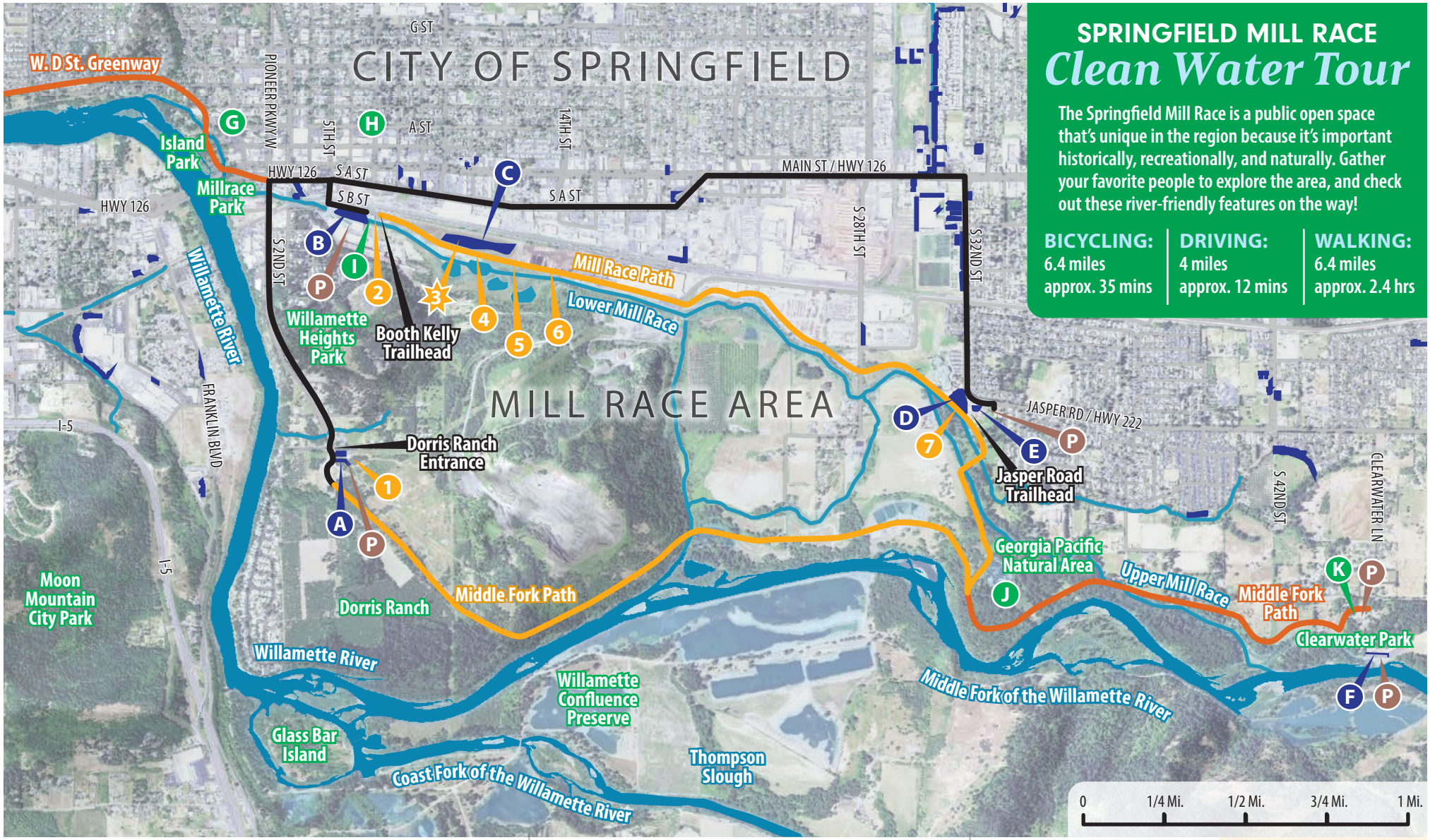

SPRINGFIELD MILL RACE
Clean Water Tour

The Springfield Mill Race is a public open space that's unique in the region because it's important historically, recreationally, and naturally. Gather your favorite people to explore the area, and check out these river-friendly features on the way!

