

Crawford Crossing

A Park Concept Plan

August 2017

Final Report

Prepared For:

City of Turner
5255 Chicago Street SE
Turner, OR 97392



Prepared By:

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Special Thanks & Acknowledgements

The Community Service Center wishes to thank City of Turner staff David Sawyer and Linda Hansen, as well as City Councilor Joe Soukup for their assistance and advice throughout this project. We would also like to acknowledge Michelle Patrick, the 2016-17 Resource Assistance for Rural Environments (RARE) AmeriCorps Participant with the Mid-Willamette Valley Council of Governments and Marion County, for her support and contributions throughout the project. Finally, we thank Lisa Iverson and her 2016-17 AVID students at Cascade High School for their impressive and thoughtful outreach efforts related to visioning for the new park.

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About the Community Service Center

The Community Service Center (CSC) is a research center affiliated with the Department of Planning, Public Policy, and Management at the University of Oregon. It is an interdisciplinary organization that assists Oregon communities by providing planning and technical assistance to help solve local issues and improve the quality of life for Oregon residents. The role of the CSC is to link the skills, expertise, and innovation of higher education with the transportation, economic development, and environmental needs of communities and regions in the State of Oregon, thereby providing service to Oregon and learning opportunities to the students involved.

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Section 1: Background

Turner, Oregon is growing. A new residential development will soon increase the city’s housing stock by about a third, presenting new opportunities for community and economic development in Turner. Among these opportunities is the chance to develop 40 acres around Crawford Lake into a beautiful lakeside park with access to fishing, boating, hiking, picnicking, and outdoor enjoyment. This document outlines a vision and concept for this new park, based on extensive input from Turner area residents both young and old. The City of Turner and interested community groups can use the park design concept and resources presented here as a guide for building out the park over the coming years.

About the Concept Plan

Crawford Lake, located in northern Turner, began its life as a quarry excavated by Riverbend Sand and Gravel. The quarry was retired in 2008 and has gradually filled with water to form what is now the 70-acre Crawford Lake. After almost a decade, the land around the lake is being developed, adding 203 new single family homes and 131 apartment units to the Turner residential community.

The “Crawford Crossing” development offers more than the promise of residential growth: as part of the project, the City of Turner is receiving 40 acres of donated land on the southern end of Crawford Lake to develop as a public park. As Turner grows, the new Crawford Crossing Park will enhance residents’ quality of life by offering access to the lake’s recreational amenities and increasing the availability of natural areas and open spaces for public use.

