Veneta Paths and Trails MASTER PLAN

June 2023

Acknowledgements

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EXECUTIVE SUMMARY

Veneta's network of safe, accessible paths and trails are a community asset that leverages recreation and transportation opportunities. The Veneta Paths and Trails Master Plan builds upon these existing opportunities by creating an implementable roadmap to expand this network.

This vision statement for the Paths and Trails Master Plan blends previous planning efforts with an ambitious but realistic network of paths and trails as regional transportation connections, as recreational opportunities, and as community links. This plan builds connectivity throughout Veneta and beyond, as voiced by members of the public.

Recommendations for where and how to build the paths and trails network leverage both off-street and on-street connections. These opportunities align with the pattern of land development and the desire for a blend of walking and bicycling opportunities. Recommendations are structured as robust regional trails, connecting community trails, and short links of local trails.

Implementing this network will require creativity. Implementation strategies leverage Veneta's fast-developing city with developer partnerships, regional cooperation, and local opportunities with street retrofits and grant funding.

A network is only as good if it's used. This plan includes guidance on designing and maintaining paths and trails, including:

- Design for different user types and modes
- Designing for climate resilience, which should inform design and materials choices
- Scheduling maintenance activities and appropriate task timelines

As a system, paths and trails should be a fun and joyful experience for users. This is why making paths and trails comfortable and convenient is key. Adding amenities, waysides, shade, and wayfinding can enhance a network to its fullest potential.

This Paths and Trails Master Plan is Veneta's first step to building a network of safe, accessible paths for the greater Veneta community.

Proposed Paths and Trails Network Map

Veneta Paths and Trails Master Plan

Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard
- Advisory lane

- Proposed crossing upgrades

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network
- Rail Line

Natural Areas
- Water Body
- Wetlands

Destinations
- Park
- Schools

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements
- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

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Chapter 1

VENETA TODAY

History of the Project

The Veneta Paths and Trails Master Plan ("Plan") is a guiding document that recommends key next steps for designing, building, maintaining, and managing Veneta's paths and trails system in an effort to enhance the livability, health, recreation, and transportation opportunities in the City of Veneta.

Previous plans approached trail planning from either a transportation or recreation angle, both within city limits. This plan takes a more integrated approach, while also looking at regional connectivity.

A successful path and trails system becomes part of everyday life – from taking a trail to pick up kids from school, making a run to a grocery store, or going for a walk or bike ride to a nearby park for exercise or fun.

Parks, Recreation, and Open Space Master Plan 2020

The vision of the Parks, Recreation, and Open Space (PROS) plan of 2020 is a collection of safe and accessible parks, trails, and recreational facilities that promote healthy lifestyles, provide local recreational opportunities, and meet the needs of community members of all ages. To realize this vision, one of the PROS plan's stated goals is to develop off-street multi-use paths and trails that improve connectivity between parks, open space areas, natural areas, schools, downtown, and the library. Part of this goal includes creating a trails master plan to supplement the PROS plan. The plan recognizes the need to coordinate with the Transportation System Plan to integrate planned bikeways and bike routes. It builds off a county-based assessment of recreational opportunities conducted in the 2019-2023 Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP). In this assessment, trails were consistently mentioned as a high priority need in Lane County.

Transportation System Plan 2019

The 2019 Transportation Systems Plan (TSP) is Veneta's long-range plan that evaluates current infrastructure and identifies transportation investments. The plan identified local activity generators. It calls for new sidewalks on existing and planned streets, and new bikeways on existing streets. It recommends a shared-use path along Territorial Hwy between Veneta and Elmira. Locations are identified for different project types like shared-use paths, street upgrades, enhanced pedestrian crossings, intersection improvements, and transit stops.

Fern Hill Trail System 2007

The Fern Ridge Trail System plan includes local trails within Veneta as well as regional trails connecting to other communities. Multi-use paths are recommended along Highway 126, and in wetland/stream corridors.

Project Vision And Values

To guide the project, the Plan created the following vision statement:

Veneta's network of safe, accessible paths and trails are a community asset that leverages recreation and transportation opportunities. The Veneta Paths and Trails Master Plan builds upon these existing opportunities by creating an implementable roadmap to expand this network.

To develop the Plan, these values guided the planning, design, and implementation of facilities:

- **All ages and abilities:** Ensure paths and trails are accessible for everyone to use, regardless of age or physical ability
- **Recreational opportunities:** Create and expand recreational opportunities for improving health and wellbeing
- **An achievable network:** Right-size a buildable paths and trails network that is feasible to maintain
- Community assets: Use paths and trails to enhance the local character and community assets of Veneta
- Regional connectivity: Create safe and comfortable connections to destinations beyond Veneta

Community Engagement

Engagement with community members is important for delivering a paths and trails network that meets the needs of people living and working in Veneta. Community feedback was a key component of the Plan. The goals for community engagement were:

- **Authentic Engagement.** Identifying and collaborating with key local stakeholders and affinity groups with important local knowledge. Developing and facilitating engagement activities that resonate and are accessible to residents and stakeholders.
- **Active and Participatory Engagement.** Providing a forum for residents and stakeholders to have a say in the plan's development through active and participatory opportunities.
- **Support Implementation.** Generating awareness and excitement for the Plan, in turn building momentum and support for its implementation.
- **Work with key stakeholders.** Engaging with key stakeholders to ensure clear communication and mutual understanding.

Plan Engagement Promotion

The project team worked closely with the city to develop promotional materials that advertised the Plan. The three types of promotional material developed were flyers, newsletter content, and social media posts.

The project team developed two 8.5" x 11" flyers (Figure 1) to boost awareness of the Paths and Trails Plan.

Figure 1. Promotional Materials

The project team also drafted text copy for school and City newsletters that describes the plan and highlights participation opportunities for parents. The City sent content to school partners in the Fern Ridge School District.

The project team developed two social media posts for the City to distribute prior to community meetings, including visuals and text copy. The posts promoted the Plan's survey and sought input. See Figure 2 for the post.

Figure 2. Images for social media post

Community Meetings

The project team engaged with Veneta community members through two in-person public meetings on April 11th and May 16th.

The first community meeting focused on discovering existing paths and trails conditions from stakeholders and community members. The meeting included a short presentation, maps for gathering location-specific feedback, and other interactive formats to solicit public input.

The purpose of the second community meeting was to share draft recommendations and develop prioritization criteria. This in-person meeting was structured as a working session for community members to partake in developing recommendations. Activities included discussing challenges and opportunities, providing feedback on draft cross section designs, sharing thoughts on the draft network, and identifying paths and trails to prioritize for implementation. The project team then analyzed trends and synthesized findings based on the data collected, which informed final conceptual designs.

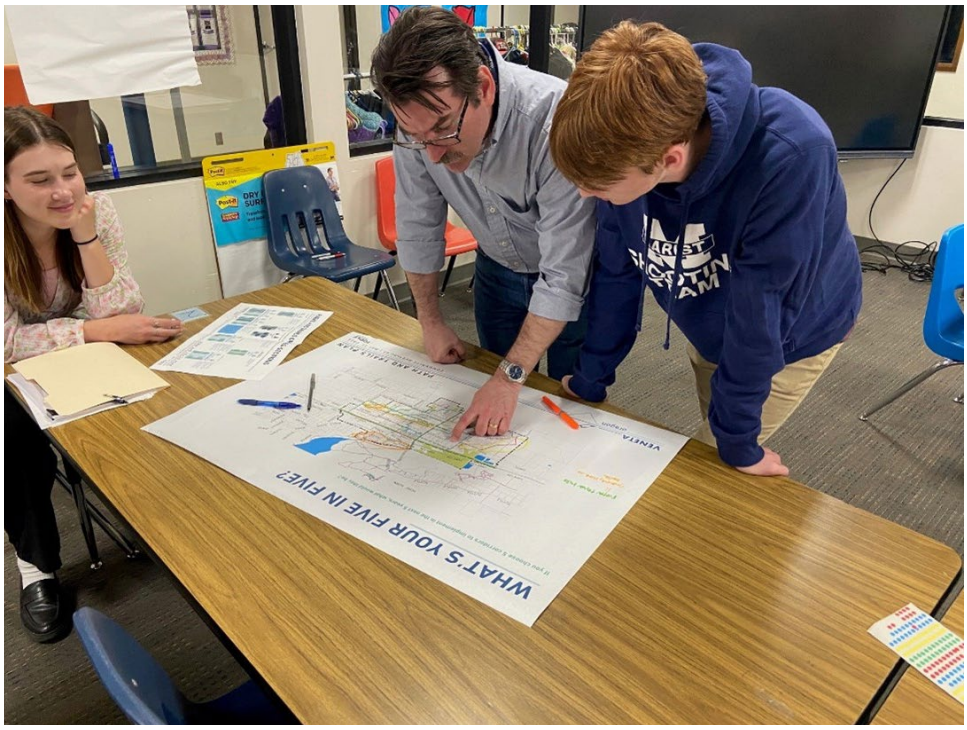


Figure 3. Soliciting feedback on which trails to prioritize. Source: Toole Design

Community Survey

The project team distributed an online survey, promoted through social media and during community meetings, for the public to fill out. The survey was open from April 11th to May 15th.

Public input revealed that most survey respondents walk on paths or trails frequently (39 percent), and that some households use them either somewhat infrequently (16 percent) or somewhat frequently (28 percent). Barriers to using paths and trails were predominantly around people's comfort level on busy streets (25 percent), followed by the lack of paths or trails that fit the respondent's need (18 percent). The third barrier was safety at crossings (16 percent).

Most respondents indicated they wanted to use paths and trails to be outside and access nature (34 percent), followed by riding for fun or exercise (28 percent). Also notable was that respondents wanted to travel to parks and other community destinations (20 percent). The full survey results are shown in the appendices.

Existing Conditions

Existing Network

Veneta's existing paths and trails are small spurs located in residential areas and have limited connectivity. The current roadway right-of-way designs lack considerations for paths and trails.

Sidewalks and bikeways are unevenly distributed across the city, in part due to the time of development. Older locations have fewer or narrower sidewalks, while newer developments have comfortable sidewalks, some with bioswales (green stormwater facilities) and on-street bike lanes. See Figures 4-6.

Figure 4. Perkins Rd and Oak Island Drive. Source: Google

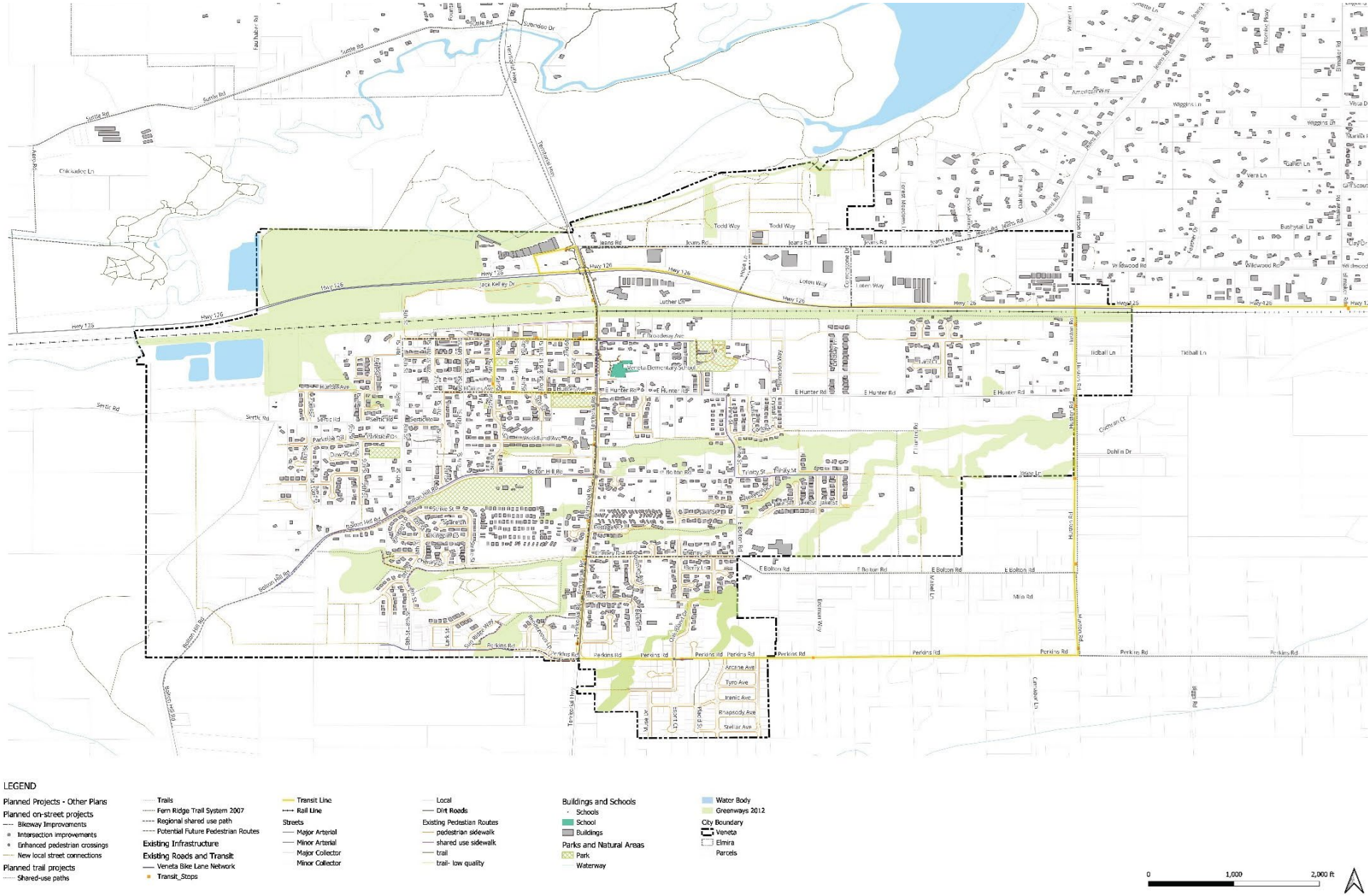
Figure 5. McCutcheon Ave and 7th St. Source: Google.

Figure 6. An existing bioswale to filter stormwater on Jameson Way. Photo: DLA

Existing Natural Features and Community Destinations

Veneta is situated in an area with many natural resources and open space and recreational opportunities, including the Long Tom River and Fern Ridge Lake. Within Veneta, particularly east Veneta, there are several wetlands and streams that create “green fingers” and provide close-to-home access to nature and environmental assets. A commonly cited community destination by Veneta residents included the hike to the water tower from Sertic Road. Additionally, there are many recreational destinations within the city, such as parks, playgrounds, and sports fields. See Figure 7 for an overview of the locations for these natural features and community destinations.

Figure 7. Existing Conditions



Challenges and Opportunities

Challenges

There are a variety of challenges with the existing path and trails network in Veneta. Existing segments are short, and they are not connected to other paths or trails, or bicycle facilities. There are many community-oriented destinations within biking or walking distance, but not all are connected by paths or trails. Trail types are inconsistent; some are dirt paths, some are paved. Highway 126, the railroad, and private property all pose barriers to a connected trail network. There are also geographic constraints like steep grades and waterways.

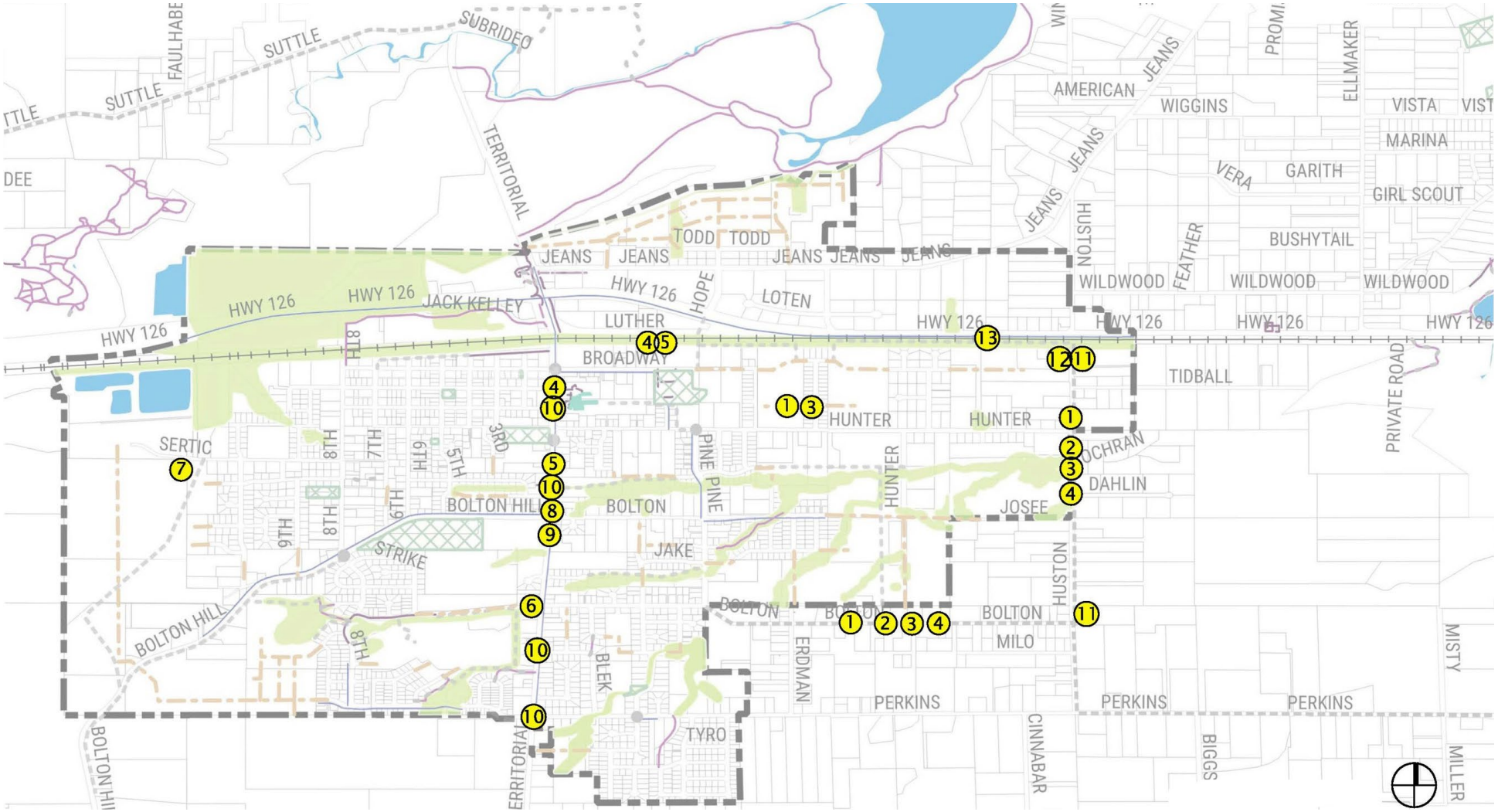
Other barriers include the condition of infrastructure, visibility/ sightlines, maintenance conditions, ecologically sensitive sites, encroachments, and crossing distances.

See Figure 8 for a visual overview of challenges.

"There are no sidewalks down East Hunter Road, and it is unsafe for pedestrians to share the traffic lanes. I have no way to walk safely to any parks or trails in Veneta, so I never use them. There are no bike paths in my area that I know of, and I'm not comfortable riding my bicycle down Hunter Road."

