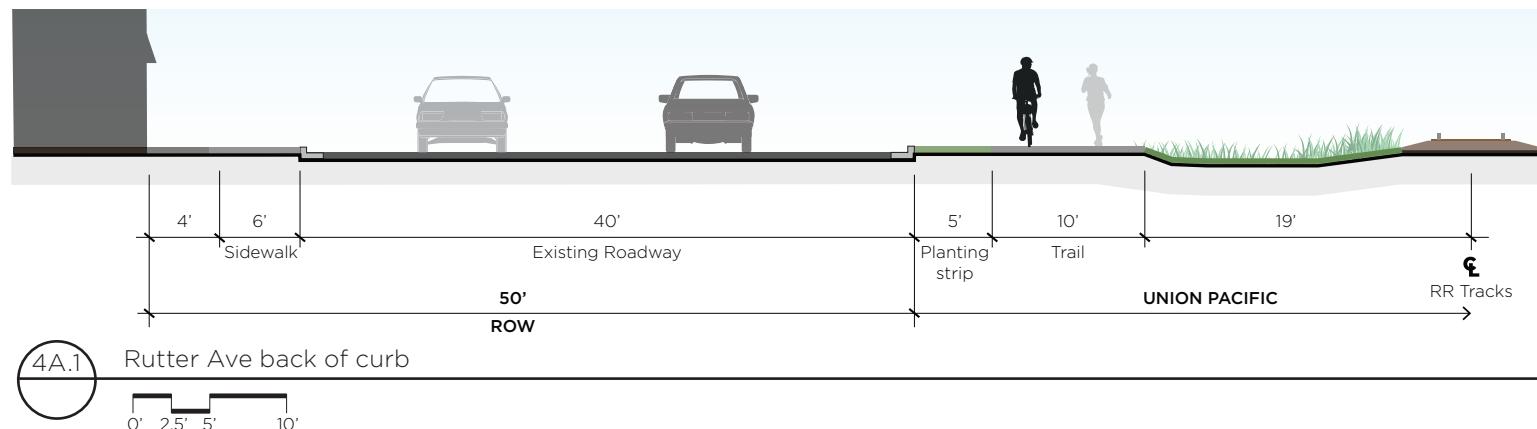
- Rutter Ave. encroaches onto Union Pacific property up to 13.3'
- Planned connection to Spokane Valley segment of the Millwood Trail occurs on the south side of the railroad tracks
- Numerous driveways and tight setbacks on the north side of Rutter Ave.

**ALTERNATIVE 4A.1: RUTTER AVE. BACK OF CURB****Opportunities**

- Provides a consistent trail experience
- Maintains existing on-street parking along Rutter Ave.

**Constraints**

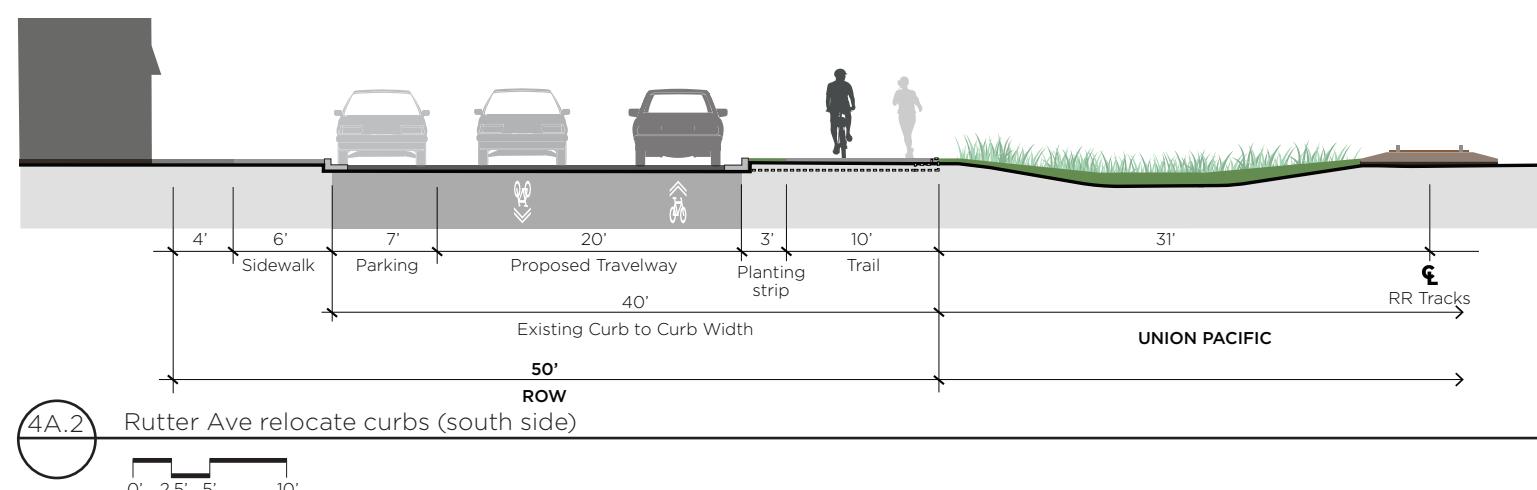
- Requires an easement or acquisition from Union Pacific