BICYCLING:	DRIVING:	WALKING:
6.4 miles	4 miles	6.4 miles
approx. 35 mins	approx. 12 mins	approx. 2.4 hrs

STORMWATER SITES

*Colored **dark blue** on the map and located across Springifeld, these areas are normally unmarked and include ponds, rain gardens, and swales.*

- A Parking lot rain garden
- B Parking lot rain garden
- C Mill Race Stormwater Facility
- D Jasper Pond Stormwater Facility
- E Parking lot rain garden
- F Parking lot rain garden

Find more tour information at bit.ly/willametteriverfestival.

CLEAN WATER TOUR SITES

These are the must-see spots on the tour. All are relevant to Springfield's historical and river impacts.

- 1 Dorris Ranch Info
- 2 Booth Kelly Info
- 3 **TEMPORARY!** Willamette River Festival, Student Art Installation, August 20-28
- 4 Stormwater Info
- 5 Mill Race Restoration Info
- 6 Swanson Reach Info
- 7 Jasper Pond Info

NOTABLE LOCATIONS

Interesting water-related locations.

- G H I Springfield's UpStream Art murals
- J Georgia Pacific Natural Area
- K Clearwater Park Info

MAP KEY

- Stormwater sites
- Tour sites
- Notable locations
- P Free 2-hour parking
- Tour bike/walk path
- Other bike/walk path
- Road route
- Waterways

Mill Race Clean Water Tour

For the 2021 Willamette River Festival

Prepared by **Willamalane Parks & Recreation District** and **the City of Springfield's Stormwater Team**, Springfield, Oregon

Part 1: Background

Springfield's Geography

Springfield is located in the southern Willamette Valley, situated in an alluvial valley created by the McKenzie River, which flows along its northern boundary and joins the Willamette River to the northwest. The Middle Fork of the Willamette River flows to its confluence with the Coast Fork Willamette along Springfield's southern boundary. The combined forks join to become the main stem of the Willamette River at Springfield's southwest boundary before flowing north to Portland, eventually meeting up with the Columbia River and flowing to the Pacific Ocean. The city of Springfield encompasses the eastern portion of the Eugene-Springfield Metropolitan Area.

The Springfield Mill Race originates on the north bank of the Middle Fork of the Willamette River within Clearwater Park. From there it follows a meandering course of approximately 3.5 miles to the northwest, through rural woodlands and fields then past residential and industrial areas into a restored natural area in what was once a 30-acre millpond. As it leaves the restoration area and before discharging into the main stem of the Willamette, the Mill Race passes two blocks south of downtown Springfield (Booth-Kelly site). State Highway 126 and a Union Pacific Railroad separate the Mill Race area from the city center.

Springfield's Mill Race area – History and Restoration

1985

Springfield's Mill Race is part natural and part human-made. For more than a century and a half, it functioned as a municipal, agricultural, and industrial resource for the community. In 1985, the Georgia Pacific Timber Company donated the Mill Race and its water rights to the City, and the City has worked ever since to enhance and restore this area.

1993

In 1993, the Mill Race Concept Plan established a community vision for transforming Springfield's Mill Race into a community asset by preserving and enhancing its vitality for community enjoyment and benefit. Since then, City leaders have collaborated to enhance environmental quality, recreation, economic development, connection with the past, and community pride.

2008

By 2008, the city's Stormwater Facilities Master Plan had already identified three major projects for achieving these objectives. The Mill Race Stormwater Facility would treat stormwater discharges from the southeast downtown area. This facility would replace 2,000 feet of an existing 48-inch storm pipe with a shallow pond providing treatment by settling and uptake by vegetation. The treatment facility would be constructed on 14 acres of city-owned land and would intercept and treat stormwater from approximately 117 acres of the city's industrial and commercial areas south of Main Street.