- Community member, online survey

Figure 8. Existing Challenges



1	Narrow right of way	7	Visual impacts of clear cut
2	Roadside ditches	8	Narrow bicycle lane shared with gutter next to high-speed traffic
3	No sidewalks and narrow shoulders	9	Curbside sidewalks on high-speed roadways can make walking uncomfortable
4	High speed traffic	10	Roadway crossings of Territorial that are busy and wide
5	High traffic volumes	11	Bus stops without accessible routes
6	Private property with no trespassing sign	12	Large trees growing in the right of way
		13	Train track, railbed and steep ditch adjacent to private property constrain corridor

Narrow roadways and right way

Roadside ditches

Lack of sidewalks and narrow shoulders

Private property limiting access to natural areas

Visual impacts of clear cut

Curbside sidewalks on high-speed roadways can make walking uncomfortable

Narrow bicycle lane shared with gutter next to high-speed traffic

Lack of traffic control and crossing opportunities on Territorial Highway

Bus stops without accessible access routes

Large trees growing in the right of way

Railbed and depth ditch constrain potential trail corridor

Opportunities

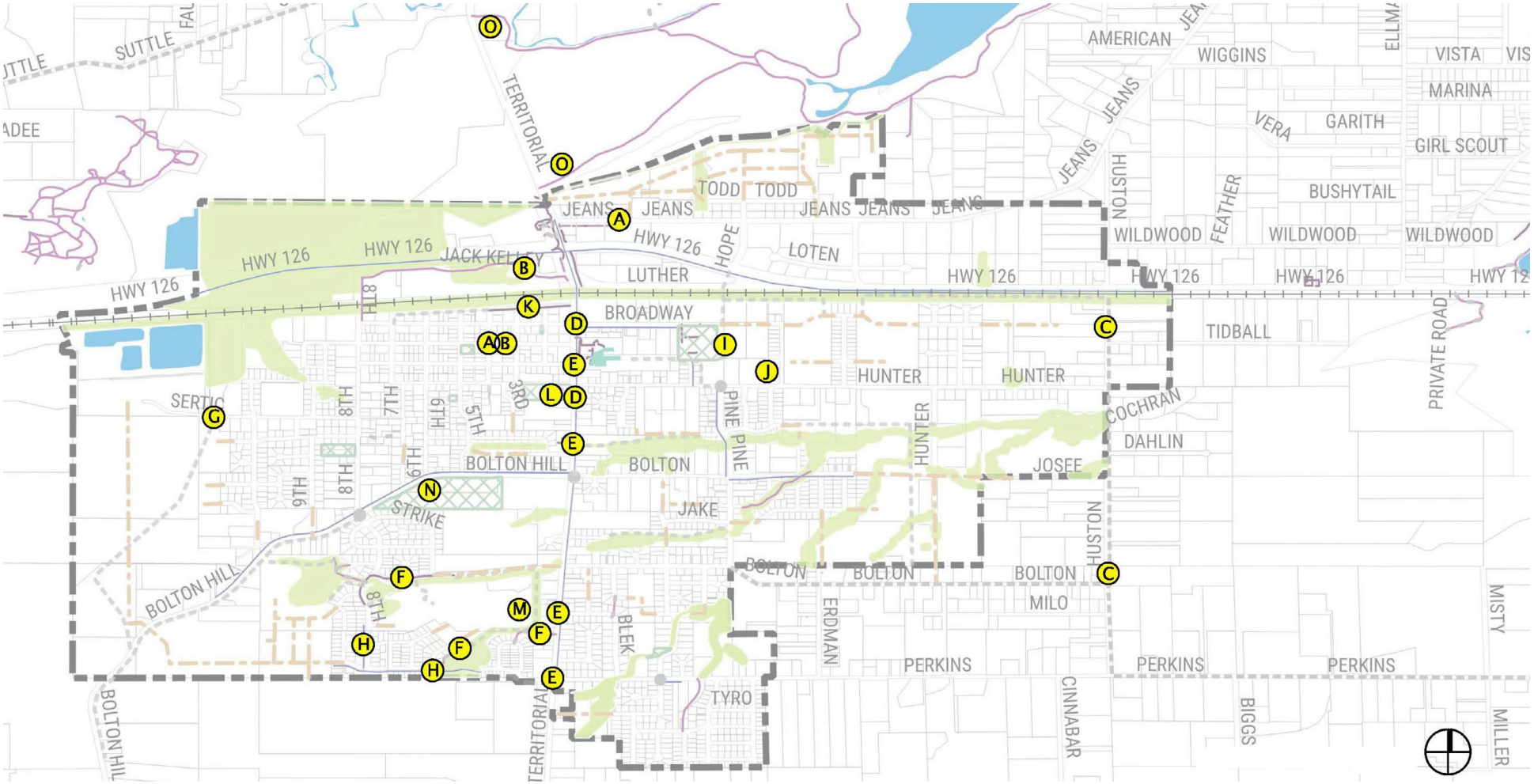
There is, however, potential to develop a comprehensive path and trails system. Due to Veneta's plentiful undeveloped land and rapid pace of development, there is an opportunity to implement a system as Veneta's population grows. Existing low-volume roadways have the potential to create "trail-like" experiences with on-road facilities to connect to off-street paths and trails. There is also potential to enhance scenic routes, like along Perkins Road, which is lined with oaks and firs. Additional opportunities to expand the trail network and enhance community connectivity include existing greenways, plentiful closely spaced community destinations, and recreational and scenic areas. Lastly, there are other planned projects in the region that could be leveraged through agency partnerships.

See Figure 9 for an overview of opportunities.

"I want to access parks, the lake and along stores or food for lunch spots, also adds a reason to bike for a quick run to the store."

- Community member, online survey

Figure 9. Existing Opportunities



A	Wide street cross section - could accommodate cyclists	I	8’ wide concrete sidewalk through the park providing connections to neighborhoods - could serve as destination and link in network
B	Low traffic street - could accommodate cyclists	J	Possible off street easement connection from park to nearby street
C	LTD stops - public transportation (but see challenges)	K	Existing 10’ shared use path on low traffic street - could provide east/west link
D	Pedestrian crossing beacons facilitates crossing	L	Existing 4’ wide asphalt path through park that could be improved
E	ADA curb ramp intersections / crossings - still lack pedestrian activated traffic signals making these highway crossings less desirable as suggested routes - could be further improved	M	Undeveloped property with existing off street path connections at four corners - could be important hub connection for future residential development, existing & future off-street paths, pedestrian & bike routes
F	Existing 10’ wide concrete off-street paths - could provide links to other pedestrian or bike routes	N	Sports field to be improved with walking paths around perimeter
G	Power line R.O.W. with adequate width for switchback trail	O	Trail network destination - could provide link for pedestrian network
H	Wide streets with bike lanes both sides and parking - could form basis of primary bike routes		

Rectangular rapid flashing beacons along Territorial Hwy making crossing safer and more comfortable

10’ wide concrete shared use paths with potential to link other pedestrian or bike routes

Existing 10’ wide concrete shared use paths - could provide links to other pedestrian or bike routes

Existing 10’ wide concrete shared use paths - could provide links to other pedestrian or bike routes

Power line right of way with adequate width for switchback trail

Wide streets w/ bike lanes on both sides and on-street parking - could form basis of primary bike routes

8’ wide concrete shared use path through the park providing connections to neighborhoods - could serve as destination and link in network

Existing 10’ shared use path on low traffic street - could provide network link - east / west alternative

Existing 4’ wide asphalt path through park that could be improved

Undeveloped property with existing off street path connections at four corners - could be important hub connection for future residential development, existing & future off-street paths, pedestrian & bike routes

Trail network destination - could provide off-street path link for pedestrian network

Chapter 2

VENETA TOMORROW

Proposed Paths and Trails Network

The proposed paths and trails network builds upon an evaluation of the existing conditions in Veneta, as well as the challenges and opportunities. The development of the proposed paths and trails network draws from the vision and values of the plan, previous planning efforts in Veneta, and community input. Based on these sources, the network includes paths and trails as both transportation and recreation facilities. Previous planning efforts include the 2020 Parks, Recreation, and Open Space Master Plan (PROS Plan) and the 2019 Transportation System Plan (TSP), from which the city can develop this network in conjunction with other projects.[1]

"Having a trail that connects to a bigger trail system would be great."
- Community member, online survey

Trail Hierarchy

This network has three levels of paths and trails – regional, community, and local – all of which combine to provide transportation and recreational connectivity. The network is also divided into a hierarchy that metaphorically aligns with a tree, with the intention of higher use paths or trails to tie into a regional network of trails, community trails that tie into these regional trails, and local trails to feed into the community trails. See Figure 10.

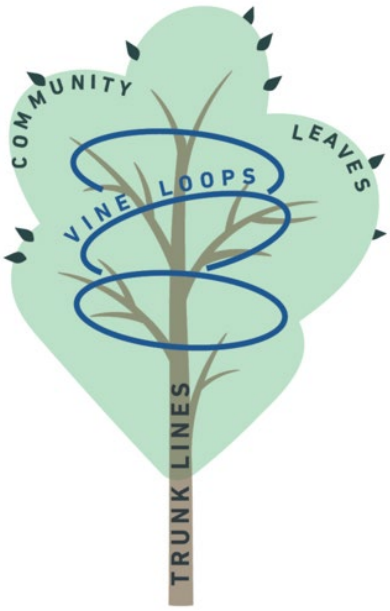


Figure 10. A hierarchy of trails

Regional trails ("trunk" lines): These are regional trails that are key primary shared use paths that provide connectivity to and through Veneta

- **Primary focus:** Transportation, recreation secondary
- **Design:** Wide shared use path with intersection enhancements and wayfinding

1 The locations of planned projects from the Parks, Recreation, and Open Space Plan, as well as the Transportation System Plan and the Fern Ridge Trail System are approximate and may not reflect accurate locations.

Community trails ("vines"): These routes stem from the trunk lines and are a series of secondary loop routes that provide connectivity from the future ODOT Hwy 126 shared use path into and around town.

- **Primary focus:** recreation and transportation. Routes would connect major destinations from neighborhoods
- **Design:** May be made of different kinds of facilities (paths, trails, and on-street bikeways). Routes could be linked with wayfinding and intersection enhancements for safe crossings. Signage and traffic calming are also key improvements.

Local trails ("community leaves"): These routes are shorter paths or trails to connect neighborhood residents to the community and regional trails.

- **Primary focus:** connecting residential areas to proposed, planned, or existing infrastructure. Routes may connect neighborhoods to the vine loops and trunk lines
- **Design:** Context-dependent (hard or soft-surface paths or trails, on-street bikeways) in parks, along wetlands or stream corridors, and in the utility right of way (pending confirmation). Routes could be linked with on-street improvements for walking and bicycling, wayfinding improvements, and intersection enhancements for safe crossings. Signage and traffic calming are also key improvements.

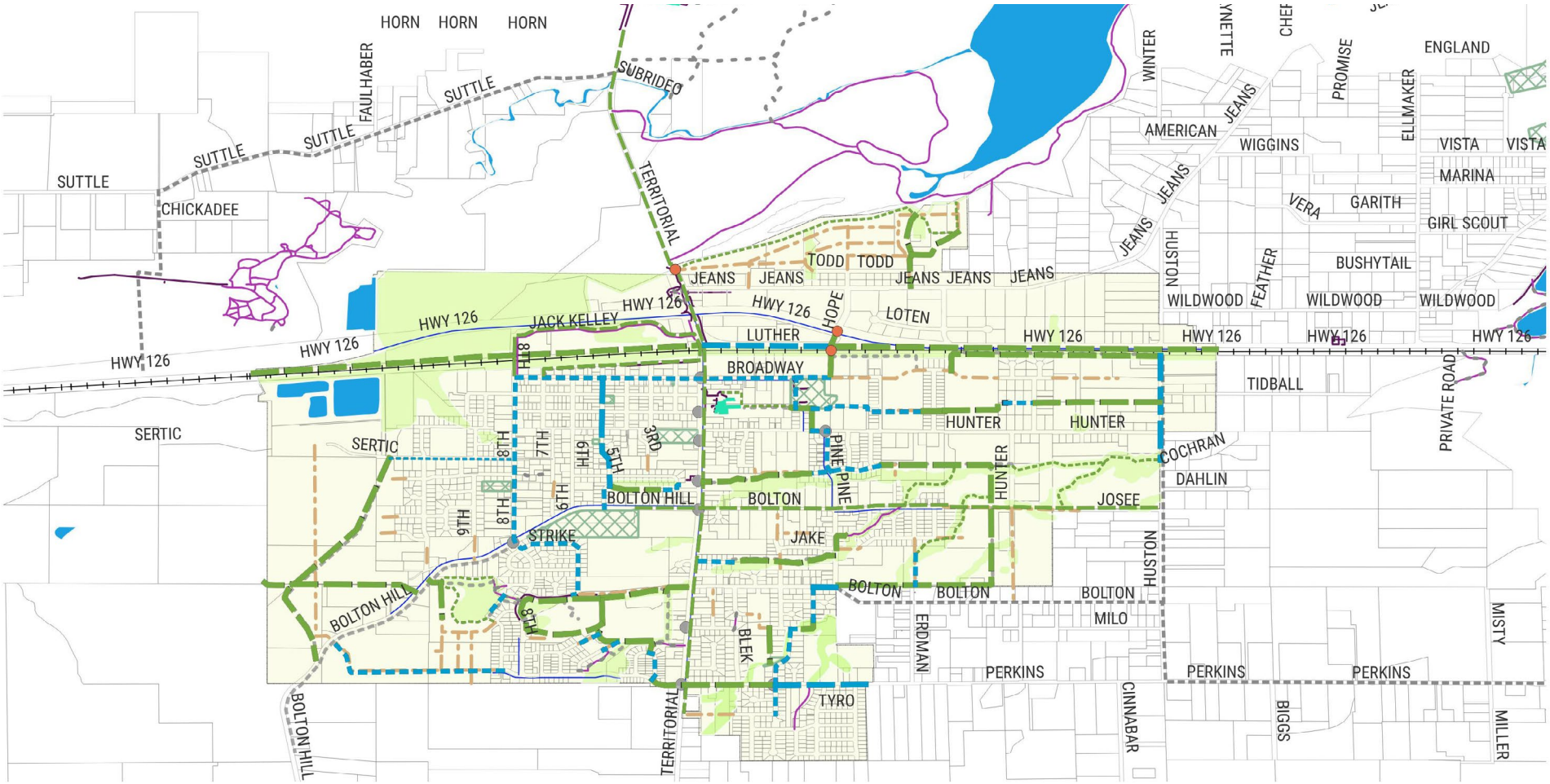
This hierarchy roughly aligns with the level of agency coordination required to implement these trails – regional trails will require partnership with agency partners and more public outreach, while local trails are more within the purview of the City of Veneta to implement.

See Figure 11 for the proposed path and trails network.

Proposed Crossings

While the proposed paths and trails network leverages project recommendations from previous plans, a handful of additional intersections warrant crossing upgrades to ensure the safety and comfort of users.

Figure 11. Proposed Paths and Trails Network



Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard
- Advisory lane

Proposed crossing upgrades

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network
- Rail Line

Natural Areas
- Water Body
- Wetlands

Destinations
- Park
- Schools

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements
- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

0 0.5 mi

Figure 12. Proposed Network- Northwest Quadrant

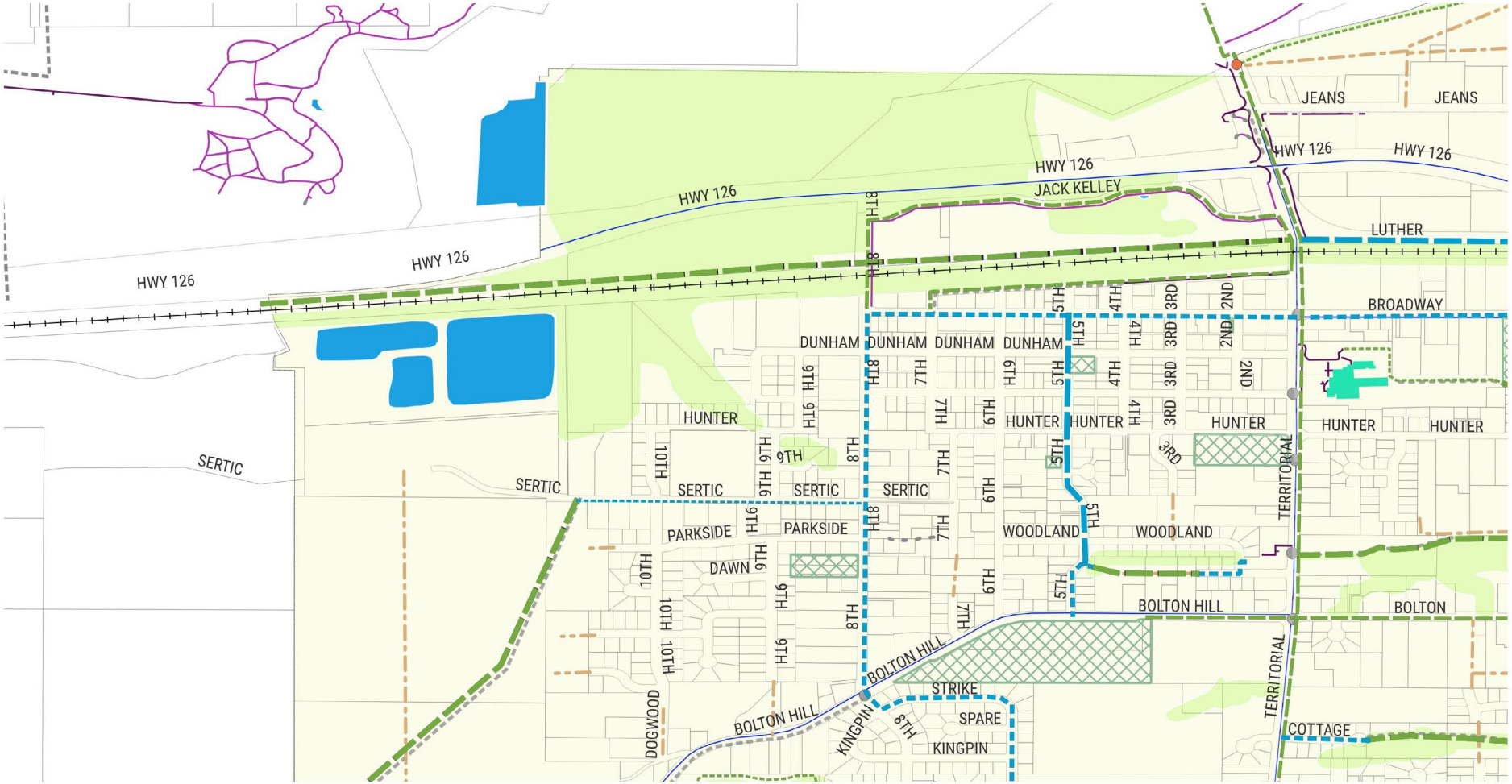


Figure 13. Proposed Network- Northeast Quadrant

Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard
- Proposed crossing upgrades

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network
- Rail Line

Natural Areas
- Water Body
- Wetlands

Destinations
- Park
- Schools

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements

- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

0 0.125 mi

Figure 14. Proposed Network- Southeast Quadrant

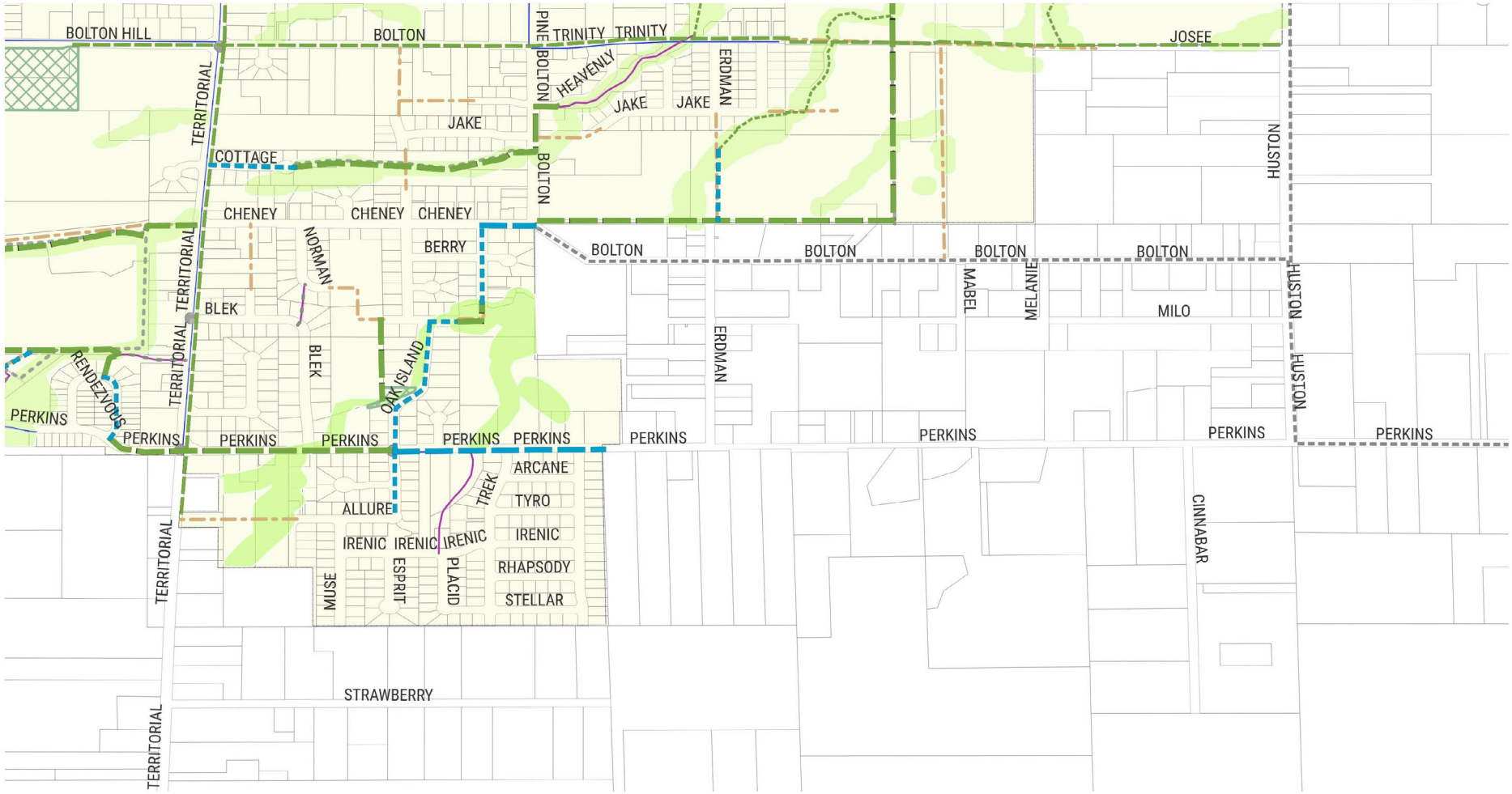
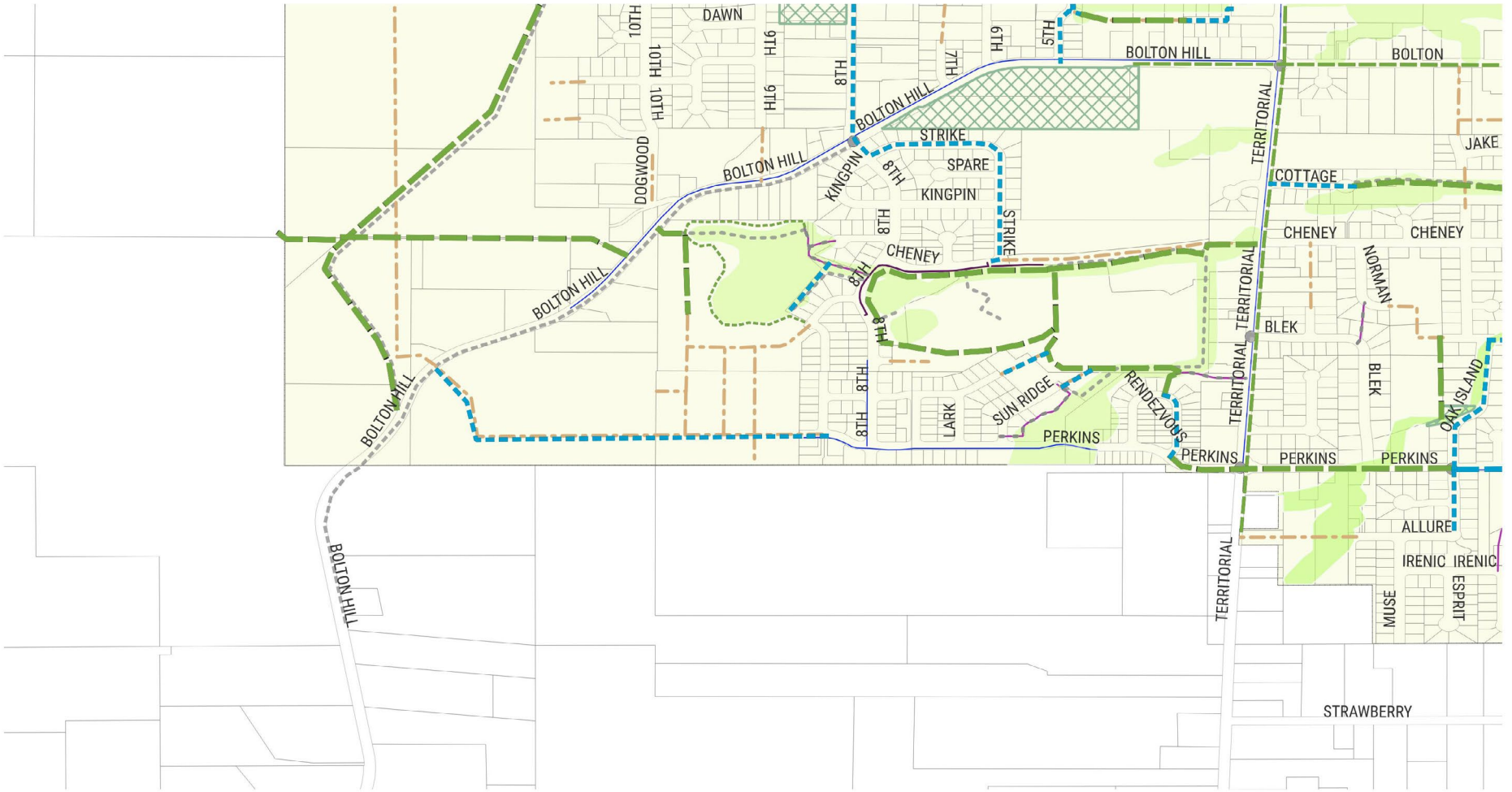