**ALTERNATIVE 4A.2: RUTTER AVE. RELOCATE CURBS (SOUTH SIDE)****Opportunities**

- Provides a consistent trail experience

**Constraints**

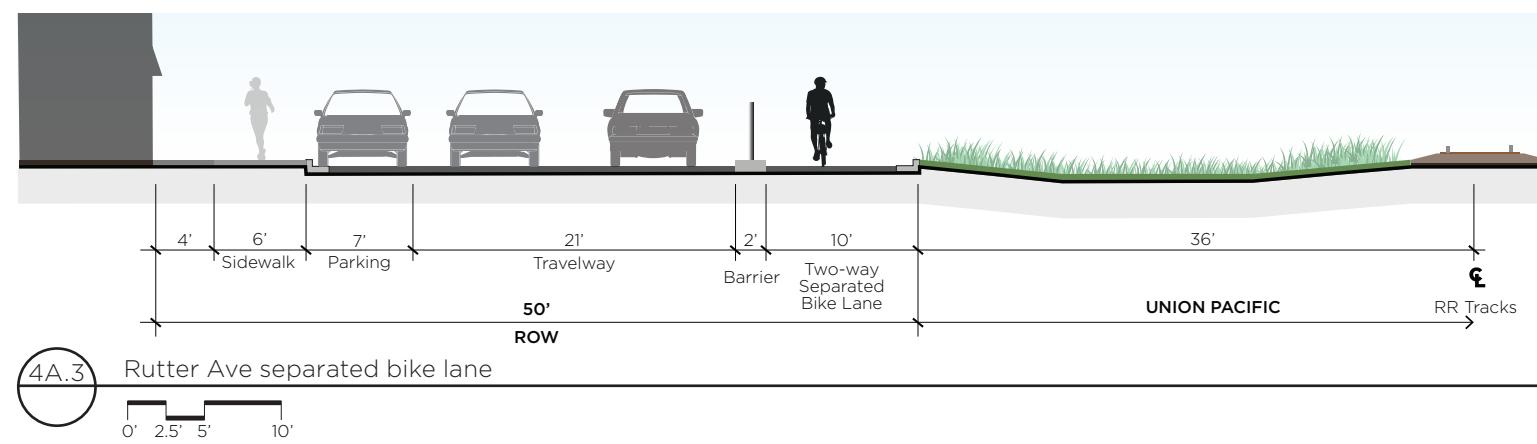
- May require acquisition from Union Pacific
- Eliminates on-street parking on the south side of the Rutter Ave.

**ALTERNATIVE 4A.3: RUTTER AVE. SEPARATED BIKE LANE****Opportunities**

- Lower costs than other alternatives
- May provide a temporary or interim solution if needed. Various materials such as flexible delineator posts, parking stops, or planters could be utilized to create the separated bike lane barrier.

**Constraints**

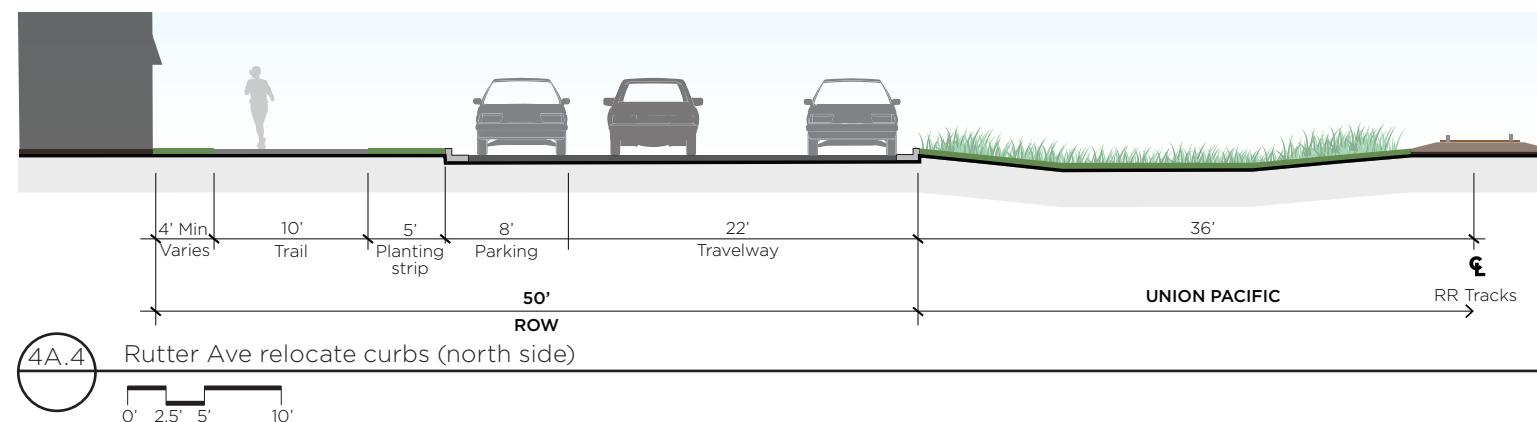
- Acquisition may be required from Union Pacific
- Eliminates on-street parking on the south side of the Rutter Ave.
- Does not provide a consistent trail experience