2009

Funding for the stormwater facility project was provided by the stormwater revenue bond sold by the city in 2010, as well as by system development charge funds paid by developers. The City partnered with Willamalane (the local park district) to enable concurrent construction

of the trailhead and multi-use path through the site. The Springfield Utility Board also coordinated the installation of a water line in the project reach during the construction of the facility, trailhead, and multi-use path.

The restoration of the Upper Mill Race began with the construction of a new inlet at Clearwater Park, as well as new native plantings to improve habitat and help shade the water.

2012

In 2012, the Willamalane board of directors adopted an updated Willamalane Park and Recreation Comprehensive Plan, which identified a proposed natural area park at the Booth-Kelly/Millpond site, with an emphasis on outdoor education. Additionally, in 2012, voters approved a Willamalane Park and Recreation District bond measure to fund a number of park projects, including development of a multi-use path along the Mill Race from downtown Springfield to the Middle Fork path.

2013

The City, with support from the US Army Corps of Engineers (USACE), completed the "Mill Race Aquatic Ecosystem Restoration Project" during the spring of 2013. It included riparian enhancement along the upper reach of the Mill Race, restoration of the former millpond area including dam removal, re-channelizing, and riparian enhancement along the Mill Race.

The City was obligated by its agreement with the US Army Corps to ensure clean water enters the restored Mill Race from local drainage. To comply with the Clean Water Act, Endangered Species Act, and Safe Drinking Water Act, the City took responsibility for improvements to and protection of the entire Mill Race system. Thus, all publicly-owned properties adjacent to the entire Mill Race anticipate improvements to riparian habitat, water quality, and drainage.

2014

The Swanson Reach restoration project was completed in 2014 by the Metropolitan Wastewater Management Commission (MWMC) on a portion of the Mill Race that was not addressed by the USACE Mill Race Aquatic Ecosystem Restoration Project. This project provides natural shading to help maintain cool water essential to fish habitat.

2015

The Mill Race Stormwater Facility Restoration project created a new channel, several ponds, and upland habitat within the former millpond area.

2016

Construction of the Mill Race Stormwater Facility was completed, in addition to the Booth Kelly Trailhead and Mill Race Path. The Booth Kelly Trailhead includes a rain garden, parking lot, interpretive signs, and 10 water-themed murals.

2021

Willamalane and the City continue to collaborate to improve the area with year-round upgrades, maintenance and the planting of native species.

Part 2: Stormwater Sites and why they matter

Before Euro-American settlement of the Willamette Valley in the mid-1800s, oak savanna, upland prairies, wetlands, and oak woodlands dominated the landscape. The native people of this region, the Kalapuya, managed the landscape with regular controlled burns. This prevented encroachment by Douglas fir, and allowed camas, an important food source of the Kalapuya, to flourish.

Arrival of Euro-American people changed the landscape in many ways, including the cessation of controlled burns by the Kalapuya. Now

we see the consequences of fire suppression, which include the spreading of Douglas fir and invasive species, and the loss of oak savannas and woodlands, and upland and wet prairies.

Another major change in the landscape is the effects of development. When porous surfaces like woodlands are built on or paved, rain cannot soak into the ground. Instead, it hits the surface and runs off. This profoundly changes natural hydrology by reducing groundwater recharge and increasing the amount and of speed of runoff flowing into our rivers.

In addition, runoff from urban areas (or stormwater) picks up pollutants as it flows over hard surfaces like roads, driveways, rooftops, and even gravel and lawns, and carries them to local waterways. Common stormwater pollutants include oil from leaking vehicles, bacteria from pet waste, dirt, fertilizers, and pesticides.