Figure 15. Proposed Network- Southwest Quadrant



Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network

Natural Areas
- Wetlands

Destinations
- Park

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements
- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

0 0.125 mi

Chapter 3
IMPLEMENTATION

Project Prioritization

Project List

The proposed network of paths and trails includes both off-street and on-street projects to create connectivity city-wide. A full project list of projects can be found in Appendix A and includes project extents, proposed facility type, cost.

Planning Level Cost Opinions

The cost for each project was estimated using lineal foot planning-level estimates based national project examples. Some “lighter touch” projects, such as on-street facilities that include only signs and pavement markings, are identified as very low in cost. It may be more cost-effective to bundle small several these projects together to reduce mobilization costs. Note that project costs may change in alignment, facility type, and cost during design and construction.[2]

2. Some projects overlap with previously planned projects as part of the Transportation System Plan and the Parks, Recreation, and Open Space Plan to leverage project implementation. Cost estimates for projects recommended in the Paths and Trails Master Plan do not consider the costs of previously planned projects in those plans, and therefore planning level cost estimates may not reflect the costs of all planned improvements.

Prioritization Methodology

The project's vision and values guided the development of the project prioritization. Given the size of the community and available resources, all projects should be prioritized for implementation based first and foremost on development opportunities and piggybacking on retrofit and reconstruction projects (i.e., utility work, repaving).

Given the lack of existing pedestrians and bicycle connectivity in Veneta, it is recommended that the city work to implement the "low hanging fruit" -- projects that can be accomplished quickly, easily, or without major capital expenditures. The following four major criteria (Table 1) and scoring (Table 2) were used to rank the projects.

Projects in the public right-of-way or located on City land were prioritized using the ranking methodology (Table 3). It is assumed that projects proposed on undeveloped and privately-owned parcels would be developed opportunistically through development agreements and thus were not included in the prioritization.

Public Input

In addition to the formal prioritization, community members expressed particular interest and enthusiasm for three specific path and trail opportunities:

- A loop using 8th St, Jack Kelly Drive and Territorial Highway, near the Dog Park
- A recreational hiking trail along the power line right of way, which would provide both rigorous exercise opportunities and sweeping, rewarding views at the top, near the Water Tower
- Potential trails along the wetland areas in the eastern part of the city that would provide an accessible nature boost for users as well as a cut-through to other neighborhoods

Table 1. Prioritization Criteria

Criterion	Details
Project in Sensitive Areas	Projects that are located within sensitive areas, such as wetland, stream, and buffers. Such projects require a higher level of design, in addition to the added cost and timeline of obtaining permits, making the project more challenging and expensive to implement
Project requiring land acquisition or easements	Projects that entail working with other agencies for easements or require additional right of way. Acquisition and easement add to overall project costs
Constructability	Projects that require work in separate rights of way, earthwork, grading and drainage are more complicated and costly
Relative Cost	A tiered breakdown of costs to indicate level of cost relative cost relative to the range of costs within the project.

Table 2. Scoring

SCORE	SENSITIVE AREA	LAND ACQU/ EASEMENT	CONSTRUCT.	COST
1	Within sensitive areas	Acquisition or easements required (alignment is on not fully on public right of way)	Major construction requiring earthwork, drainage, geometric design (shared use paths, on-street facilities requiring new and curb and gutter	Over $1million
2	Not within a sensitive area	No acquisition or easements required (alignment is in public right-of-way)	No major earthwork, drainage, geometric design	Between $250K and $1 million
3	-	-	Minor design, such as pavement markings, signs	Under $250K

Table 3. Prioritization Output for Projects on Public Right-of-Way

Proj ID	Facility type	Project Name	Trail Network Type	Status[3]	On/Off Rd	Miles	Cost Estimate	Sen-sitive Area	Land acquisition/ easement	Con-structa-bility	"Cost "	Prioritiz score
4	Bike boulevard	Perkins to Cheney Route	Loop	Existing	Off	0.03	$2,000	2	2	3	3	10
19	Bike lanes	Cheney Route	Loop	Proposed	On	0.051	$3,000	2	2	3	3	10
10	Bike boulevard	Meadowdale Route	Loop	Proposed	On	0.064	$4,000	2	2	3	3	10
16	Bike boulevard	East Route	Loop	Proposed	On	0.069	$4,000	2	2	3	3	10
8	Bike boulevard	Cottage Route	Loop	Proposed	On	0.084	$5,000	2	2	3	3	10
28	Bike boulevard	Oak Island Park Route	Community Connection	Proposed	On	0.091	$5,000	2	2	3	3	10
30	Bike lanes	Perkins Rd	Community Connection	Proposed	On	0.208	$12,000	2	2	3	3	10
27	Advisory lane	Sertic Rd	Community Connection	Proposed	On	0.287	$13,000	2	2	3	3	10
31	Bike boulevard	Broadway Route	Loop	Existing	On	0.302	$16,000	2	2	3	3	10
12	Bike lanes	Hwy 126 trail	Community Connection	Proposed	On	0.291	$17,000	2	2	3	3	10
17	Bike lanes	Huston Rd	Loop	Proposed	On	0.333	$19,000	2	2	3	3	10
26	Soft-surface - wide	Green Loop	Loop	Proposed	Off	0.058	$92,000	2	2	3	3	10
32	Bike boulevard	East Route	Community Connection	Proposed	On	0.049	$3,000	2	2	2	3	9
5	Bike boulevard	Perkins to Cheney Route	Loop	Existing	On	0.105	$6,000	2	2	2	3	9
7	Bike boulevard	Community Center Route	Loop	Existing	On	0.131	$7,000	2	2	2	3	9
18	Bike lanes	5th St Route	Loop	Proposed	On	0.348	$20,000	2	2	2	3	9

3. Refers to whether this proposed project aligns with other planned projects from previous planning efforts. “PROP” refers to a proposed project in the Paths and Trails Master Plan. “PLANNED” refers to a project that aligns with other previous planning efforts in Veneta.

Table 3. Prioritization Output for Projects on Public Right-of-Way Continued

Proj ID	Facility type	Project Name	Trail Network Type	Status	On/Off Rd	Miles	Cost Estimate	Sen-sitive Area	Land acquisition/ easement	Con-structa-bility	"Cost "	Prioritiz score
20	Shared use path	Perkins Rd	Loop	Existing	On	0.289	$720,000	2	2	3	2	9
15	Bike boulevard	Community Center Route	Loop	Proposed	On	0.035	$2,000	2	2	1	3	8
9	Bike boulevard	Broadway Route	Loop	Planned	On	0.077	$4,000	2	2	1	3	8
13	Bike boulevard	Rendezvous Connection	Loop	Proposed	On	0.093	$5,000	2	2	1	3	8
11	Bike boulevard	5th St Route	Loop	Proposed	On	0.088	$5,000	1	2	2	3	8
6	Bike boulevard	Corky Con-nection	Loop	Existing	On	0.165	$9,000	2	2	1	3	8
14	Bike boulevard	Oak Island Park Route	Loop	Proposed	On	0.189	$10,000	2	2	1	3	8
3	Bike boulevard	Downtown to Parks Route	Loop	Proposed	On	1.278	$64,000	2	2	1	3	8
21	Shared use path	School Route	Loop	Proposed	Off	0.048	$154,000	2	2	1	3	8
24	Soft-surface - wide	School Route	Loop	Proposed	Off	0.201	$319,000	2	2	2	2	8
25	Soft-surface - wide	Green Loop	Loop	Proposed	Off	0.141	$224,000	1	2	1	3	7
29	Shared use path	East Route	Community Connection	Proposed	Off	0.278	$890,000	1	1	2	2	6
1	Sidepath - curb	Territorial Trail	Trunk	Proposed	On	2.219	$5,881,000	2	2	1	1	6
22	Shared use path	Cottage Route	Loop	Proposed	Off	0.332	$1,063,000	1	2	1	1	5
23	Sidepath - curb	Dog Park Loop	Loop	Proposed	Off	1.015	$2,690,000	1	1	1	1	4
2	Sidepath - curb	Bolton Hill Trail	Trunk	Proposed	Off	1.214	$3,218,000	1	1	1	1	4

Figure 16. Projects Located in Public Right-of-Way and on City-Owned Land.

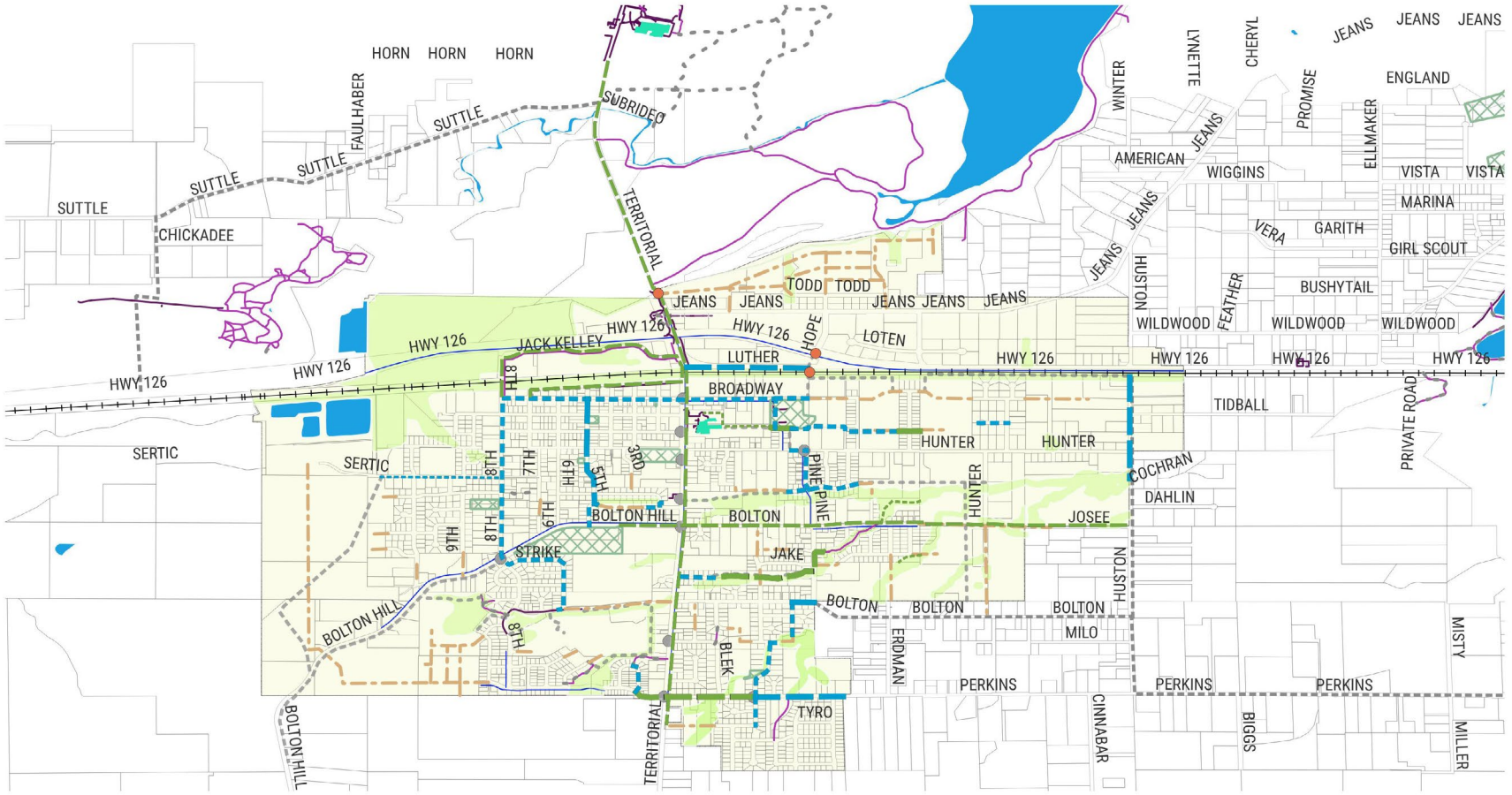


Figure 17. Proposed Projects - Northwest Quadrant

Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard
- Advisory lane

- Proposed crossing upgrades

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network
- Rail Line

Natural Areas
- Water Body
- Wetlands

Destinations
- Park
- Schools

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements
- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

0 0.125 mi

Figure 18. Proposed Projects - Northeast Quadrant

Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard
- Proposed crossing upgrades

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network
- Rail Line

Natural Areas
- Water Body
- Wetlands

Destinations
- Park
- Schools

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements

- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

0 0.125 mi

Figure 19. Proposed Projects - Southeast Quadrant

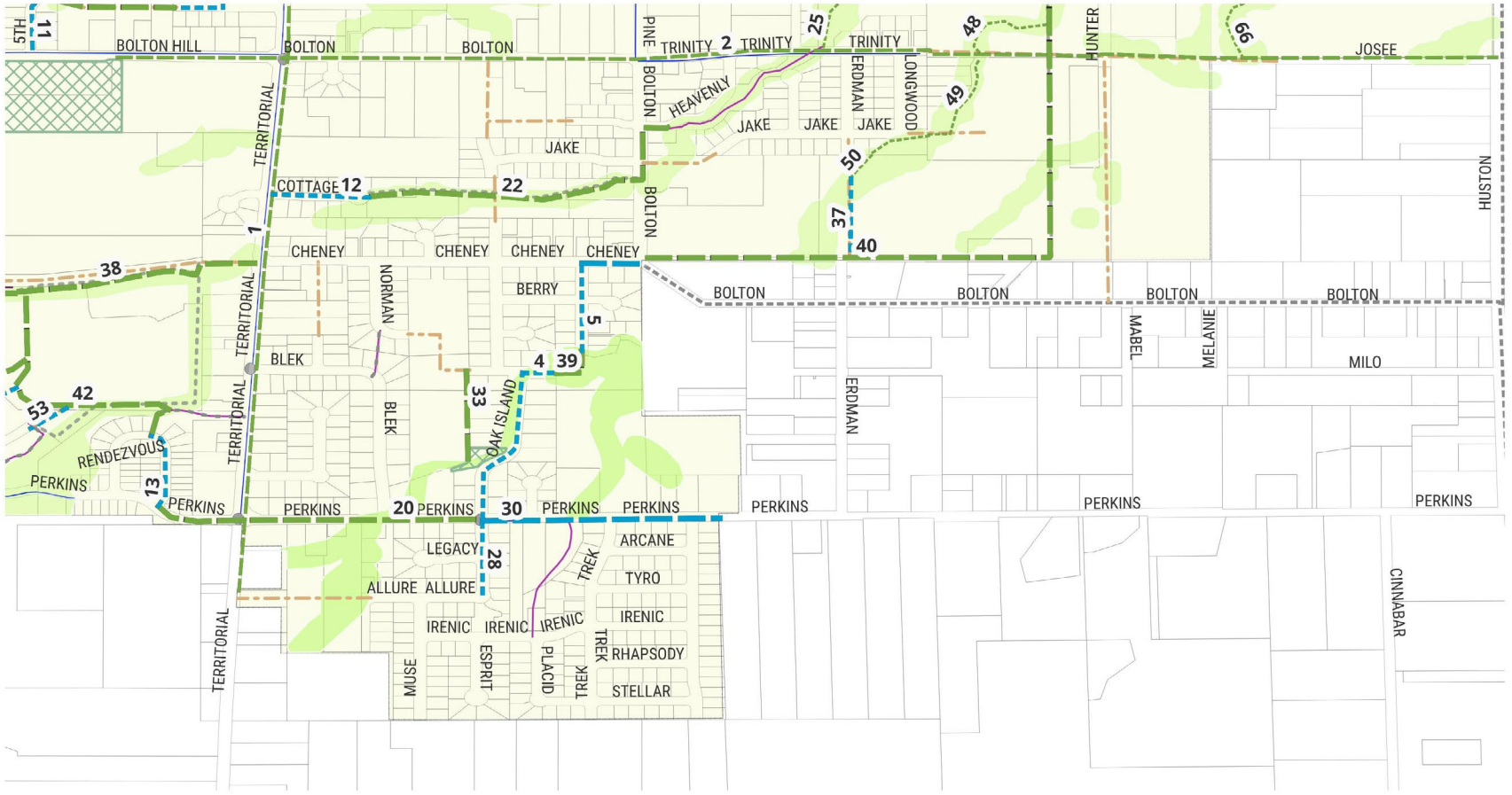
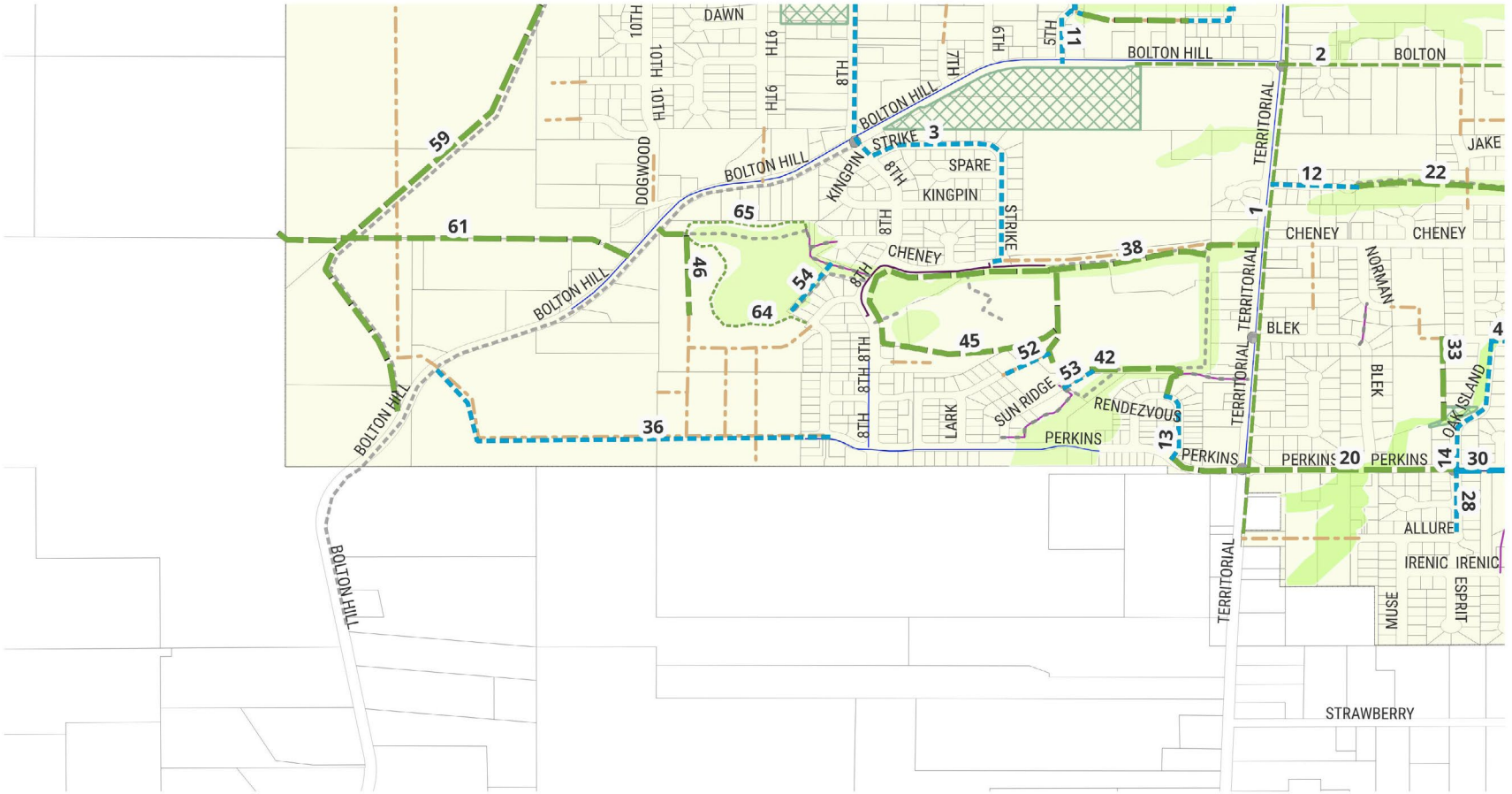


Figure 20. Proposed Projects - Southwest Quadrant



Proposed network
- Shared use path
- Sidepath - curb
- Soft-surface - wide
- Bike lanes
- Bike boulevard

Existing Infrastructure
- Trails and Paths
- Sidewalks
- Bike Network

Natural Areas
- Wetlands

Destinations
- Park

Previous Planned Projects
- Planned bikeway or trail improvements
- Intersection improvements
- New local street connections

Boundaries
- City Boundary
- Parcels

The location of all proposed and planned projects are estimated and may not reflect accurate locations.