**ALTERNATIVE 4A.4: RUTTER AVE. RELOCATE CURBS (NORTH SIDE)****Opportunities**

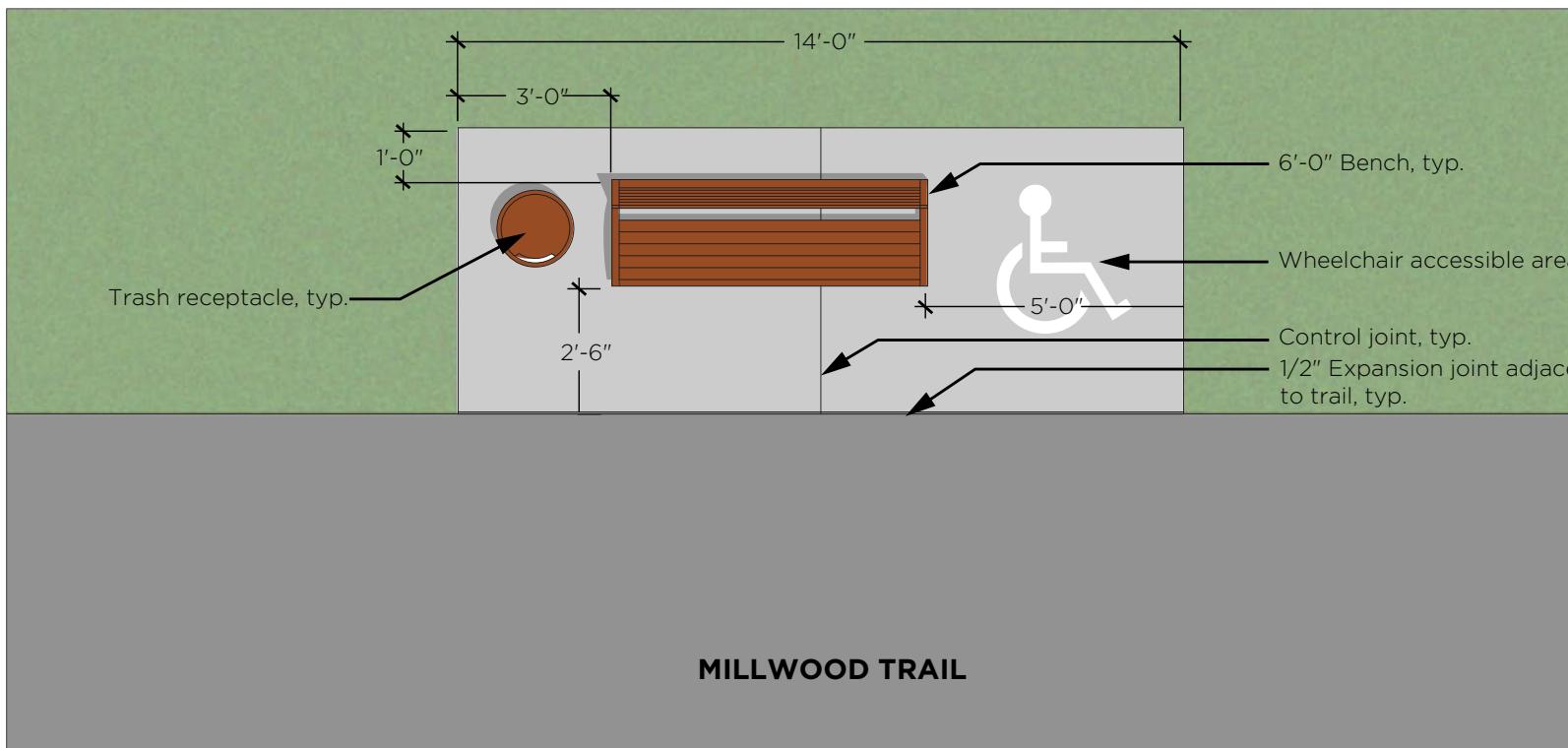
- Trail is located within the existing ROW
- The trail could enhance the streetscape in front of Felts Field

**Constraints**

- North side of Rutter possesses numerous driveway crossings
- Eliminates on-street parking on the south side of the Rutter Ave.