Prior to modern water quality regulations, stormwater runoff went straight to local waterways without treatment. In the 1990s, Springfield and cities nationwide began installing stormwater treatment facilities such as rain gardens, detention ponds, swales, and more. These facilities allow runoff to soak into the ground as it would have before development. Additionally, the plants and microbes clean the runoff before it flows out to the river. They also provide wildlife habitat and many feature native plants. The locations on this tour highlight a few stormwater facilities in Springfield that are along a bike route.

Part 3: Mill Race Clean Water Tour Sites

1) Willamalane Swale at Dorris Ranch

Location: 205 Dorris St.

The swale at the Middle Fork trailhead at Dorris Ranch collects stormwater from the parking area and directs it down the entrance driveway. The stormwater is diverted under the road to the west side of the main entrance where the stormwater disperses and infiltrates.

Dorris Ranch History

Dorris Ranch is recognized as the first commercial filbert orchard in the United States and is listed on the National Register of Historic Places.

Oregon's history with filberts started in 1892 when George Dorris and his wife Lulu bought 250 acres of fertile land along the Willamette River and dedicated their lives to farming. After experimenting with a variety of crops, George established the first commercial filbert nut orchard in the United States. Over the next 50 years the Dorris family planted 9,200 trees at the ranch and harvested more than 50 tons of nuts each year.

Now, more than 100 years later, Dorris Ranch continues to make history as a fully-productive commercial filbert orchard. More than half of all the commercial filbert trees now growing in the U.S. originated from Dorris Ranch nursery stock.

Each of the 11 separate orchards was named in order to help hired hands know where to work each day.

The approximate age of each orchard may be determined by looking at the spacing between trees. In the earliest orchards (planted beginning in 1903) the trees are planted very close together. As the years went by, spacing between the trees became greater. Dorris Ranch has a total of 9,250 filbert trees planted in 75 acres.

Most of the trees in the Dorris Ranch orchards are of the Barcelona variety. Because the Barcelona is self-sterile, other varieties—the DuChilly and the Daviana—are planted as pollinators every third tree in every third row. Today, Willamalane is removing the Barcelona trees in stages to fight eastern filbert blight. New blight-resistant trees are replacing the highly susceptible varieties George Dorris planted.

Filberts are considered a "self-husking" nut. The husk falls off when the filbert drops from the tree. Machines then pick up the filberts and

take them directly to the drying machines. A local orchardist maintains the Dorris Ranch orchards.

2) Booth Kelly Trailhead Information Kiosk

3) Temporary Student Art Installation

4) Mill Race Stormwater Facility Information

Location: east of the Booth Kelly Trailhead

The Mill Race Stormwater Facility, one of the largest regional water quality treatment ponds in the city of Springfield, enhances water quality and wildlife habitat.

This large pond collects and cleans runoff from the commercial and industrial areas to the north. Sampling data shows that this pond is very effective at removing pollutants from runoff before it flows into the Mill Race. This pond is situated in an important location, since many of the properties that ultimately drain to the pond were built prior to current water quality regulations. It also features native plants, which are important for habitat and native cultural heritage.

Stormwater Pond Design

In 2013, Amec Foster Wheeler developed a feasibility study for the stormwater facility, which provided a strong understanding of how the treatment facility fits within the larger context of the Mill Race ecosystem restoration, the city, and the region.

From the work on the feasibility study, we understood and appreciated the Springfield Mill Race as a public open space with habitat, educational, recreational, and historical value. In addition to this facility's primary stormwater treatment function, the project had tremendous potential and value for community and natural resources.

Site Geology

According to published geologic information, regional geology consists of Willamette and McKenzie River alluvium overlying marine sediments of siltstone, sandstone, and basaltic material from the Little Butte volcanic series. The alluvium is up to 100 feet thick regionally and estimated to be about 50 feet locally. It consists of interbedded sands and gravels with some layers of silt and clay.

A drone's-eye-view of the Mill Race Stormwater Facility

Onsite investigations revealed somewhat varying near-surface soil conditions. In general, explorations encountered a gravelly fill layer overlying clays and sandy gravels. The fill ranged from two to four feet thick and was composed of dense, sandy gravel with cobbles, some silt, and trace organic woody debris. The fill was underlain by an 18- to 19-foot-thick sequence of medium stiff to stiff silty clay. These clay soils did not lend themselves to feasible infiltration for design considerations.