0 0.125 mi

Implementation Strategies

Getting The System Built

Implementing Veneta's paths and trails network can leverage multiple strategies, including:

- Working with developers to acquire land dedications/easements
- Leveraging regional partnership projects
- Enhancing the local roadway network

These strategies can be implemented simultaneously across different locations under different circumstances. While this variety of methods stitches together paths and trails on different timelines, it allows the city to be opportunistic in capitalizing on different implementation strategies. This also allows the city to not be tied to a list of tiered path and trails priorities.

Developer Dedications

Developer dedications leverage private development requirements for the City to mandate developers to build trails as they construct residential or commercial developments. The City of Veneta should provide developers with a standard trail easement/design envelope and mandate trail dedications. Trail dedications should be required for streams, wetlands, buffers, and other areas that are not developable. The dedication/easement should include minimum corridor widths to accommodate the trail itself along with enough room on either side of the trail for natural drainage or curb and gutter, vegetated buffers and amenities, as well as space to accommodate maintenance. The City should also consider requiring developers to provide amenities such as shade trees, benches, trash receptacles, lighting at key locations (such as roadway crossings), and water fountains. The dedication/easement may also distinguish between trail types based on the area's environmental sensitivity, the cross section, the location, and the expected user types. For example, narrower paths or trails can be employed in residential areas and wider paths or trails should be installed along roadways or where the trail connects to important destinations and commercial areas. Dedications could also be used to require sidepaths along roadways adjacent to the development.

If a developer is unable to accommodate trail dedication or provide a trail through their project, requiring a fee in-lieu/park impact fee for park and trail development and maintenance can be used to offset future trail development. Fees in-lieu can be set based on average residential land values, average household size, and the park land service standards per thousand acres.

Easements

When paths or trails are located outside the public right-of-way or public property, easements are required. A preferred easement of 30 feet wide (14 feet minimum) is recommended to allow space for trail construction and maintenance, with additional recommended setbacks from buildings and structures to provide maximum enjoyment by the trail users.

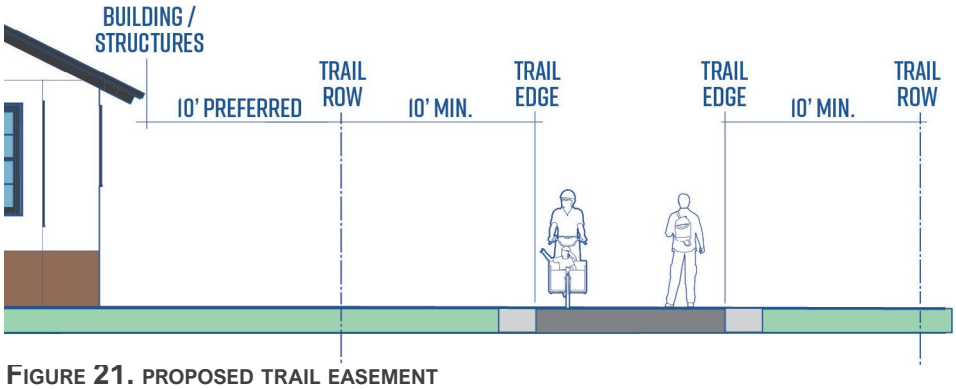


FIGURE 21. PROPOSED TRAIL EASEMENT

Regional Partnership Projects

Leveraging projects through regional partnerships can help the city implement trail or path improvements as part of the regional project. Such projects would be led by other agencies outside of the city limits and could be located in a county or state right of way.

Partner agencies include Lane County, the Oregon Department of Transportation (ODOT), and the Army Corps of Engineers (ACOE).

Currently, there are multiple regional projects in which Veneta is a stakeholder, including projects along Highway 126. These projects present an opportunity to implement a shared-use path adjacent to the highway, most feasibly on the north side due to railroad right of way constraints, existing trees, and drainage. This project should include safe crossings of the railroad and over Highway 126. One possible crossing solution is a pedestrian and bicycle-only overpass bridge across these two corridors.

Another potential project would be partnering with Lane County to implement improvements on Territorial Highway and on Bolton Hill Road, two major streets traveling through Veneta. Lane County has identified these streets as near-term priorities for primary bikeway routes. Lane County is also interested in improving Highway 126 and Perkins Road as bikeways.

A partnership with the Army Corps of Engineers would help implement path and trails opportunities during future development around Fern Ridge Lake. The city should highlight future development as opportunities to be intentional about recreational access in order to limit desire paths and potential impacts to sensitive areas.

"I hope you can join forces with the corps of engineers and work together as part of the bigger picture to get a bike path around fern ridge reservoir."

- Community Member, online survey

On-Road Network

Public streets frequently need to be maintained or re-paved. Caring for streets presents an opportunity to leverage other roadway projects to implement high-quality connections to paths or trails. These opportunities include repaving streets or repairing or upgrading utilities. Other opportunities include leveraging developer fees collected from new subdivision developments to improve on-street safety.

Funding Grants

Implementing Veneta's path and trails network can be done through grant funding available at the federal, state, and regional level. These grants may require matches of certain improvements to be implemented (i.e., a project must fulfill a requirement). For more information on available funding grants, see Appendix D.

Making the System Work

While opportunistic path and trails development is key, there are other amenities that help tie the network together to enhance the system to make it feel more comprehensive to users. These include a number of system-wide strategies.

Branding Routes

Focusing on building the brand for a few select paths or trails as they are implemented can build support for trails elsewhere in the city. Based on community feedback and City priorities, the following are recommended paths and trails to focus on:

- **The Water Tower Trail:** a recreational hiking trail along the power line right of way
- **The Green Fingers:** named for their alignment with environmentally sensitive areas in the eastern part of city, a series of trails through natural areas providing neighborhood connectivity
- **Dog Park Loop:** A loop using 8th Street, Jack Kelly Drive and Territorial Highway.

Develop A System Map

A clear system map with distances and loops to identify existing routes, informal connections (desire paths), and future trails will get people excited and inspire trail champions.

Wayfinding

Wayfinding signage is an affordable way to improve conditions for people bicycling and walking, emphasize a local brand, create a sense of place, and promote community development.

For more information on wayfinding, see the Trail Design and Trail Maintenance chapters.

Waysides

Waysides are helpful trail-side locations for people to rest or enjoy other adjacent amenities. Placing waysides in a few key locations can enhance the level of use of a path and trail network. The purpose of waysides is to create visibility or awareness of the trail network as a meeting place and create a starting point with information. Amenities at waysides could include:

- Kiosk with map and trail info
- Seating
- Landfill/recycling receptacles
- Water fountains
- Lighting

Proposed locations for waysides in Veneta include the intersection of Territorial Highway and Highway 126. Other possible waysides could include the Veneta dog park and by the City Park and Community Center.

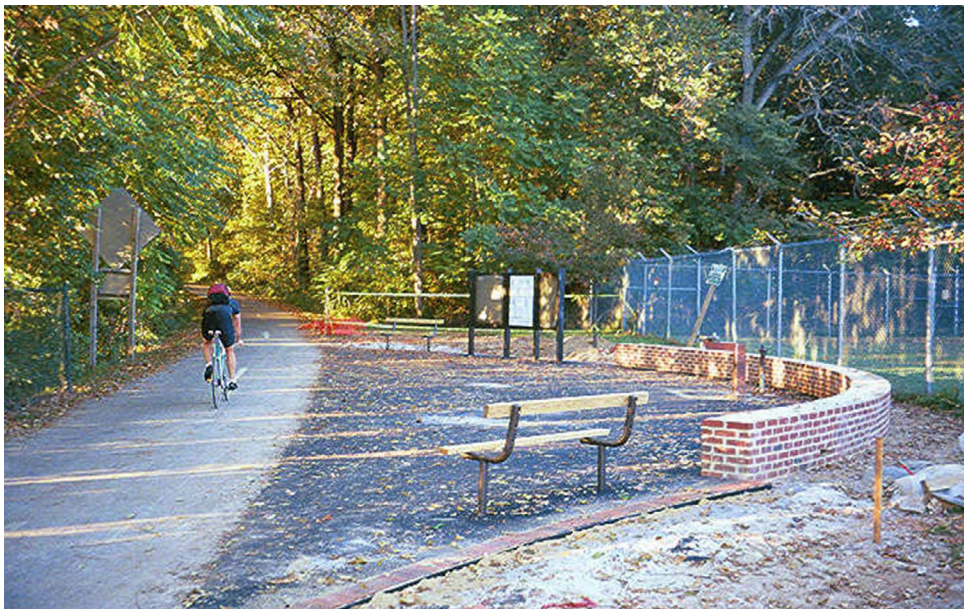


Figure 22. example of a trail wayside

Chapter 4

TRAIL DESIGN

Purpose of the Design Guide

This chapter is a resource to help ensure the trail experience along the entire length of Veneta's path and trails network is consistent, safe, comfortable for people of all ages and abilities, and distinctive. People should know when they are on or approaching a Veneta trail or path. This design chapter has several layers of information and serves two purposes:

- Supplemental technical resource that works in tandem with the City's development standards so that engineers and designers can use the standards and this guide to develop the specifications, final designs, and construction documents for the trail itself. This guide includes information on topics including trail types, crossings, amenities, wayfinding, placemaking, and easements.
- Practical guide for planners and designers to use in developing the essential features of the trail, beyond the trail itself, that will make it a special and memorable destination. The document provides detailed recommendations related to placemaking elements including wayfinding, trailheads, and low-impact and resilient design.

National Design Guidance

This design guide should be used in conjunction with national guidelines, as well as appropriate state and local standards and specifications, such as:

- American Association of State Highway and Transportation Official's Guide for the Development of Bicycle Facilities (AASHTO Bike Guide)
- The US Access Board's guidelines for Outdoor Developed Areas
- Advanced Noticed of Proposed Rulemaking on Shared Use Paths
- National Association of City Transportation Officials Urban Bikeway Design Guide (NACTO Urban Bikeway Design Guide)
- Federal Highway Administration's Shared Use Path Level of Service Calculator (FHWA Shared Use Path LOS Calculator)
- U.S. Access Board's Public Rights-of-Way Accessibility Guidelines (PROWAG)

Local Design Guidance

The Oregon Department of Transportation's Highway Design Manual includes a Bicycle & Pedestrian Design Guide, Appendix L[4]. This design guide includes guidance for on-street bikeways and shared use paths,

4. https://www.oregon.gov/odot/Engineering/Documents_RoadwayEng/HDM-L.pdf

as well as for intersections and street crossings. Trails design in Veneta should use these standards wherever possible, particularly if they are funded with state funds. Lane County does not provide guidance on shared use paths or trails.

Trail Design Principles

Design User Types

Good trail design is based on understanding a number of principles related to how paths and trails are used, who uses them, and how the design accommodates user needs. Paths and trails are used by a wide variety of people and should be designed based on the anticipated users (see Table 4) as well as the anticipated use volumes. Paths and trails should be wide enough to accommodate existing use and anticipated future use.

Table 4. Design User Types

Pedestrians	Cyclists	Other Mobility Device Users
		
• Walking • Running • Using an assisted mobility device (motorized or non-motorized) • Baby strollers • Others	• Adults riding upright • Adult tricyclists • Recumbent bicyclists • Bicyclists pulling trailers • Tandem bicyclists • Toddler and child bicyclists	• Roller skaters • Inline skaters • Skateboards • Kick scooter users • Other micromobility devices

User Needs

Designing paths and trails to accommodate the needs of a variety of users and abilities makes them more equitable. Proactively working with these groups will ensure their needs are reflected in the design. User groups to consider when designing for equity are included in Table 5 below.

Table 5. User Groups and Design Considerations

User Group	Design Consideration
Older Adults; Wheelchair and Walking Aid Users	• Firm, stable, and non-slippery trail surfaces • Cross-slopes of less than two percent • Longer pedestrian signal cycles, shorter crossing distances, and median refuge islands • Trailhead facilities, which include parking areas, restrooms, and visitor centers should be compliant with appropriate accessibility guidelines under the Americans with Disabilities Act (ADA) (or the Architectural Barriers Act (ABA) for Federal lands) • Provide benches and rest areas at regular intervals. • Ensure navigability of gates, bollards, and tight switchbacks for people who use mobility devices. Provide signage with clear information on the accessibility of trails, including length, surface type, width, slope, potential obstacles, and accessible features.
People who are Blind or have Low Vision[5]	• Consider how to communicate trail routes and other information with a variety of cues » Visual cues, such as signs and pathway markings, should include contrasting colors and large, sans-serif text » Tactile cues, such as changes in surface texture, are used to indicate changes in the pedestrian route, such as approaching a crossing » Audible cues, such as audible messaging, provide navigational information • Application of cues should be consistent and should comply with accessibility guidelines and Federal, State, and local accessibility requirements (where applicable) • Accessibility guidelines for paved, multiuse trails are different from those for soft-surface, recreational trails • Accommodations for service animals.

5. Refer to the National Institute of Building Science's Design Guidelines for the Visual Environment and Planning and Montgomery County, Maryland's Designing Streets to be Safer and More Accessible for People with Vision Disabilities.

User Group	Design Consideration
People who are Deaf or Hard of Hearing	• Clear sight distances. • Highly visible pedestrian signals and markings.
People with Low English Proficiency	• Signs with pictures, universal symbols, and colors, rather than text
Youth	• Consider how paths and trails can be designed to improve access to youth destinations, such as schools, parks, daycare facilities, and community centers • Include signs that provide age-inclusive learning opportunities for environmental education
People of Color	• Consider how views on law enforcement may extend to park rangers. Ranger uniform and protective gear may bring discomfort to trail users who are people of color[6] • Collaborating with advocate groups and residents to determine: • How spaces can be designed to serve their needs, whether regarding amenities or features that will make people feel secure and represented • What stories special spaces should tell and how spaces could be designed to perpetuate art, storytelling, and civic movement
People with Pets	• Provide clear information on where pets are allowed and on leash policies • Provide water sources, pet waste stations, and trash cans. • Consider how paths and trails can connect dog parks and other common destinations for people with pets

6. Weber, J. and Sultana, S. Why Do So Few Minority People Visit National Parks? Visitation and the Accessibility of "America's Best Idea." Annals of the Association of American Geographers, Vol. 103(3), pp. 437–464. https://doi.org/10.1080/00045608.2012.689240

User Mix and Volumes

As paths and trails increase in use, designs should consider the types of users and the volumes, as well as the implication for whether users should continue to mix on the path or trail or whether separate spaces should be designated.

Typically, a path is shared by people walking, bicycling, using scooters or other non-motorized vehicles, or personal mobility devices. Trails are two-way facilities that should be wide enough to accommodate a broad range of trail users. With a higher user volume of both bicycles and pedestrians, a dual trail may be advisable. Dual trails have separate, designated spaces for people walking/using mobility devices on a pedestrian-only trail and people bicycling on the other trail.

One way to determine the appropriate width of a paved trail is to use the FHWA Shared Use Path Level of Service (SUPLOS) Calculator.[7] This is a nationally recognized best practice and a helpful tool for choosing an appropriate trail width given existing data or anticipated user volumes and mixes during peak periods of use. The SUPLOS model was designed to evaluate a trail's ability to allow a bicyclist to maintain an approximate 12.8 mph speed of travel while being able to maneuver around other users traveling on the path without creating safety issues.

Figure 23. Example of a dual trail with separate space for walking and biking

7. https://www.fhwa.dot.gov/publications/research/safety/pedbike/05138/#calc

Design Parameters

Universal/Inclusive Design

Design based on accessibility guidelines benefits all users. Paths and trails should be designed with a maximum cross slope of two percent, a maximum running grade of five percent, and ADA compliant curb ramps and interpretive signs should be designed at a height of twenty-seven inches, to allow viewing by a person in a wheelchair. To ensure ADA compliance, consult the U.S. Access Board's Public Rights-of-Way Accessibility Guidelines (PROWAG), the Guidelines for Outdoor Developed Areas, and the Advanced Notice of Proposed Rulemaking on Shared Use Paths.

Speed and Sight Distance

Because paths and trails are used by bicyclists and other wheeled vehicles, it is important to understand the relationship between design speed, sight distances, trail geometry and safety. The speed of wheeled users is dependent on the type of user, the slope of the trail, and the trail material. As the expected speeds of trail users increase, adjustments to trail alignments, sight distances and trail widths should be made to enhance safety.

Adequate motor vehicle stopping sight distance is important for the safety of pedestrians and bicyclists who must cross roadways. Refer to the AASHTO Green Book for determining motor vehicle stopping sight distances.

Stopping Distances

Bicycle stopping sight distance is the distance needed to bring a bicycle to a fully controlled stop. It is a function of the user's perception and brake reaction time, the initial speed, the coefficient of friction between the wheels and the pavement, the braking ability of the user's equipment, and the grade. A perception/reaction time of 2.5 seconds should typically be used to calculate stopping sight distance, though 1.5 seconds may be appropriate where bicyclists have an expectation of potential conflicts, such as approaching intersections or in high-trafficked areas. The sight distance for bicyclists should typically be measured from 3.83 feet above the ground to accommodate recumbent bicyclists.

General Considerations

The following general considerations should also be address in both the siting and design of trails.

Design for Climate Resilience

The changing climate is critical to consider when designing paths or trails. Issues such as flooding, heat, and mud can negatively impact hard- and soft-surface trails. Properly siting, aligning, and building paths and trails helps prevent future maintenance issues and the need to rebuild.

Intense rainfall, flooding, and standing water can impact the placement, curing, and lifespan of hard-surface materials. Flooding can create washouts that require expensive repairs. Naturally, porous asphalt is particularly vulnerable to damage from excessive moisture. Concrete is better able to withstand the shrinking and swelling of soils from heat and flood events as an innately water-resistant material. However, excessive water, such as during flood events, can collect underneath it, moving and cracking concrete slabs.

During storm events, paths or trails may intercept surface water flows resulting in ponding and erosion. On wet or muddy paths or trails, users often opt to travel on the sides of the trail, which damages adjacent vegetation and increases soil compaction, erosion, and sedimentation of streams. In addition to siting paths and trails away from primary drainage paths, grading and the use of best management practices for stormwater will support proper drainage. As storms and flooding become more frequent and intense, drainage and erosion prevention measures should withstand high volumes of surface water flows.

Climate change is contributing to longer periods of warmer temperatures and heat waves. It is crucial to incorporate strategies that will reduce the extent of paved surfaces and provide shade along the trail for the welfare of trail users. When considering how heat affects paths and trails, the type of pavement is most critical. Selecting concrete as the pavement type rather than asphalt, while more expensive, will pay off with fewer heat-related repairs.

In rainy climates, the increase in mud on soft-surface trails and adjacent to hard-surface trails may be prolonged with climate change. This is an issue for soft-surface trails where hiking opportunities may be delayed due to saturated soils.

Community Support

Due to their linear nature, trail corridors often serve multiple functions, such as utility corridors, greenways protecting rivers, streams, and wetlands, a buffer between developed areas and open space, freight corridors, and transportation facilities. As a result, multiple agencies may need to perform tasks within the trail rights of way. The trail owner (often a public entity), contractors, other government agencies, and utility and communication companies may have the right to make repairs and install equipment in public path and trails corridors. It is essential that all workers within the trail corridor, both the jurisdiction and others, be oriented to the presence of trail users and be considerate of their needs and limitations. It is recommended that the public entity establish cooperation through Memorandums of Understanding (MOUs) to maximize safety for trail users and consider inclusion of a training course for agencies who use vehicles or perform maintenance within trail corridors, outlining safe behaviors and interactions with pedestrians and bicyclists.