Crawford Crossing Park and Turner’s Other Parks

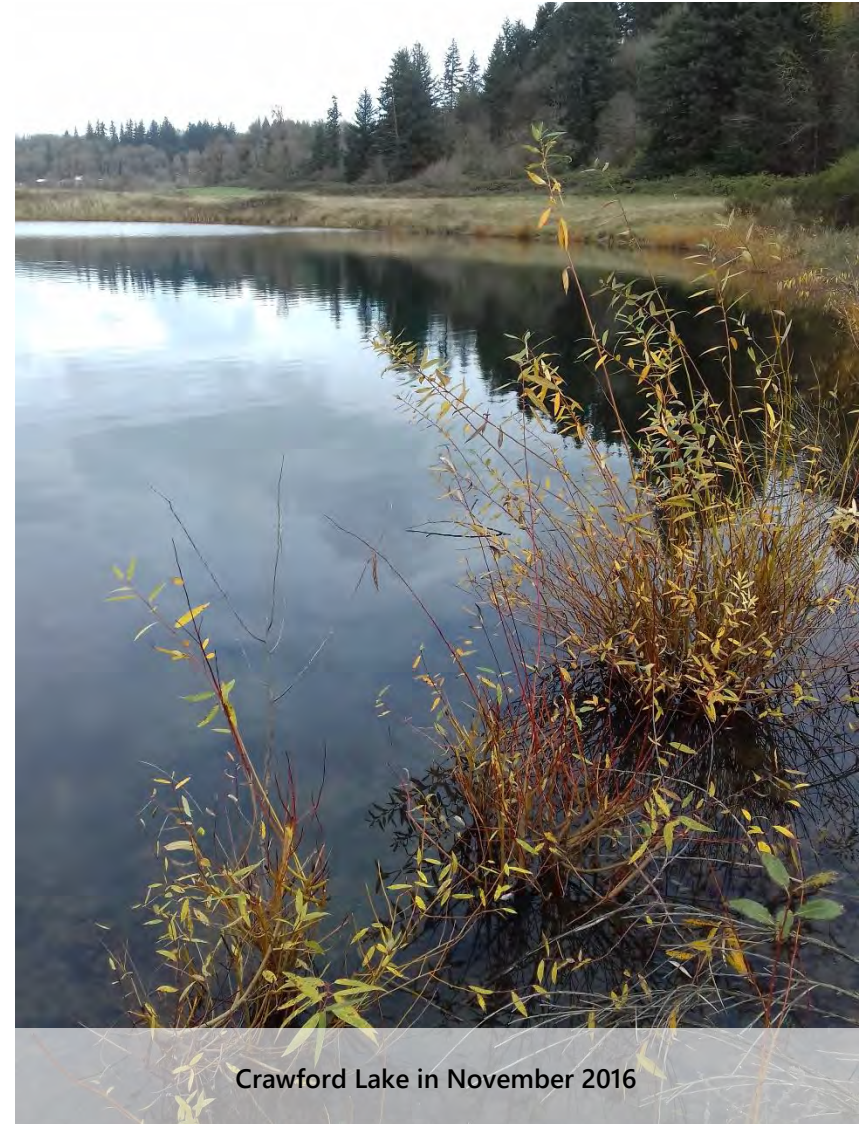


Recognizing the need for careful planning to realize the opportunities of the new park, the City of Turner engaged a team from the University of Oregon’s Community Service Center (CSC) to develop a conceptual design and vision for the park. The CSC team spent several months evaluating the park site, gathering input from residents about their desires and vision for the park, and drafting conceptual designs for the layout and amenities of the 40-acre site. After gathering final feedback from residents at the Turner Celebration in early June 2017, the CSC team worked with City staff to finalize the park design.

In this document, we present the final park design, describe the process used to develop it, and offer suggestions about how the City can begin to convert an undeveloped tract of land into an accessible, well-used recreational area on the shores of Crawford Lake. The remainder of the plan is organized as follows:

- **The Planning Process** – we describe how we worked with community members to develop a vision for the park that matches their desires and priorities.
- **The Site** – we provide a brief analysis of the 40-acre undeveloped site of the future Crawford Crossing Park.
- **The Conceptual Master Plan** – we present the final design concept with accompanying descriptions and renderings.
- **Developing Crawford Crossing** – we estimate the costs associated with park development and maintenance, offer suggestions about development phasing, and discuss financing strategies.

We also include several appendices with additional information about public input, the design process, and resources for park development (including a list of appropriate plants and specific examples of funding mechanisms).



Crawford Lake in November 2016

Section 2: The Planning Process

The design for Crawford Crossing Park was created through an iterative process of design development and community input. The final design therefore reflects both the expertise of the CSC's team of landscape designers and planners as well as the specific input of the residents of Turner.



Site Analysis

Site analysis was conducted during the winter of 2016 and early 2017. CSC designers and planners familiarized themselves with site conditions both through remote use of aerial photos and maps, as well as through site visits. Maps and remote imagery of the site helped designers understand the spatial configuration of elements on site, and site visits added context and deeper understanding of on-the-ground conditions. City of Turner staff and CSC staff took extensive notes and photos on site and spent time understanding topography, viewsheds, plant composition, lake edge conditions, and the relationship of the site to adjacent land.