Willamalane Rain Garden at Booth Kelly Trailhead

Location: 305 S. 5th Street

This rain garden collects and cleans runoff from the parking lot. Red-flowering currant, camas, and other native plants are showcased in this rain garden.

5) Mill Race Stormwater Facility Restoration Information

The Mill Race Stormwater Facility Restoration Project consisted of removing a dam and log pond, and creating a complex channel habitat within a system of wetlands and uplands. Beaver, great white egrets, mergansers, and more can be spotted making use of the ponds and stream. A variety of native fish species have also been found by US Fish and Wildlife biologists in the channel.

6) Swanson Reach Shading Project Information

The stretch of the Mill Race that flows to the south of the Swanson Mill is referred to as the Swanson Reach. It was restored in 2013-14 to help keep the water cool for native fish. Cold water holds more oxygen than warmer water, which is important for our native fish populations. The formerly wide, shallow channel was narrowed and deepened, and native trees and shrubs were planted along the south bank. Tree plantings along the south bank provides shading across the channel, and therefore help maintain cool water in the Mill Race. Volunteers have been planting natives along the north bank to supplement the shade project. The Metropolitan Wastewater Management Commission completed this project to help mitigate warm water discharges from the regional wastewater treatment plant on River Avenue in Eugene.

7) Jasper Pond Information Kiosk

Location: to the west of the Jasper Trailhead

This pond collects and cleans runoff from the surrounding residential area before the runoff flows into Jasper Slough. It also helps expand the habitat of Jasper Slough and Mill Race – look for western pond turtles and other wildlife basking on logs!

Willamalane Rain Garden at Jasper Trailhead

Location: 3200 Jasper Rd

This rain garden is planted with spreading rush, slough sedge, and camas and contains a mix of native and ornamental plans. It collects and cleans runoff from the parking lot and surrounding concrete areas. A nightclub used to thrive near the banks of Jasper Slough on this property – a stopping point for musicians and a place for Springfielders to gather.

Part 4: Notable Locations

G, H, I) Springfield's Upstream Art murals

UpStream Art is a mural-painting project hosted by the City of Springfield every year since 2016. Currently 26 murals with water-friendly themes can be viewed in three parts of the city. All can be visited in an approximately 2-mile walk starting at Booth Kelly, through downtown, to Island Park, and back. Find details at bit.ly/upstreamart.

J) Georgia Pacific Natural Area

Georgia Pacific Natural Area is a natural example of nature's filtration system and what stormwater swales are engineered to do. The pond and wetlands have native vegetation similar to what is found in constructed stormwater facilities. They trap sediment, slow water down and give pollutants a chance to settle out and be metabolized by plants microorganisms. The water flowing through these ponds and wetlands enters shallow groundwater aquifers much cleaner than if it had not undergone these natural cleaning systems.

K) Clearwater Park Information Kiosk

The Upper Mill Race Restoration Project began in 2009, with the construction of a new inlet to the Mill Race at Clearwater Park. Native plants were added along the channel to improve habitat and shade the water. Invasive plants, like Armenian blackberry, were removed.

Trailheads and a multi-use path were added later to allow public access to this ecological gem.

Willamalane Swale at Clearwater Park

Location: 1502 Clearwater Lane

The swale within the southern parking lot at Clearwater Park collects stormwater runoff, while plants and micro-organisms within the swale work hard to remove pollutants before this runoff soaks into the ground.

Clearwater Park contains the inlet to the Mill Race off of the Middle Fork Willamette River. The southern parking lot contains a boat launch. Both parking lots have path access. From these parking lots, you can explore the Upper Mill Race and Middle Fork Willamette River. The Upper Mill Race restoration project began in 2009, with new vegetation, bridges, and a multi-use path.