Trail projects are most successful when there is a local citizen support organization that assists with a variety of tasks including advocacy, public outreach, funding, maintenance, and management. Community support groups can take on many different forms and functions, but the most common are:

- Public agency supported advisory boards/committees
- Public agency supported non-profit organizations/businesses/ corporations/ healthcare providers
- Coalitions and “Friends of” non-profit groups – such as Trailkeepers of Oregon, Cascade Volunteers, and other groups

Paths and Trail Design Recommendations

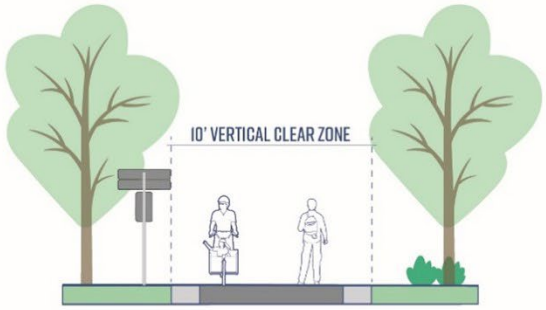
The following path and trail types are recommended designed based on Veneta’s existing conditions, common right-of-way widths, and the natural environment in and around the City. These recommendations should be considered as a starting point for designing paths and trails. For example, many agencies recommend trails be 11 feet wide; given Veneta’s population, a 10 feet width is proposed. More information about each type is on the following pages.

Summary Table of Path and Trail Types

Trail type	Design User	Setting	Width*	Surfacing	Access. Req.
PATHS AND TRAILS					
Shared use path	Walkers, joggers, & all wheeled users	Parks, separate ROW, easements	10' typical, 12'+ in high use areas, 8' min. at pinch points	Paved, concrete or asphalt with soft surface shoulder	Yes
Soft-surface Path, wide	Walkers, joggers, & all wheeled users except skates	Parks, separate ROW, easements	6' to 10' (10' min. for maintenance vehicle access)	Crushed, compacted stone	Yes
Soft-surface Path, narrow	Walkers & joggers	Parks, separate ROW, easements	6' typical, 4' min. with accessible passing areas	Soil / organic material or crushed, compacted stone for accessible surface	Surface may or may not be accessible
Boardwalk, wide	Walkers & joggers	Wetlands in parks, separate ROW, easements	10' typical, 8' min. at pinch points	Wood, metal, composite, etc. set on piers	Yes
ON-ROAD FACILITIES					
Sidepath – with curb	Walkers, joggers, & all wheeled users	Alongside/ part of road ROW	10' typical, 12'+ in high use areas, 8' min. at pinch points	Paved, concrete or asphalt	Yes
Sidepath – without curb	Walkers, joggers, & all wheeled users	Alongside/ part of road ROW	10' typical, 12'+ in high use areas, 8' min. at pinch points	Paved, concrete or asphalt	Yes
Bike Boulevard	Bicyclists	In road	Varies, 12' to 28' wide shared roadway lane	Paved, concrete or asphalt	NA
Advisory shoulder	Bicyclists, walkers & joggers	In road	Varies, 5' to 6.5' advisory shoulder with 10' to 18' two-way vehicle travel lane	Paved, concrete or asphalt	NA

*See Sections on following pages for more detail

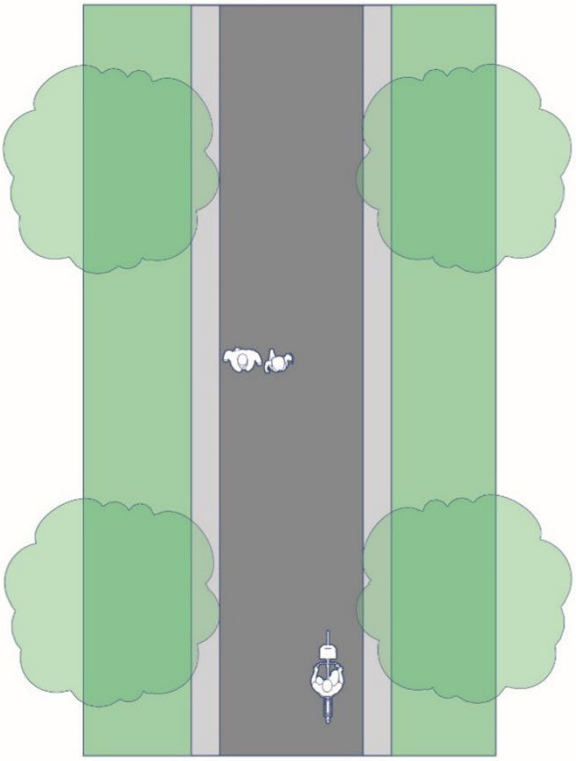
Shared Use Path



	*	SHARED USE PATH	*
REC	2'	10'	2'
MIN	2'	8'	2'
MAX		12'	

*= SHOULDER/ HORIZONTAL CLEAR ZONE

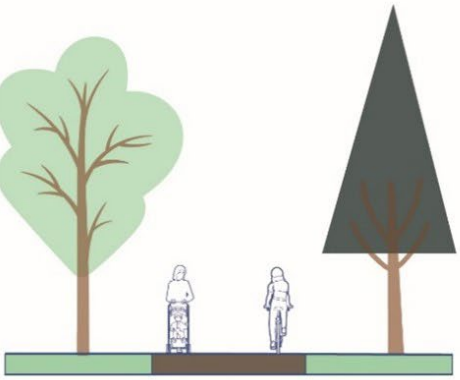
NOTE:
SEE SIDE PATH SECTIONS FOR WHEN SHARED USE PATH IS ADJACENT TO A ROADWAY



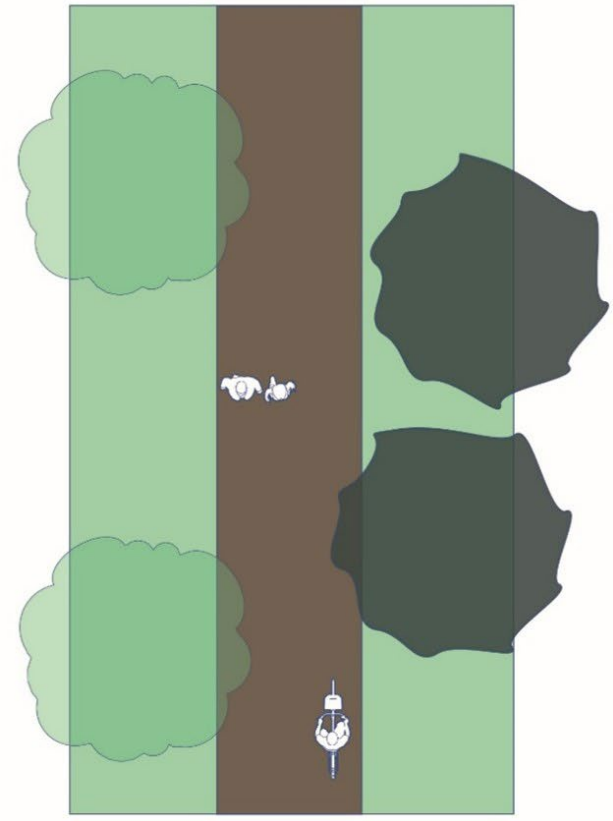
Shared use paths are located away from roads and motor vehicles. A shoulder or horizontal clear zone is provided on either side to prevent vegetation from overgrowing the path and to allow room for the users to move off the path if needed. A 10-foot vertical clear zone free of signage, vegetation, etc. is provided to prevent vertical obstacles.

DESIGN USERS All trail users of any age or ability
SETTING Natural
WIDTH Recommend 10'; minimum 8'; maximum 12'
SURFACING Either asphalt or concrete
MAINTENANCE CONSIDERATIONS Vegetation and root buckling

Wide Soft Surface Trail



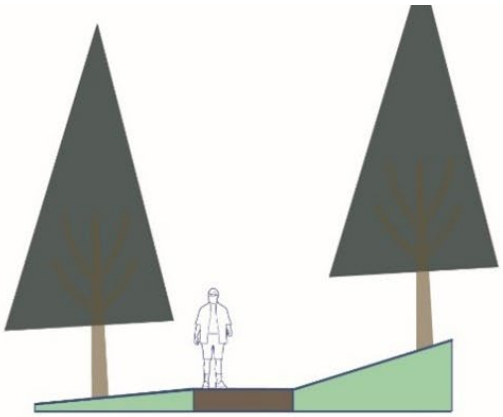
	SOFT-SURFACE PATH
REC	10'
MIN	8'
MAX	-



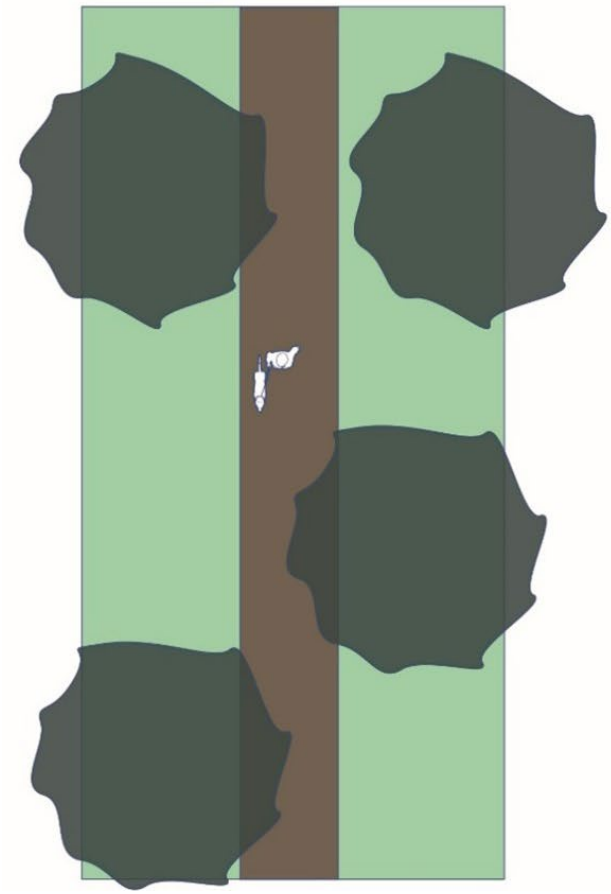
Wide, soft surface trails located off-road and are accessible. To be accessible, the trail slope should be less than 8%. If the longitudinal slope is between 5% and 8% a 5-foot x 5-foot landing required every 1000-feet. Trail width should be 10-foot minimum if access by maintenance vehicles required. A shoulder or horizontal clear zone with vertical clear zone keeps the path clear of vegetation and other obstructions.

DESIGN USERS All, except modes with small wheels
SETTING Natural areas, parks
WIDTH Recommend 10'; minimum 8'
SURFACING Crushed, compacted stone surfacing
MAINTENANCE CONSIDERATIONS Vegetation, re-surfacing every other year, depending on level of use

Narrow Natural Surface Trail

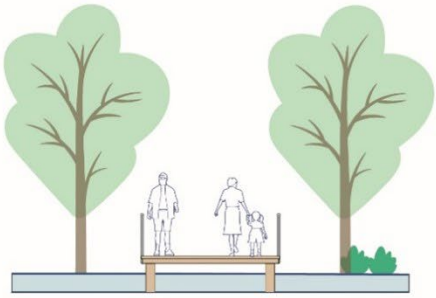


	SOFT-SURFACE PATH
REC	6’
MIN	4’
MAX	-

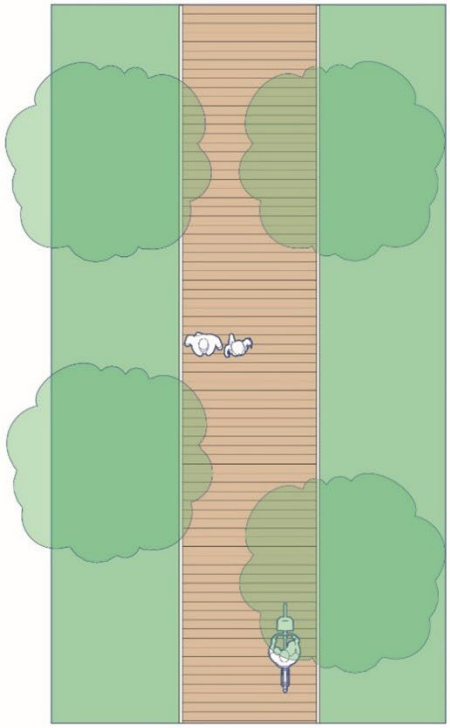


Narrow, soft surface paths intended for recreational users and may be inaccessible if their surfacing is organic and grades are steeper than 8%.
DESIGN USERS Walkers, hikers, equestrian users, runners
SETTING Natural areas, parks
WIDTH Recommend 6’; minimum 4’
SURFACING Organic matter, such as mulch or soil
MAINTENANCE CONSIDERATIONS Vegetation, re-surfacing yearly

Boardwalk



	BOARDWALK
REC	10'
MIN	8'
MAX	-



When a path goes through a natural area like a wetland, a boardwalk can be used to limit the impact to the environment. The boardwalk should match the width, user needs, and accessibility requirements of the path entering the boardwalk, if possible.

DESIGN USERS
Recreational users

SETTING
Natural areas

WIDTH
Recommend 10'; minimum 8' minimum

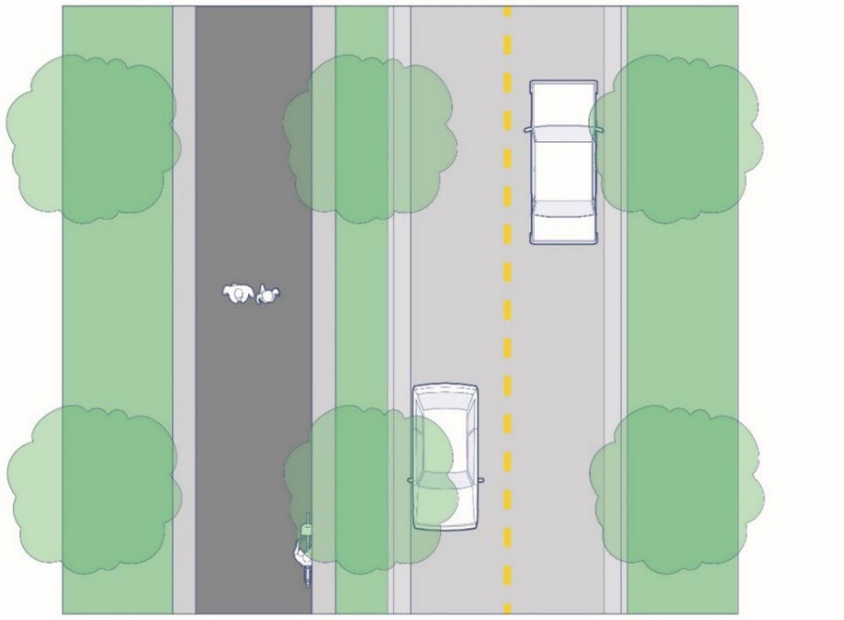
SURFACING
Metal or composite decking preferred, wood as a secondary choice due to tendency to become slippery and decay

MAINTENANCE CONSIDERATIONS
Evaluate substructure and decking every two years for general upkeep. Graffiti removal

Sidepath – with curb

	EDGE	*	SIDEPATH	*	BUFFER	ROADWAY	EDGE
REC	VARIES	2'	10'	2'	5'	VARIES	VARIES
MIN		2'	8'	2'	3'	-	
MAX			12'		-	-	

* = SHOULDER/ HORIZONTAL CLEAR ZONE



Sidepaths run alongside roads with a buffer to provide protection from motor vehicles. A curb on one side allows vertical protection from moving vehicles on the road. A shoulder or horizontal clear zone on the other side is provided on either side to prevent vegetation from overgrowing the path and to allow room for the users to move off the path if needed. A 10-foot vertical clear zone free of signage, vegetation, etc. is provided so there are no vertical obstacles to the path users.

DESIGN USERS
All trail users moving in both directions

SETTING
Adjacent to roadways with curbs

WIDTH
8'-12'. Buffer may be 3' at pinch points.

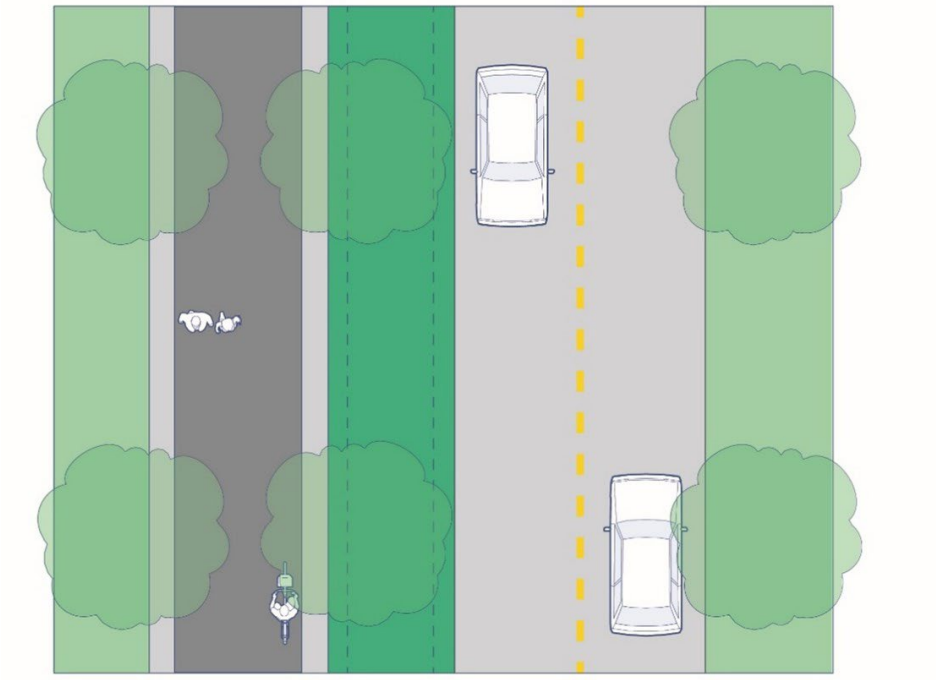
SURFACING
Asphalt or concrete

MAINTENANCE CONSIDERATIONS
Vegetation maintenance, tree roots

Sidepath – without curb

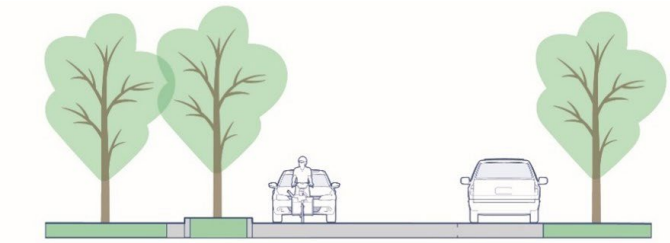
	EDGE	*	SIDEPATH	*	SWALE OR DITCH	ROADWAY	EDGE
REC	VARIES	2'	10'	2'	10'	VARIES	VARIES
MIN		2'	8'	2'	5'	-	
MAX			12'		-	-	

*= SHOULDER/ HORIZONTAL CLEAR ZONE

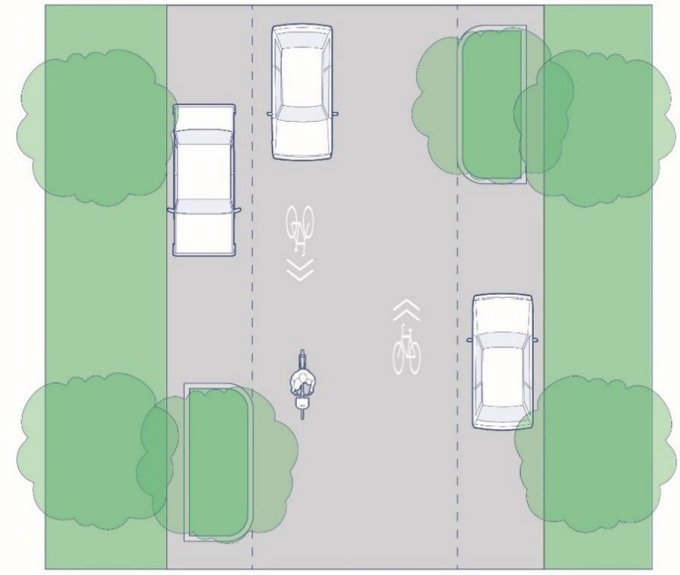


Similar to sidepaths with curbs except these are located along roadways without curbs and the buffer between the road and the sidepath is recommended to be 10-feet to provide space for a swale or ditch and provide a more comfortable buffer to the trail users since there is no curb.	DESIGN USERS All trail users moving in both directions
	SETTING Adjacent to roadways without curbs
	WIDTH 8'-12'. Buffer may be 5' at pinch points.
	SURFACING Asphalt or concrete
	MAINTENANCE CONSIDERATIONS Vegetation maintenance, tree roots

Bike Boulevard



	EDGE	PARKING & TRAFFIC CALMING	SHARED ROADWAY	PARKING & TRAFFIC CALMING	EDGE
REC	VARIES	7'	VARIES, 24'-28'	7'	VARIES
MIN		6'	12'	6'	
MAX		8'	22'	8'	



On low-volume residential roads, bike boulevards provide a low-stress route for people on bikes to share the road with people driving cars. Traffic calming elements, such as curb bulbs, traffic circles, and medians, should be provided to reduce vehicle speeds and volumes and make intersection crossings safer, which results in a pedestrian-friendly environment as well. Sharrows or shared-lane markings along with wayfinding signs mark the bike boulevard route.