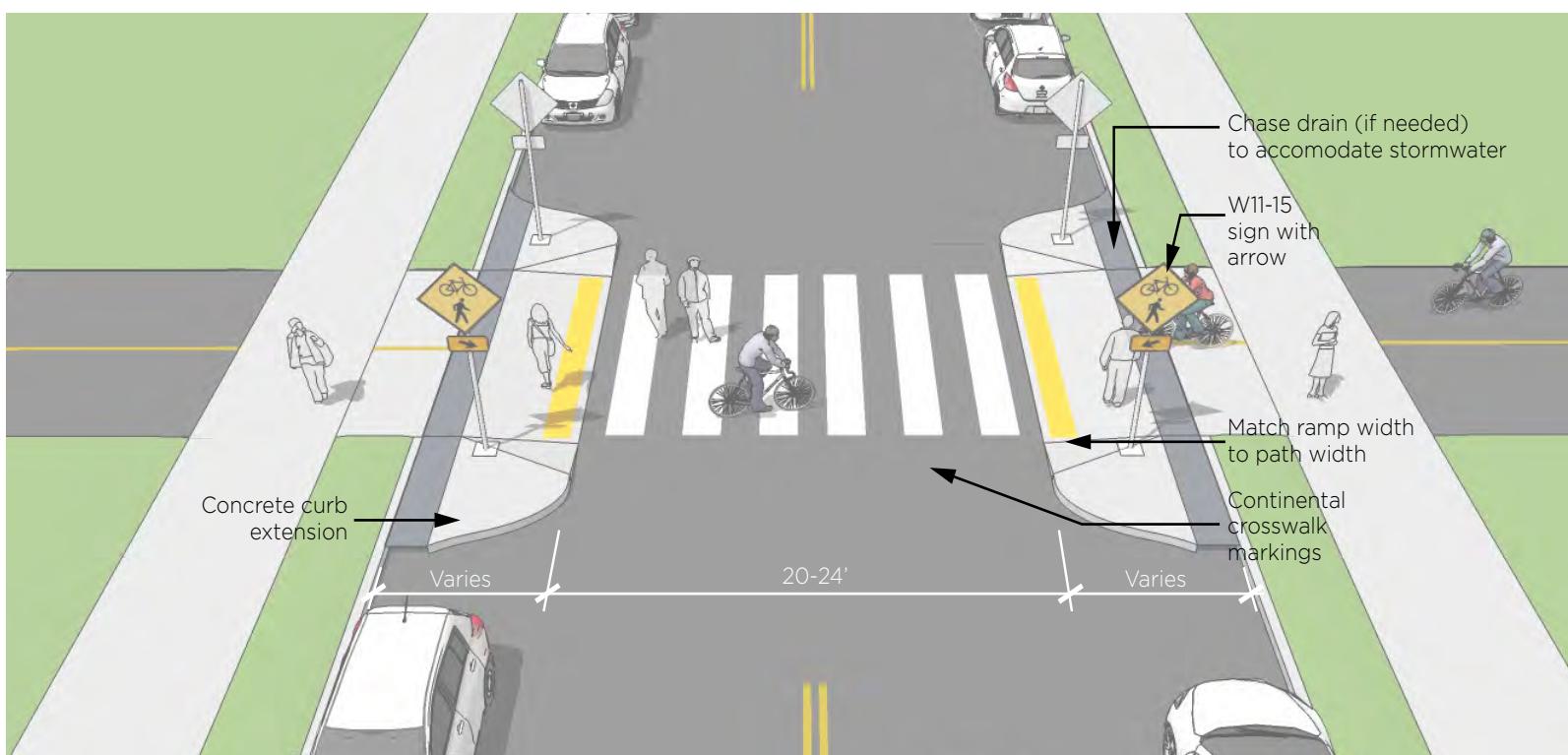


## ADDITIONAL DESIGN GUIDANCE



### Bench Pad

Bench pads should be ADA accessible areas that contain sufficient space for the placement of a bench, a trash receptacle, and open concrete area for wheel chair access. Benches should be setback 2-6" from the edge of the trail. Benches and trash receptacles should be surfaced-mounted for ease of installation. Benches should be positioned to take advantage of views of the Spokane River.



### Trail Crossing with Curb Extensions

Curb extensions minimize pedestrian exposure during crossings by shortening crossing distance and provide pedestrians better visibility at crossings. For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition should be 10 ft and the two radii should be balanced to be nearly equal. At all trail-street intersections, curb extensions should be utilized to shorten the crossing distance.