DESIGN USERS
People bicycling who are accessing off-street paths and trails

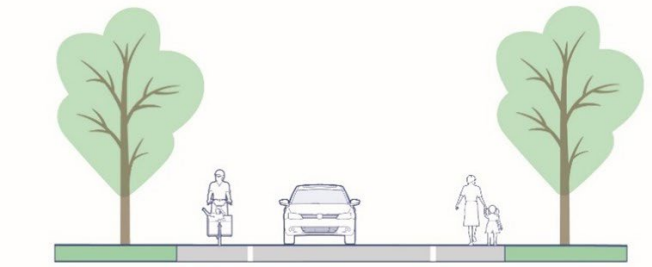
SETTING
Neighborhood roads

WIDTH
Recommended 24-28', with 7' of parking or traffic calming. Without a curb or barrier, the landscape buffer should be 5-feet minimum width. The buffer can be designed to manage and treat stormwater runoff.

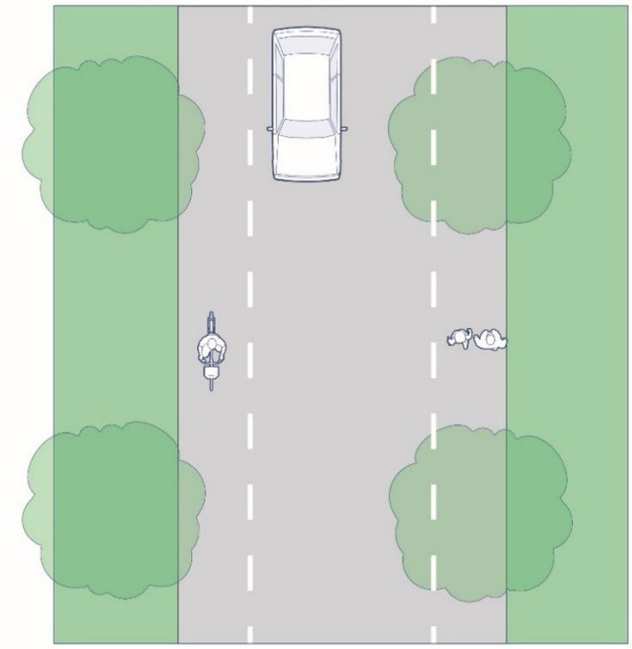
SURFACING
Asphalt pavement

MAINTENANCE CONSIDERATIONS
Reapplying shared markings

Advisory Shoulder



	EDGE	ADVISORY SHOULDER	CENTER TWO-WAY TRAVEL LANE	ADVISORY SHOULDER	EDGE
REC	VARIES	6'	15'	6'	VARIES
MIN		5'	10'	5'	
MAX		6.5'	18'	6.5'	



An advisory shoulder is an experimental treatment for use on low-volume roads where the roadway is too narrow to provide walking space and bike lanes along with motor vehicle travel lanes in each direction. Treatments feature a dashed, painted line marking the advisory shoulder zone where people can walk and bike and where motor vehicles can enter when yielding to oncoming traffic. No centerline is provided. People driving must yield to people in the advisory shoulder.

DESIGN USERS
People bicycling and walking who are accessing off-street paths and trails

SETTING
Narrow, very low-volume neighborhood streets

WIDTH
Recommend 15' for two-way travel lane and 6' advisory shoulders. To maintain facility usability, two-way travel lane should be 18' maximum.

SURFACING
Asphalt pavement

MAINTENANCE CONSIDERATIONS
Maintaining striping and signage

Crossings

General Considerations

The design of intersections has a significant impact on the comfort, safety, and mobility of all path and roadway users. Designs should consider how trail users navigate the approach, crossing, and departure of the intersection. Intersection design should strive to manage conflicts and reduce the risk of injury for all users in the event of a crash. The geometric design features should complement traffic control devices to promote compliance as well as improve safety and comfort where users are expected to yield right of way.

General guidance for the design of intersections:

- Minimize exposure to conflicts by reducing the turning conflicts between people driving and path/trails users
- Reduce motor vehicles speeds at conflict points as crashes at lower speeds tend to reduce injuries and fatalities
- Communicate right of way priority for bicycles and pedestrians through signage and visual cues
- Provide adequate sight distance by minimizing visual barriers, such as vegetation, and providing lighting
- Provide clear transitions between path/ trail segments and roadways through visual and textile cues to all roadway users
- Provide accommodation for people with disabilities (per federal guidelines) as well as other path and trails users, such as families using strollers

Types of Crossings and Appropriate Design Treatments

SIGNALIZED INTERSECTIONS

MARKED CROSSWALKS

High-visibility crosswalks and warning or advanced warning signs increase visibility and awareness of the crossing.

BIKE-ONLY SIGNALS

A bike signal provides a dedicated signal phase for bicycle movement through an intersection. It can be used in combination with signals for vehicles to resolve or prevent conflicts that cannot be addressed through vehicle signalization alone. See Figure 24.

Figure 24. A bicycle signal. Source: Toole Design

CONTROLLED INTERSECTIONS

MARKED CROSSWALKS

High-visibility crosswalks and warning or advanced warning signs increase visibility and awareness of the crossing.

MID-BLOCK CROSSINGS

Mid-block crossings may be needed on busy streets with infrequent intersections, or where crosswalk spacing causes out-of-direction travel for pedestrians. The Federal Highway Administration's Application of Pedestrian Crash Countermeasures by Roadway Feature, from the STEP Field Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations[8] can provide decision-making guidance on the roadway context that warrants a mid-block crossing.

The following images provide examples of design treatments that increase safety and path/trail user comfort at trail/roadway crossings.

PEDESTRIAN ISLANDS AT MID-BLOCK CROSSING

Figure 25. source: toole design

8. https://safety.fhwa.dot.gov/ped_bike/step/docs/pocket_version.pdf

RAISED PEDESTRIAN AND BICYCLE CROSSING

FIGURE 26. SOURCE: TOOLE DESIGN

PEDESTRIAN HYBRID BEACON (PHB) AT MID-BLOCK CROSSING

FIGURE 27. SOURCE: TOOLE DESIGN

RAPID RECTANGULAR FLASHING BEACON (RRFB)

FIGURE 28. SOURCE: TOOLE DESIGN

Driveways

Driveway crossings should be designed to make right-of-way priority for trail users clear, provide adequate sight distance to increase reaction time, and increase awareness to all users about the need for caution.

Figure 29. Source: Toole Design

Railroad Crossings

Railroad crossings should coordinate with the freight line operator to design the crossing to a high standard of safety. This includes high visibility signage, tactile strips, and a crossbuck for lower-volume rail lines, and flashing lights and crossing gates for higher-volume rail lines.

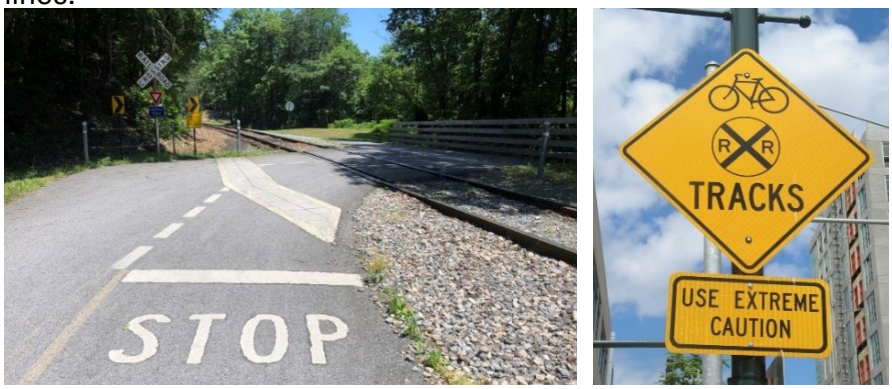


Figure 30. Source: Toole Design

Amenities

Trail amenities are the elements that support users along their ride, walk, or roll and are what make a paths and trail network more than strips of asphalt woven through the city. Amenities such as seating, water fountains, shade structures and restrooms allow users to comfortably spend more time on paths and trails. Incorporating features that support trail users is another way of offering basic amenities to people who rely more heavily on public spaces.

Seating: Seating is the most important furnishing, as many users require rest to be able to use the trail. Seating styles and layouts shall accommodate the needs of multiple users needs per the considerations listed below. Seating can include benches, stools, stones, or seat walls.

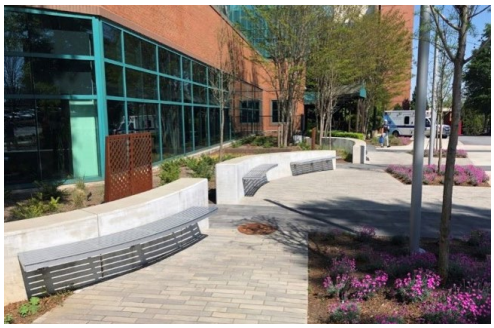


FIGURE 31. SEAT WALLS. SOURCE: TOOLE DESIGN

Lighting: Lighting helps improve comfort and ease of travel while defining the edge of path, unique spaces, and any important or potentially hazardous features. It also helps define the aesthetic character and experience of the trail and may also be used for communications and data collection services. Hours of trail usability can be extended by providing lighting, particularly in the winter months. Lighting should balance intensity, color, and placement to achieve the required level of illumination while minimizing light pollution, trespass onto neighboring properties, and glare.

Landfill/recycling bins/dog waste receptacles: Waste and recycling receptacles encourage trail users to dispose of their garbage and recyclables in appropriate locations. Provide receptacles in busy areas that are easy to access and open by maintenance crews. Be cautious about supplying receptacles in locations that are time-consuming for maintenance crews to access, as receptacles frequently become over-filled before maintenance crews reach them.

Drinking fountains: Water fountains make a huge difference on hot days for everyone and particularly for long-distance runners and cyclists.

FIGURE 32. DOG BAG STATIONS. SOURCE: DLA

Bicycle parking: Bike racks should be plentifully supplied along the path and trail network to allow people on bikes to fully enjoy the unique spaces in the trail corridor and in adjacent neighborhoods. Bike rack design and placement are key to supporting various kinds of bicycles, especially cargo bikes and wider bicycles and tricycles often used by adaptive cyclists.

Bicycle repair stations: Bicycle repair stations allow trail users to perform basic maintenance and repairs from changing a flat to adjusting brakes and derailleurs. Stations typically include a variety of repair tools tethered to the station and an air pump. These self-service stations provide a free opportunity for bicyclists to repair and maintain their bikes on the trail.

FIGURE 33. COVERED BIKE PARKING. SOURCE: TOOLE DESIGN.

Shade structures: Shade structures can provide much needed shade where trees are not available on hot, sunny days. Shade structures can help define spaces or even become primary architectural features.

Wayfinding

Purpose

Wayfinding signs are a key element that define user experience on a trail network. Wayfinding can help new trail users orient themselves to the overall network and find their location within the city. Maps and signage can also contribute to user safety by clearly designating allowed users, informing users where they are along the trail, and guiding them to entrance and exit points. Work with other agency partners to tie into other regional wayfinding systems to develop a thorough, consistent, and intuitive set of signs and wayfinding aids to help trail users find their way.

Overall, wayfinding signs should be kept simple, be consistent and predictable, and help people maintain motion. See Figure 34.

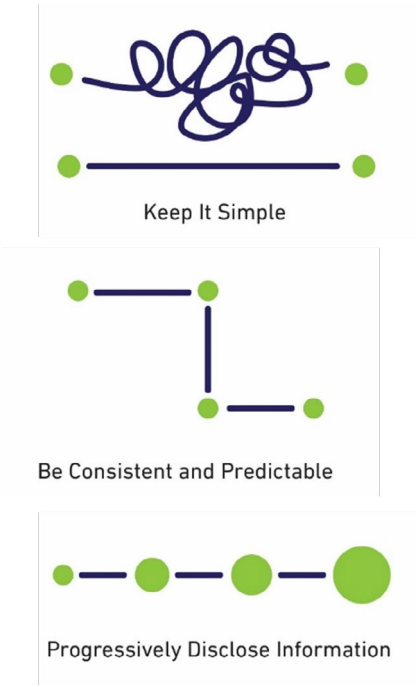


FIGURE 34. WAYFINDING PRINCIPLES. SOURCE: TOOLE DESIGN.

Sign Types

Wayfinding signs come in a variety of dimensions and formats, called a "sign family." Each sign dimension has a different amount of information that pertains to the purpose and location of the sign.

For instance, a trail gateway sign or a kiosk are typically placed at trailheads and include a roof and shelter for users while reading information. Kiosks allow users to navigate the trail network, understand rules and regulations, and learn about local plants and animal life, ecosystems, and history. The material and design of kiosks and other trail signage provides an opportunity to enhance the branding of the trail

Signage that includes destinations, services, and associated distances can help trail users in route decision-making and orientation. Destinations should be prioritized within a hierarchy and should be progressively disclosed so trail users are not overwhelmed at any one decision point or sign assembly. Distances should be provided in miles, written in decimal format and rounded to tenths so that they are relevant to all trail users regardless of the speed at which they are walking, bicycling or rolling.

Mile markers located along or embedded into the trail can provide users with a way to gauge distance traveled and more precisely identify their location. This can be helpful for trail users who are exercising, meeting up with others, or, in the case of an emergency, reporting incident locations.

Trail markers, or confirmation signs, assure people that they are on their chosen route. When used near road crossings, they also indicate that bicyclists and pedestrians may be present. Trail markers can be used alone when other signage that can reaffirm a route is not visible, or they can be used on top of a decision sign assembly.

Placemaking

Paths and trails present opportunities for beautiful open space weaving in and around the City, serving as more than just a way to get around, but a destination of its own. The trail is a place for people to experience nature, to play and recreate, to refresh minds and spirits, and to celebrate community.

Placemaking is a process or approach to developing places where people want to be – places that have a strong sense of identity, community, comfort, and interest. Placemaking is about creating quality spaces that serve user needs and promote people's health, wellbeing, and happiness.

FIGURE 35. EXAMPLE OF PLACEMAKING. SOURCE: TOOLE DESIGN

Art: Art is something that can be embedded throughout a trail, including murals, sculptures, monuments, environmental or land-based installations, soundscapes, and interactive technology. Art should engage people in meaningful experiences and dialogues and help people feel a sense of involvement in the trail. The process of creating and installing art should be viewed as an opportunity for community building and defining community identity.

Gardens: Gardens contribute natural beauty, ecosystem function, and opportunities for learning and nature therapy. They provide opportunities for art integration or creativity with plants themselves. Gardens are higher maintenance spaces that require more skilled attention and should be carefully planned.

Pop-Up Business Spaces: Pop-up business spaces are short-term, low-cost spaces that can support retail, food, or other services. These spaces can help neighbors establish a presence on the greenway and provide access to local goods while adding activity to the trail.

Community Events: Spaces for events can transition paths and trails from recreation and transportation facilities into places to gather and celebrate Veneta. Include small, intimate spaces such as benches or picnic tables as well as larger hardscaped plazas or amphitheaters that support group activities and events. It is important to provide for both organized and impromptu gathering spaces that can support small and large groups.

FIGURE 36. EXAMPLE OF PLACEMAKING. SOURCE: TOOLE DESIGN

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Chapter 5
TRAIL MAINTENANCE

Trail Maintenance Principles

Proactively maintaining path and trails facilities saves time and money while also contributing to a better experience for trail users. Maintenance addresses the quality of experiences on the path and trails network and at access points. It can also improve the operations of a sustainable maintenance program that protects adjacent environmental resources, preserves investments to develop the network, and minimizes impacts on trail use.

The three key elements to successfully maintaining paths and trails are:

- Establish and follow a maintenance plan
- Address as many maintenance issues as possible as part of routine maintenance rounds
- Document, communicate, and address larger-scale needs

This section on path and trails maintenance goes over:

- Common climate resiliency issues
- Designing for available maintenance resources
- Maintenance standards
- Common tasks and schedule
- Data and evaluation
- Volunteer maintenance

Protection Of Natural Resources

Paths and trails are frequently located adjacent to natural resources, such as streams and wetlands. Placing them in these areas can increase awareness of these resources and therefore increase awareness of their maintenance needs. Maintaining paths and trails can also go hand-in-hand with protecting natural resources by incorporating maintenance for these resources, such as removing invasive vegetation that creeps onto pathways.

Design For Available Maintenance Resources

Maintenance needs can be minimized by designing paths and trails using existing resources. For example, designing a high-quality trail that requires specialized tools or a large amount of time to maintain the trail will only set a paths and trails network up for a sub-par system.

Designing paths and trails while keeping in mind the existing maintenance resources can right-size the network and the effort to maintain it. It's important to keep in mind staff capacity, as well as ongoing maintenance funding, when building a system that is achievable.

Climate Resilience Issues

Paths and trails are beloved community assets that, when properly designed and maintained, can serve community needs while also addressing increasingly common climate effects. As the natural environment continues to change due to climate impacts, common environmental resilience issues have surfaced and will continue to emerge.

Flooding

Flooding frequently affects paths and trails that run parallel to rivers and wetlands, and it damages trail tread, bridges, and culverts. Paths and trails adjacent to rivers and streams affected by flooding may also be at risk for washouts or undercutting, where floodwaters erode away the trail surface or the earth that supports it.

More frequent and extreme rainfall events are particularly problematic for hard- and soft-surface trails through low-lying areas by saturating soils. Saturation makes trails further susceptible to erosion and encourages trail users to walk outside of the trail tread. Trail corridors can become widened or braided when enough users bypass sections of flooding; this can lead to impacts to natural resources along the trail corridor. Flooding can also create soil erosion adjacent to the trail, expose roots and lead to vegetation damage and loss. Limiting the grading on soft surface trails to three percent can help prevent erosion. [9]

Figure 37. Example of a braided trail from water damage. Source: DLA

9. American Association of State Highway and Transportation Officials (AASHTO). (2012). Guide for the Development of Bicycle Facilities. Fourth Edition.

Excessive wetness and flooding impacts soft-surface trails by eroding edges (which break down the surface), creating pits, potholes, and wash boarding, and loosening of the surface material. These effects not only degrade trail user safety but can also create negative impacts to the surrounding landscape and habitat.

Figure 38. Example of wash boarding from water damage. **Source:** DLA

Wildfires

Wildfire can cause severe damage to trail surfaces and structures (such as bridges). They can also leave trails susceptible to severe erosion in rainstorms. Without vegetation to hold soils in place, trail corridors are vulnerable to washouts. Trail corridors can also be left with downed trees and hazardous standing dead trees following wildfire. Snags (standing dead trees) can be dangerous because some can easily (and unexpectedly) come down on the trail- or more problematically where people linger/gather like waysides or parks.

Heat

Longer stretches of hot weather and more frequent extreme heat events may have a negative effect on trail infrastructure. At high temperatures, the risk of deformation increases for asphalt or concrete trails. Asphalt softens when it gets hot and will age faster at high temperatures. Concrete can buckle, which can be exacerbated by pavement designs that have insufficient expansion joints between slabs or if debris accumulates in the joints due to lack of maintenance.

For existing pavements, regular maintenance and responsive repair are key to maintaining the integrity of asphalt trail surfaces in higher temperatures.[11] Additional measures include adding shade trees nearby to lower surface temperatures[12] and using heat-reflective coatings to increase reflectivity and cool the material and radiant heat.

11 Chiu, A. (July 20, 2022). With extreme heat, We can't build roads and railways as We used to. Washington Post.

12 US Department of Transportation Federal Highway Administration. (2015). Climate Change Adaptations for Pavements.

Path and Trails Maintenance Tasks and Schedule

Identifying and scheduling maintenance activities provides a holistic picture of the level of effort. Below is a potential schedule of tasks as a starting point. This table should be adjusted based on available and ongoing staff capacity.

Table 6. Path and Trails Maintenance Schedule

FREQUENCY					ISSUE	DESCRIPTION OF ACTIVITY
Daily					Trash	Pick up trash along the trail.
					Glass/Debris	Sweep up glass and debris gathered on the trail.
					Graffiti	Paint over graffiti.
					Weeds	Pull weeds.
					Landscaping	Trim bushes and trees that encroach on the trail.
					Inspection	Inspect all elements of the trail. Note conditions, potential issues, and immediate needs.
Weekly	Spring	Summer	Fall	Winter		
	x	x	x	x	Trash cans	Empty trash cans.
	x	x	x		Grass	Mow and edge grass (less frequently in fall).
Seasonally		x		x	Landscaping	Perform major pruning activities of trees and bushes.
	x	x	x		Weeds	Spray weeds (such as Bermuda grass) encroaching on or growing through the trail.
	x	x	x	x	Drainage/ erosion	Stabilize eroded areas.
Annually					Amenities	Repair/repaint benches, trash cans and other trail amenities.
					Trail surface	Seal-coat asphalt trail surface. (Spring)
					Lighting	Inspect lighting system and upgrade where necessary.
					Revegetation	Fill in locations in landscaping where plants and trees have died. (Spring)
5-10 Years					Signage	Replace signage (as signage is added to project).
					Pavement markings	Restripe pavement markings (at crosswalks, along bike lanes, etc.).
10-20 Years					Trail	Resurface/replace concrete or asphalt.

Data and Evaluation

Tracking paths and trails use and evaluating the network is critical to understanding how well paths and trails are used and how to improve the system. Logging maintenance needs, as well as the number of maintenance staff, hours spent performing maintenance activities, and other metrics should be a part of data collection and system evaluation.

Facility evaluations should occur during routine maintenance visits, and should be documented, addressed, and noted in the inspection report. This will build a record of maintenance activities, which is useful for purposes of risk management and for applying for and justifying maintenance funding needs.

Volunteer Maintenance

Community volunteers can be highly impactful in maintaining paths and trails. Regularly scheduled group volunteer maintenance activities are important for a variety of reasons: they can address larger issues (large-scale graffiti abatement, weeding, etc.); they educate the volunteers about the trail while in turn sharing their knowledge with the larger community; and they establish a connection to the trail that can lead to future financial or continued volunteer support. “Trail Clean Up Days” as community events are a great way to tackle large scale, simple maintenance needs. The city may consider providing volunteer training and volunteer agreements to limit liability.

VENETA
oregon
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TOOLE
DESIGN

DLA
DOUGHERTY
LANDSCAPE
ARCHITECTS

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APPENDICIES

Appendix A: Project List

Appendix B: Cost Opinions

Appendix C: Community Survey Results Summarized

Appendix D: Funding and Grants

Appendix A. Project List

Projects on Public Right-of-Way or Public Land

The following list of projects are based on land that is either public right-of-way or is owned by the City. Projects on privately owned land were not scored.

Proj ID	Facility Type	Project Name	Extent 1	Extent 2	Trail Network Type	Status	On/ Off Rd	Length in Miles	ESTIMATE	Sen-si-tive Area	Land acquisition/ easement	Construct-ability	Cost	Prioritiza-tion score
4	Bike boule-vard	Perkins to Cheney Route	Oak Island	End of Cherry Ln	Loop	Existing	Off	0.03	$2,000	2	2	3	3	10
19	Bike lanes	Cheney Route	Ponderosa Dr	Bolton Hill Rd	Loop	Proposed	On	0.051	$3,000	2	2	3	3	10
10	Bike boule-vard	Meadowdale Route	Meadowdale Ln	Library parking lot	Loop	Proposed	On	0.064	$4,000	2	2	3	3	10
16	Bike boule-vard	East Route	End of Laro Ct	Fern Meadows Ln	Loop	Proposed	On	0.069	$4,000	2	2	3	3	10
8	Bike boule-vard	Cottage Route	Territorial Hwy	End of Cottage Ct	Loop	Proposed	On	0.084	$5,000	2	2	3	3	10
28	Bike boule-vard	Oak Island Park Route	Perkins Rd	Allure Ave	Community Connection	Proposed	On	0.091	$5,000	2	2	3	3	10
30	Bike lanes	Perkins Rd	Oak Island Dr	City boundary - east	Community Connection	Proposed	On	0.208	$12,000	2	2	3	3	10
27	Advisory lane	Sertic Rd	Sertic, 400 ft west of 10th St	8th Street	Community Connection	Proposed	On	0.287	$13,000	2	2	3	3	10
31	Bike boule-vard	Broadway Route	Territorial Hwy	Ruby Jean Ln	Loop	Existing	On	0.302	$16,000	2	2	3	3	10
12	Bike lanes	Hwy 126 trail	Territorial Hwy	End of road	Community Connection	Proposed	On	0.291	$17,000	2	2	3	3	10
17	Bike lanes	Huston Rd	Railroad line	87853 Huston Rd	Loop	Proposed	On	0.333	$19,000	2	2	3	3	10
26	Soft-surface - wide	Green Loop	End of Jake St	115 ft east of Erd-man Way	Loop	Proposed	Off	0.058	$92,000	2	2	3	3	10
32	Bike boule-vard	East Route	125 ft west of Lindsay Ln	125 ft east of Lind-say Ln	Community Connection	Proposed	On	0.049	$3,000	2	2	2	3	9
5	Bike boule-vard	Perkins to Cheney Route	End of Pon-derosa Dr	Cheney Dr	Loop	Existing	On	0.105	$6,000	2	2	2	3	9
7	Bike boule-vard	Community Cen-ter Route	Hunter Rd	Corky Ln	Loop	Existing	On	0.131	$7,000	2	2	2	3	9
18	Bike lanes	5th St Route	Broadway Ave	Meadowdale Ln	Loop	Proposed	On	0.348	$20,000	2	2	2	3	9
20	Shared use path	Perkins Rd	Rendezvous Loop	Oak Island Dr	Loop	Existing	On	0.289	$720,000	2	2	3	2	9

Proj ID	Facility Type	Project Name	Extent 1	Extent 2	Trail Network Type	Status	On/ Off Rd	Length in Miles	ESTIMATE	Sen-sitive Area	Land ac-quisition/ ease-ment	Con-struct-ability	Cost	Prioritiza-tion score
15	Bike boulevard	Community Center Route	25202 Hunter Rd	Pine St	Loop	Proposed	On	0.035	$2,000	2	2	1	3	8
9	Bike boulevard	Broadway Route	Broadway Ave - end	End of parcel	Loop	Planned	On	0.077	$4,000	2	2	1	3	8
13	Bike boulevard	Rendezvous Connection	87727 Rendezvous Loop	Perkins Rd	Loop	Proposed	On	0.093	$5,000	2	2	1	3	8
11	Bike boulevard	5th St Route	24953 Meadowdale Ln	Bolton Hill Rd	Loop	Proposed	On	0.088	$5,000	1	2	2	3	8
6	Bike boulevard	Corky Connection	Corky Ln - west end	Corky Ln - east end	Loop	Existing	On	0.165	$9,000	2	2	1	3	8
14	Bike boulevard	Oak Island Park Route	Cherry Ln	Perkins Rd	Loop	Proposed	On	0.189	$10,000	2	2	1	3	8
3	Bike boulevard	Downtown to Parks Route	Broadway and Territorial	Strike St and Cheney Dr	Loop	Proposed	On	1.278	$64,000	2	2	1	3	8
21	Shared use path	School Route	City Park and Community Center	Edge of parcel boundary	Loop	Proposed	Off	0.048	$154,000	2	2	1	3	8
24	Soft-surface - wide	School Route	Veneta Elementary	City Park and Community Center	Loop	Proposed	Off	0.201	$319,000	2	2	2	2	8
25	Soft-surface - wide	Green Loop	Trinity St	Edge of parcel boundary - east	Loop	Proposed	Off	0.141	$224,000	1	2	1	3	7
29	Shared use path	East Route	End of City Park and Community Center	Lindsay Ln	Community Connection	Proposed	Off	0.278	$890,000	1	1	2	2	6
1	Sidepath - curb	Territorial Trail	City boundary - north	City boundary - south	Trunk	Proposed	On	2.219	$5,881,000	2	2	1	1	6
22	Shared use path	Cottage Route	Cottage Ct	Heavenly Ln	Loop	Proposed	Off	0.332	$1,063,000	1	2	1	1	5
23	Sidepath - curb	Dog Park Loop	8th and Broadway	7th and Broadway	Loop	Proposed	Off	1.015	$2,690,000	1	1	1	1	4

Projects on Privately Owned Land

Proj ID	Facility type	Project Name	Extent 1	Extent 2	Trail Network Type	Status	On/ Off Rd	Length (miles)	Estimate
33	Shared use path	Oak Island Park Connector	Cherry Ln	Oak Island Park	Community Connection	Proposed	Off	0.117	$371,000
34	Shared use path	Hwy 126 trail	City boundary - west	Territorial Hwy and Luther Ln	Trunk	Proposed	Off	1.028	$3,290,000
35	Shared use path	Hwy 126 trail	Luther Ln	City boundary - east	Trunk	Proposed	Off	0.886	$2,836,000
36	Bike boulevard	Future Development	24610 Perkins Rd	24751 Bolton Hill Rd	Loop	Proposed	On	0.461	$24,000
37	Bike boulevard	Future Development	Erdman Way	City boundary - south	Loop	Proposed	On	0.095	$5,000
38	Shared use path	Future Development	Cheney Dr	Territorial Hwy	Loop	Planned	Off	0.225	$713,000
39	Shared use path	Future Development	Cherry Ln	Ponderosa Dr	Loop	Proposed	Off	0.047	$151,000
40	Shared use path	Future Development	Corky Ln	Cheney Dr and Bolton Hill Rd	Loop	Proposed	Off	0.987	$3,159,000
41	Soft-surface - wide	Future Development	Territorial Hwy	Future city park	Community Connection	Proposed	Off	0.829	$1,314,000
42	Shared use path	Future Development	Cheney Dr	Rendezvous Loop	Loop	Existing	Off	0.246	$780,000
43	Shared use path	Future Development	Meadowdale Ln	Meadowdale Ln	Loop	Planned	On	0.102	$327,000
44	Shared use path	Future Development	edge of City Park and Community Center boundary	Hunter Rd	Loop	Planned	Off	0.07	$224,000
45	Shared use path	Future Development	Cheney Dr	Middle of field	Loop	Proposed	Off	0.453	$1,450,000
46	Shared use path	Future Development	24751 Bolton Hill Rd	New street connection	Loop	Proposed	Off	0.029	$95,000
47	Soft-surface - wide	Future Development	Edge of parcel boundary - west	End of driveway	Loop	Proposed	Off	0.065	$104,000
48	Soft-surface - wide	Future Development	350 Ft east of Longwood on parcel line	250 ft west of Hunter Rd	Loop	Proposed	Off	0.096	$153,000
49	Soft-surface - wide	Future Development	350 ft east of Longwood on parcel line	End of Jake St	Loop	Proposed	Off	0.118	$188,000
50	Soft-surface - wide	Future Development	250 ft south of Erdman and Jake	115 ft east of Erdman Way	Loop	Proposed	Off	0.033	$53,000
51	Soft-surface - wide	Future Development	225 ft west of Hunter	Huston, 500 ft N of Dahlin	Loop	Proposed	Off	0.412	$654,000
52	Bike boulevard	Future Development	Edge of Westfield Ave	Edge of future development	Community Connection	Planned	Off	0.053	$3,000

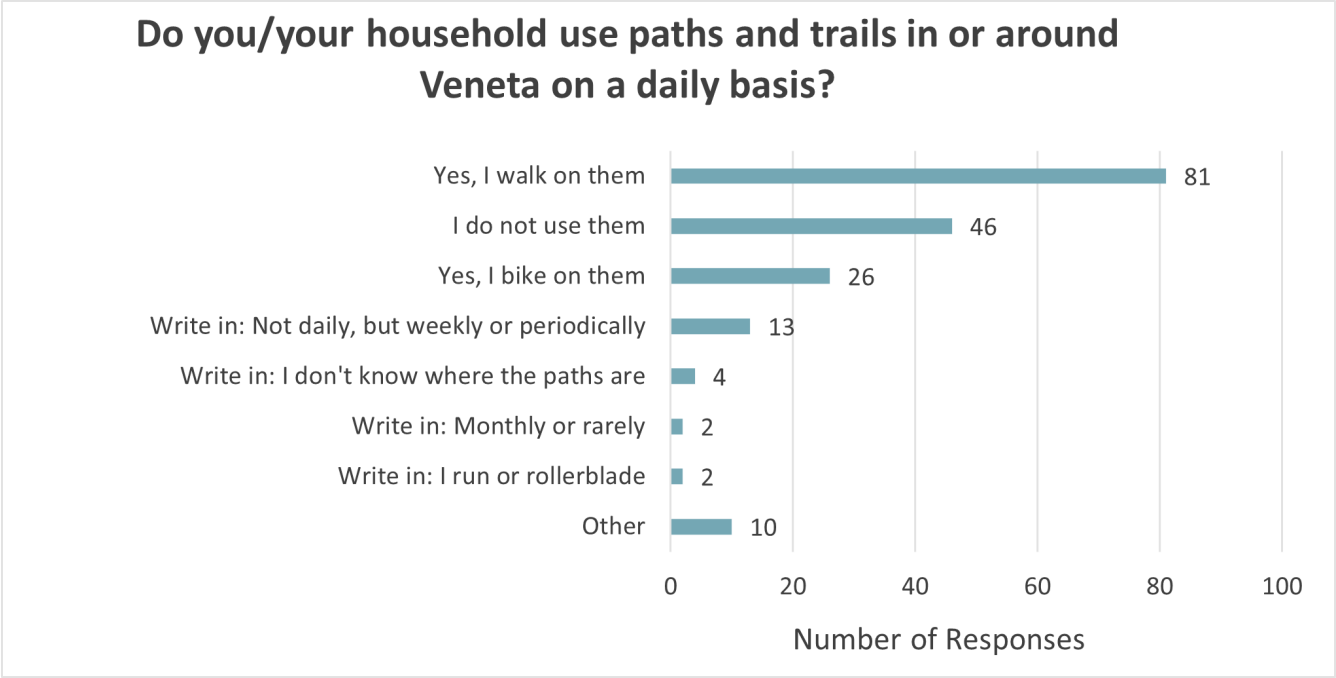
Proj ID	Facility Type	Project Name	Extent 1	Extent 2	Trail Network Type	Status	On/ Off Rd	Length in Miles	ESTIMATE
53	Bike boulevard	Future Development	Sun Ridge Way	Edge of future development	Community Connection	Planned	Off	0.04	$2,000
54	Bike boulevard	Future Development	300 ft west of 8th and Cheney	120 ft west of Hawk View Dr and Oaks Orchard	Community Connection	Planned	Off	0.078	$4,000
55	Shared use path	Future Development	Lindsay Ln	Laro Ct	Community Connection	Proposed	Off	0.162	$1,146,000
56	Shared use path	Future Development	City Park and Community Center	Hwy 126	Community Connection	Planned	Off	0.153	$490,000
57	Shared use path	Future Development	Jeans Rd	City boundary - north	Community Connection	Planned	On	0.23	$736,000
58	Shared use path	Future Development	165 ft north of Jeans Rd	Edge of future park	Community Connection	Proposed	Off	0.141	$452,000
59	Shared use path	Future Development	Sertic Rd	Bolton Hill Rd	Community Connection	Planned	Off	0.724	$2,317,000
60	Shared use path	Future Development	Lindsay Ln	Huston Rd	Community Connection	Planned	Off	0.528	$1,690,000
61	Shared use path	Future Development	Bolton Hill Rd	City boundary - west	Community Connection	Proposed	Off	0.358	$1,146,000
62	Shared use path	Future Development	Laro Ct	Huston Rd	Community Connection	Proposed	Off	0.293	$938,000
63	Shared use path	Future Development	Territorial Hwy	Corky Ln	Loop	Planned	Off	0.249	$797,000
64	Soft-surface - wide	Future Development	SUP connection to Bolton Hill Rd	180 ft west of Greenbrier	Community Connection	Proposed	Off	0.141	$224,000
65	Soft-surface - wide	Future Development	SUP connection to Bolton Hill Rd	Oaks Orchard Rd	Community Connection	Proposed	Off	0.244	$387,000
66	Soft-surface - wide	Future Development	200 ft west of Huston Rd; 130 ft north of Dahlin	Josee Ln	Community Connection	Proposed	Off	0.202	$321,000

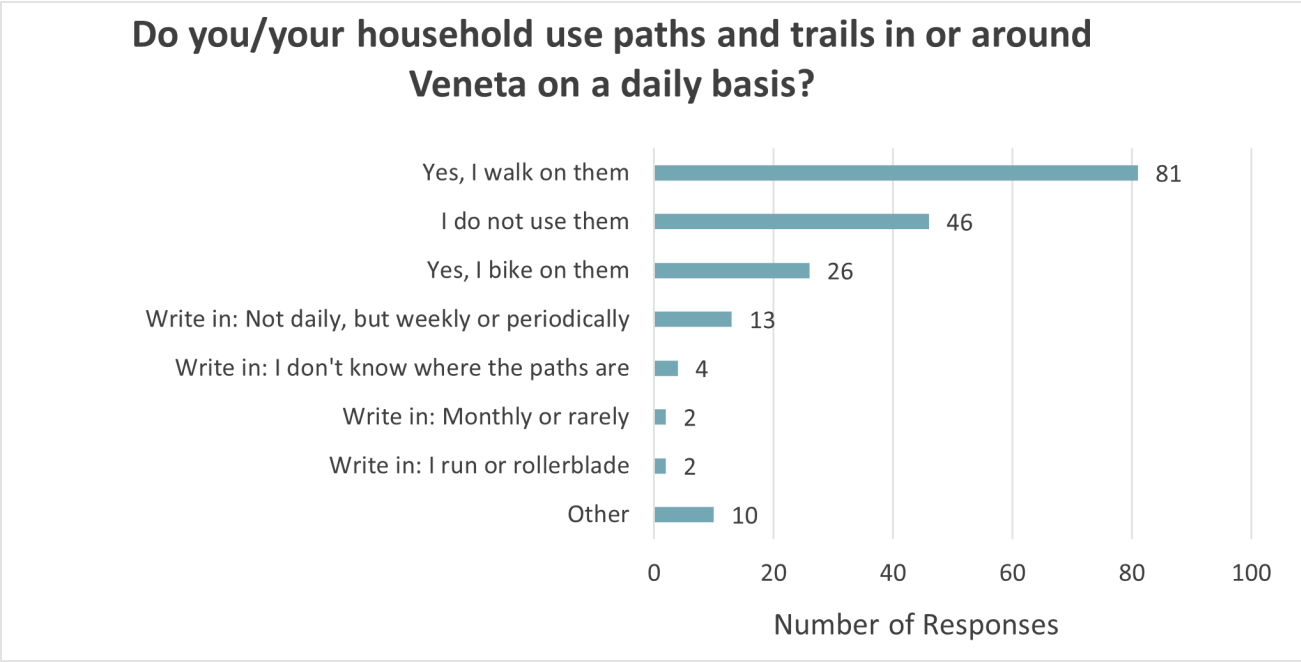
Appendix B. Cost Opinions

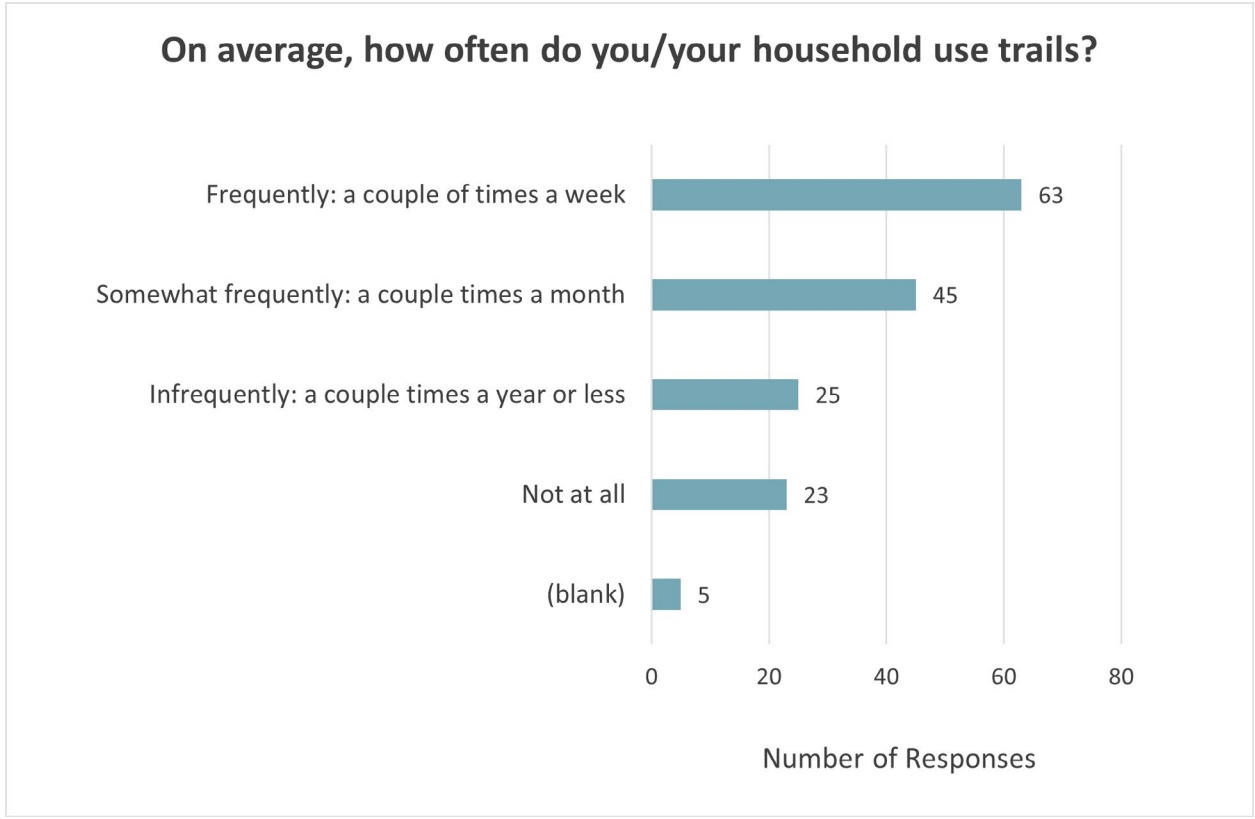
The following planning-level costs were developed from facility types estimates from projects in a variety of communities in Washington, California, and Wisconsin, and calibrated to local conditions.

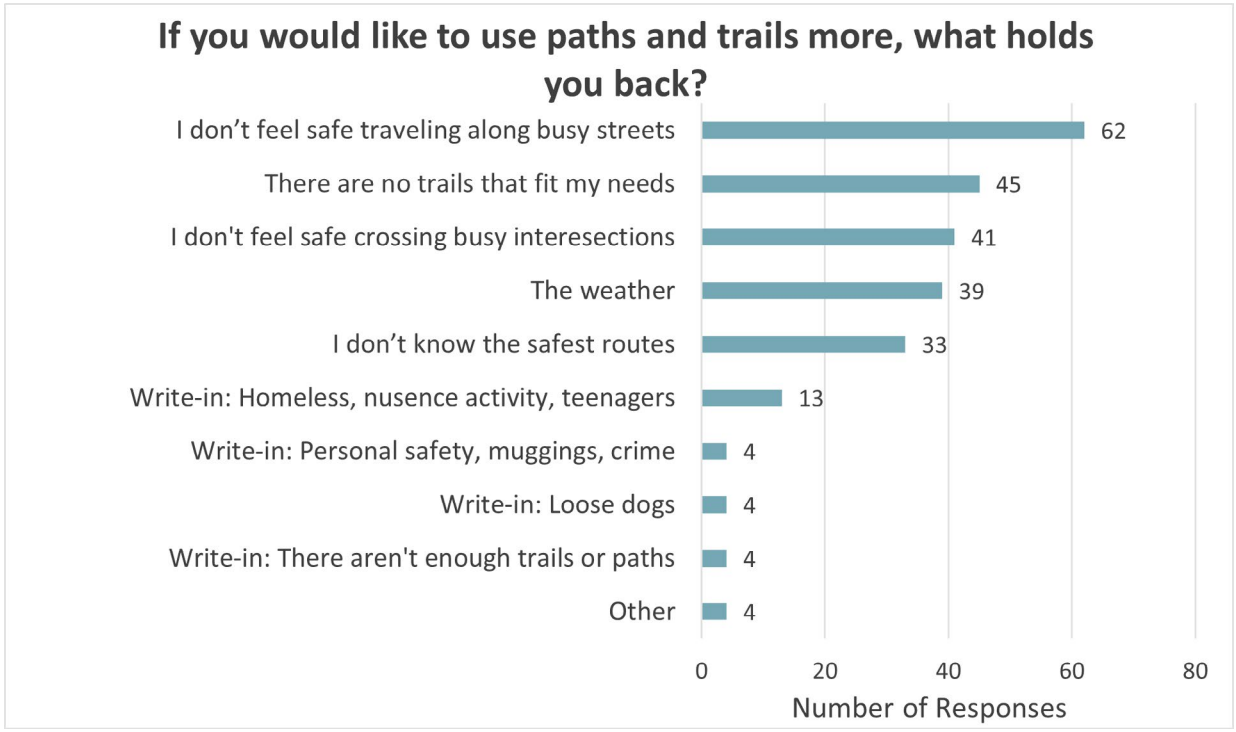
FACILITY TYPE	COST PER LF	TOTAL COST PER MILE (ROUNDED)
Advisory lane	$ 8.52	$45,000
Bike boulevard	$ 9.47	$50,000
Bike lanes	$ 10.80	$57,000
Shared use path	$ 597.41	$3,168,000
Sidepath - curb	$ 483.23	$2,640,000
Soft-surface - wide	$ 289.41	$1,584,000

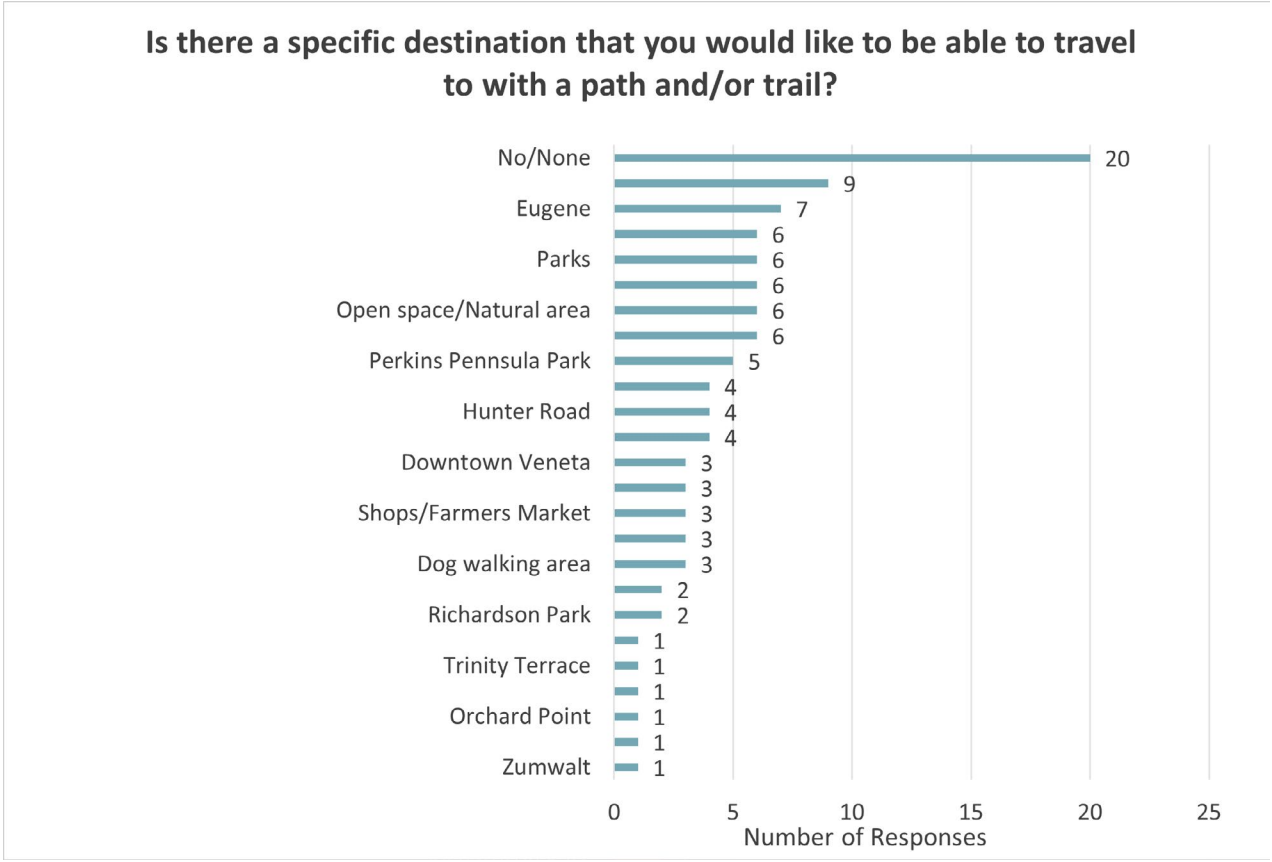
Appendix C. Community Survey Results Summarized

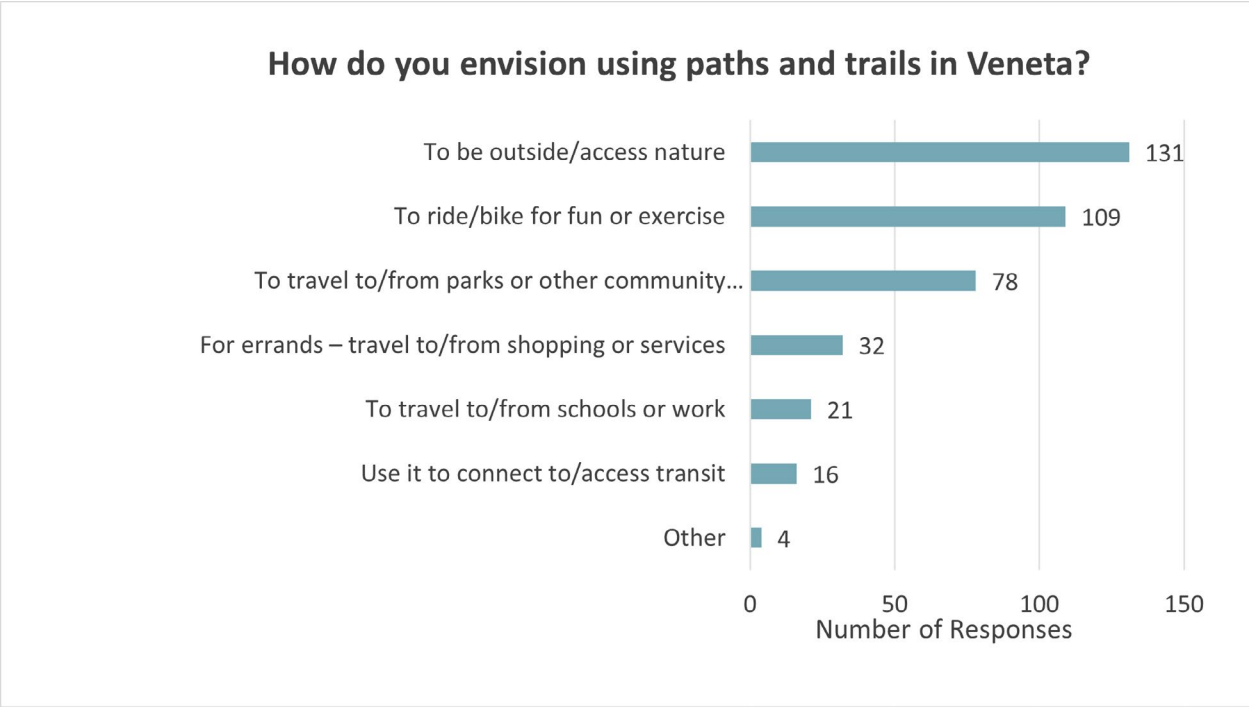


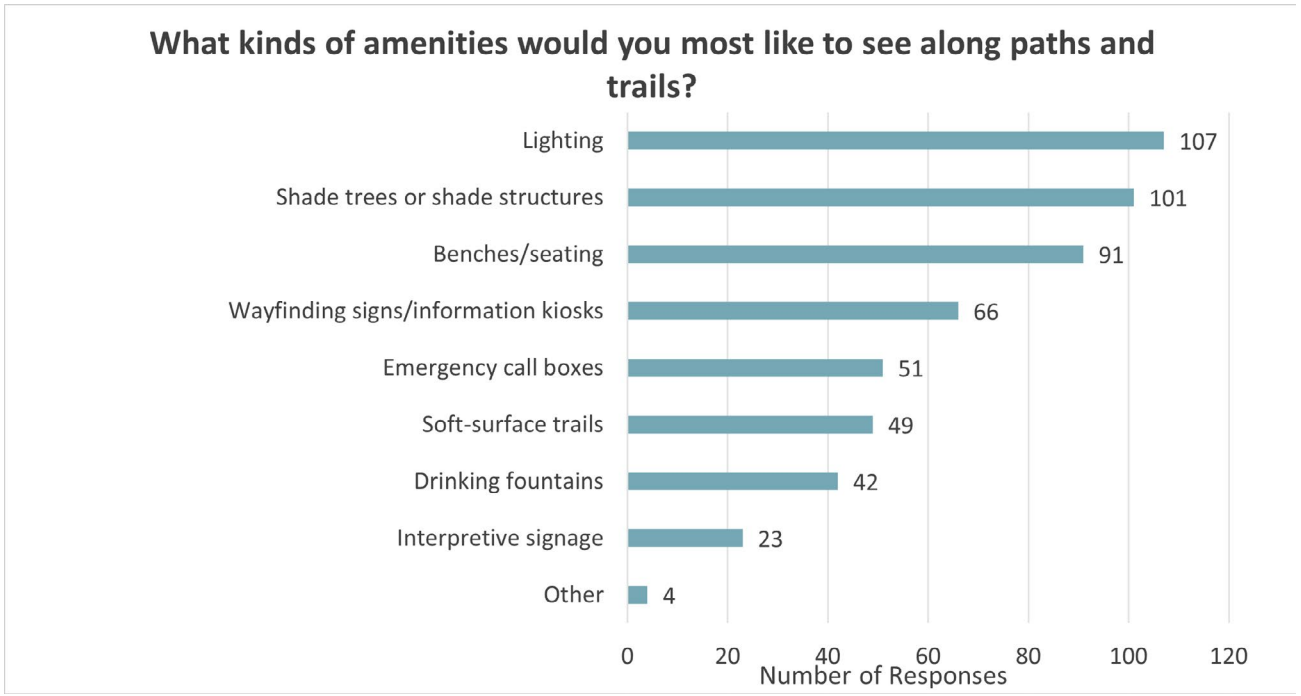

Do you/your household use paths and trails in or around Veneta on a daily basis?
Yes, I walk on them
81
I do not use them
46
Yes, I bike on them
26
Write in: Not daily, but weekly or periodically
13
Write in: I don't know where the paths are
4
Write in: Monthly or rarely
2
Write in: I run or rollerblade
2
Other
10
0
20
40
60
80
100
Number of Responses


On average, how often do you/your household use trails?
Frequently: a couple of times a week
63
Somewhat frequently: a couple times a month
45
Infrequently: a couple times a year or less
25
Not at all
23
(blank)
5
0
20
40
60
80
Number of Responses


If you would like to use paths and trails more, what holds you back?
I don’t feel safe traveling along busy streets
62
There are no trails that fit my needs
45
I don't feel safe crossing busy interesections
41
The weather
39
I don’t know the safest routes
33
Write-in: Homeless, nusence activity, teenagers
13
Write-in: Personal safety, muggings, crime
4
Write-in: Loose dogs
4
Write-in: There aren't enough trails or paths
4
Other
4
0
20
40
60
80
Number of Responses


Is there a specific destination that you would like to be able to travel to with a path and/or trail?
No/None
Eugene
Parks
Open space/Natural area
Perkins Pennsula Park
Hunter Road
Downtown Veneta
Shops/Farmers Market
Dog walking area
Richardson Park
Trinity Terrace
Orchard Point
Zumwalt
20
9
7
6
6
6
6
6
5
4
4
4
3
3
3
3
3
2
2
1
1
1
1
1
1
0
5
10
15
20
25
Number of Responses


How do you envision using paths and trails in Veneta?
To be outside/access nature
131
To ride/bike for fun or exercise
109
To travel to/from parks or other community…
78
For errands – travel to/from shopping or services
32
To travel to/from schools or work
21
Use it to connect to/access transit
16
Other
4
0
50
100
150
Number of Responses


What kinds of amenities would you most like to see along paths and trails?
Lighting
107
Shade trees or shade structures
101
Benches/seating
91
Wayfinding signs/information kiosks
66
Emergency call boxes
51
Soft-surface trails
49
Drinking fountains
42
Interpretive signage
23
Other
4
0
20
40
60
80
100
120
Number of Responses

Appendix D: Funding and Grants

Source	Funding Source	Availability of Funding	Description	Eligible Improvements	Weblink
Federal Funding					
Surface Transportation Block Grant	FHWA, FAST Act	Yearly; available 2023 funding is $14.112B	The Surface Transportation Block Grant Program (STBG) promotes flexibility in State and local transportation decisions and provides flexible funding to best address State and local transportation needs.	Bicycle facilities, including trails	https://www.fhwa.dot.gov/specialfunding/stp/
Congestion Mitigation and Air Quality Program	FHWA, FAST Act	Yearly; available 2023 funding is $2.587B	The CMAQ program provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality.	Emissions-reducing transportation projects located in/benefitting a nonattainment or maintenance area	https://www.fhwa.dot.gov/bipartisan-infrastructure-law/cmaq.cfm
Transportation Alternatives Program	Federal Highway Administration	Yearly; available 2023 funding is $1.3 billion	TAP funds projects that create bicycle and pedestrian facilities and convert abandoned railway corridors to pedestrian trails, among others.	Eligible activities include pedestrian and bicycle facilities and educational programs, landscaping, rail-to-trail conversions, among others.	https://www.fhwa.dot.gov/environment/transportation_alternatives/
RAISE Transportation Discretionary Grants	US Department of Transportation	$800million for FY 2023	New federal program that focuses on infrastructure projects with a sustainability and equity focus.	For surface transportation infrastructure projects that to improve safety; environmental sustainability; quality of life; mobility and community connectivity; economic competitiveness and opportunity including tourism; state of good repair; partnership and collaboration; and innovation.	https://www.transportation.gov/RAISEgrants

Source	Funding Source	Availability of Funding	Description	Eligible Improvements	Weblink
Infrastructure for Rebuilding America (INFRA)	US Department of Transportation	$8 billion between FY 22-26.	One INFRA grant application that suffices for three different grants, including the Rural Surface Transportation Grant.	Eligible uses include projects that address safety, reduce congestion, enhance resiliency, and address freight bottlenecks.	https://www.transportation.gov/grants/infra-grants-program
Highway Safety Improvement Program (HSIP)	Federal Highway Administration (FHWA)	10% of state's HSIP fund	Projects in high-crash locations are most likely to receive funding. States that have identified bicycle safety and pedestrian safety as Emphasis Areas are more likely to fund bicycle and pedestrian safety projects.	Funding for safety projects aimed at reducing traffic fatalities and serious injuries. Bike lanes, roadway shoulders, crosswalks, intersection improvements, underpasses and signs are examples of eligible projects.	https://highways.dot.gov/safety/hsip
Safe Routes to Schools	Federal Highway Administration (FWHA)	As part of TAP and the Surface Transportation Block Grant	This program provides funding for education, enforcement, evaluations, and infrastructure improvements near elementary and middle schools that promote students walking and cycling to school.	Infrastructure projects that benefit schools; programmatic elements, as well as statewide and local planning efforts.	https://www.transportation.gov/mission/health/Safe-Routes-to-School-Programs
Reconnecting Communities Pilot Program	Federal Highway Administration (FWHA)	Closed October 13, 2022.	Applicable to roads, bridges, transit, rail, and gas pipeline barriers.	Projects that address barriers, such as roads, highways, and other transportation infrastructure.	https://www.transportation.gov/grants/reconnecting-communities
Safe Streets and Roads for All (SS4A)	Federal Highway Administration (FWHA)	Grants open in spring and close in early September	Two types of SS4A grants: Action Plan grants and Supplemental Action Plan grants to evaluate a treatment.	Developing a comprehensive safety action plan or to carry out projects and strategies.	https://www.transportation.gov/grants/SS4A
Carbon Reduction Program	Federal Highway Administration	$1.258 billion in FY 2023	Project must be identified in the Statewide Transportation Improvement Program (STIP)/ Transportation Improvement Program).	Includes a transportation alternatives project for on- and off-road trail facilities	https://www.fhwa.dot.gov/environment/sustainability/energy/

Source	Funding Source	Availability of Funding	Description	Eligible Improvements	Weblink
Railway Highway Crossing Program Overview	Federal Highway Administration	$245 million from FY '22 to FY '26.	Requires the state to conduct and maintain a survey of all highways to identify railroad crossings that may require separation, relocation, or protective devices.	Funds dedicated to eliminating hazardous railway-highway crossings, including bike trails and pedestrian paths.	https://highways.dot.gov/safety/hsip/xings/railway-highway-crossing-program-overview
National Highway Performance Program (NHPP)	Federal Highway Administration	$29.008 billion in FY '23.	Projects must be identified in the Statewide Transportation Improvement Program (STIP)/ Transportation Improvement Program (TIP).	Requires that bicycle facilities be for transport purposes only, not recreation purposes.	https://www.fhwa.dot.gov/specialfunding/nhpp/bil_nhpp_implementation_guidance-05_25_22.pdf
State Funding					
Safe Routes to Schools: Construction	ODOT	Early 2024; Up to $32M available. Requires 12% match (can include soft match)	Safety project within 1 mile of school. Can be used on ODOT roads.	Construction	https://www.oregonsaferoutes.org/construction-program/
Innovative Mobility Program: Grant	**ODOT**	**Late 2023/ spring 2024; $20M through 2027**	**Still in development in spring 2023**	**TBD**	**https://www.oregon.gov/odot/RPTD/Pages/Innovative-Mobility-Program.aspx**
Innovative Mobility Program: Micro-Grant	**ODOT**	**Late 2023/ spring 2024; $5,000**	**Still in development in spring 2023**	**Vanpooling, bike/scooter lending libraries, minor infrastructure**	**https://www.oregon.gov/odot/RPTD/RPTD%20Document%20Library/Innovative%20Mobility%20Program%20Micro-Grant%20Guidance.pdf**
OR Safe Routes to School Rapid Response Construction	**ODOT**	**Rolling**		**Construction**	**https://www.oregonsaferoutes.org/rapid-response-grants/**

Planning Assistance	ODOT	Rolling	Not a grant, but ODOT assists jurisdictions and counties with planning thru consultant services	Planning	https://www.oregonsaferoutes.org/planning-assistance-program/
Source	**Funding Source**	**Availability of Funding**	**Description**	**Eligible Improvements**	**Weblink**
Community Paths Program	**ODOT**	**August 2024; Project refinement: $150,000-$750,000 Construction: $500,000-$6M Requires 10.27% match.**	**Transportation-purpose regional trails and connector links, and crossings.**	**Planning and construction**	**https://www.oregon.gov/odot/Programs/Pages/OCP.aspx**
Carbon Reduction Program	**ODOT**	**Opens 5/1/2023; $82M for FY 2022-2026. Requires 10.27% match.**	**New program under the BIL. Counties, cities, and local and state agencies representing urbanized and rural areas with under 200,000 population**	**Vehicle and fuel tech, transportation options, system operations, pricing, active transportation, mode shift and reduction of emissions, first/last miles improvements, transportation demand management, capital investments on bikeshare/scooter share**	**https://www.oregon.gov/odot/climate/Pages/CarbonReductionProgram.aspx**
Recreational Trails Program	**OR State Parks**	**Up to $250,000**	**funded grant program administrated by the Oregon Parks and Recreation Department.**	**Recreational Trails Program**	**https://www.oregon.gov/oprd/gra/pages/gra-rtp.aspx?utm_source=OPRD&utm_medium=egov_redirect&utm_**


VENETA
oregon
Inc.1962
TOOLE
DESIGN
DLA
DOUGHERTY
LANDSCAPE
ARCHITECTS