Community Conversations

Before beginning design work, CSC staff spoke with a variety of Turner residents to gather initial input about their desires for the site. As part of this process, CSC staff conducted extended interviews with several key stakeholders in the community. To complement these efforts and further investigate the preferences of residents for the new park, AVID students at Cascade High School conducted over 500 surveys with children at the elementary school, students and staff at the high school, and their parents. The AVID students then presented their work to city officials and CSC staff. Finally, the Turnaround Café hosted a drop-in conversation session with CSC staff where community members could learn about the project and offer their ideas and opinions.



Preliminary Designs

Based on the information gathered from site analysis and community conversations, CSC designers generated three initial design concepts. Each of these concepts addressed a different theme or idea and represented a different direction for the future park. “Nature Exploration” explored options for limited park programming, emphasized wetland restoration, and focused much of human use on hiking and biking trails. “Lakeside recreation” included more built elements related to lake access but, similar to the first plan, retained the feeling of a community park. “Regional attraction” envisioned the park as a recreational amenity for the broader region, drawing significant numbers of visitors from outside of Turner. Refer to Appendix A to see each of these preliminary concepts.

The goal of these designs was to help community members (as well as designers themselves) understand the options that exist for development of the park. The designs demonstrate both the types of amenities that could be included in the park, as well as the spatial orientation of these elements.

Survey

The three concept plans were presented to the community as part of a broader survey about the development of the park. With over 200 survey responses, the CSC team was able to draw significantly on the public’s input for the final design, as well as ideas for financing the park.

In terms of park design and use, survey respondents expressed particular interest in having access to a trail system, maintaining a “natural” feel for the park, and using the park primarily for leisure and social activities as opposed to sports-based uses. Overall, nearly half of respondents (48%) preferred the “Lakeside Recreation” concept (compared with 30% selecting “Nature Exploration” and 22% selecting “Regional Attraction” as their favorite designs).

The survey also revealed that most respondents understood the need to raise additional funds to pay for the new park. Of the funding options presented on the survey, respondents most preferred an increase of the monthly utility bill fee, but had mixed feelings about using a vehicle-entrance fee or forming a parks and recreation special taxing district. In addition to fee-based systems, respondents also expressed support for generating revenue from rentals, fundraisers, and volunteer efforts. See Appendix B for full details on survey responses.

Design Refinement

The final consolidated design represents a refined version of the “Lakeside Recreation” concept, based directly on survey respondents’ preference for this design. This design includes amenities that were consistently popular among survey respondents, most notably trail infrastructure, natural areas, and lake access. Also based on respondent feedback, the design does not include higher impact developments such as extensive parking facilities, that could brand the park as a regional attraction.



Turner Celebration activity, June 2017

Turner Celebration Presentation

A draft of the final consolidated design was unveiled to the community at the Turner Celebration in early June. Community members were given the opportunity to respond to the design and share additional ideas and feedback. Responses were overwhelmingly positive.

Final Design

Because the design met with a positive reception from the community, only limited modifications were made after the Turner Celebration presentation. The final design responds to community members' needs and desires and lays the foundation for the City to begin developing this much-anticipated outdoor amenity.

Section 3: The Site

The future Crawford Crossing Park has a wealth of space and existing natural features. At approximately 40 acres, this community park has the potential to host unique activities for Turner residents including hiking trails, fishing and boating access, and even an off-leash dog park. The CSC team evaluated opportunities and constraints for park development by reviewing existing conditions and current development regulations. Key opportunities and constraints are summarized below.

Opportunities

- The large site allows for diverse park programming and the ability to separate active and passive recreational activities.
- An extensive flat area east of Turner Rd. is ideal for vehicle access and provides a large area for active programming (playground, group picnic area, dog park, etc.) and infrastructure.
- An abundance of natural resources including wetlands, Crawford Lake, and a large area of forested hillside provide for a multitude of recreational and educational opportunities in addition to diverse wildlife habitat.
- The 70-acre Crawford Lake gives ample space for future water activities including fishing, swimming, and non-motorized boat use.
- The forested hillside adjacent to Val View road provides viewing opportunities as well as space for a uniquely secluded trail system within Turner's city limits.
- Long frontage streets along Turner Road and Val View allow the development of a variety of pedestrian entry points for Turner residents.

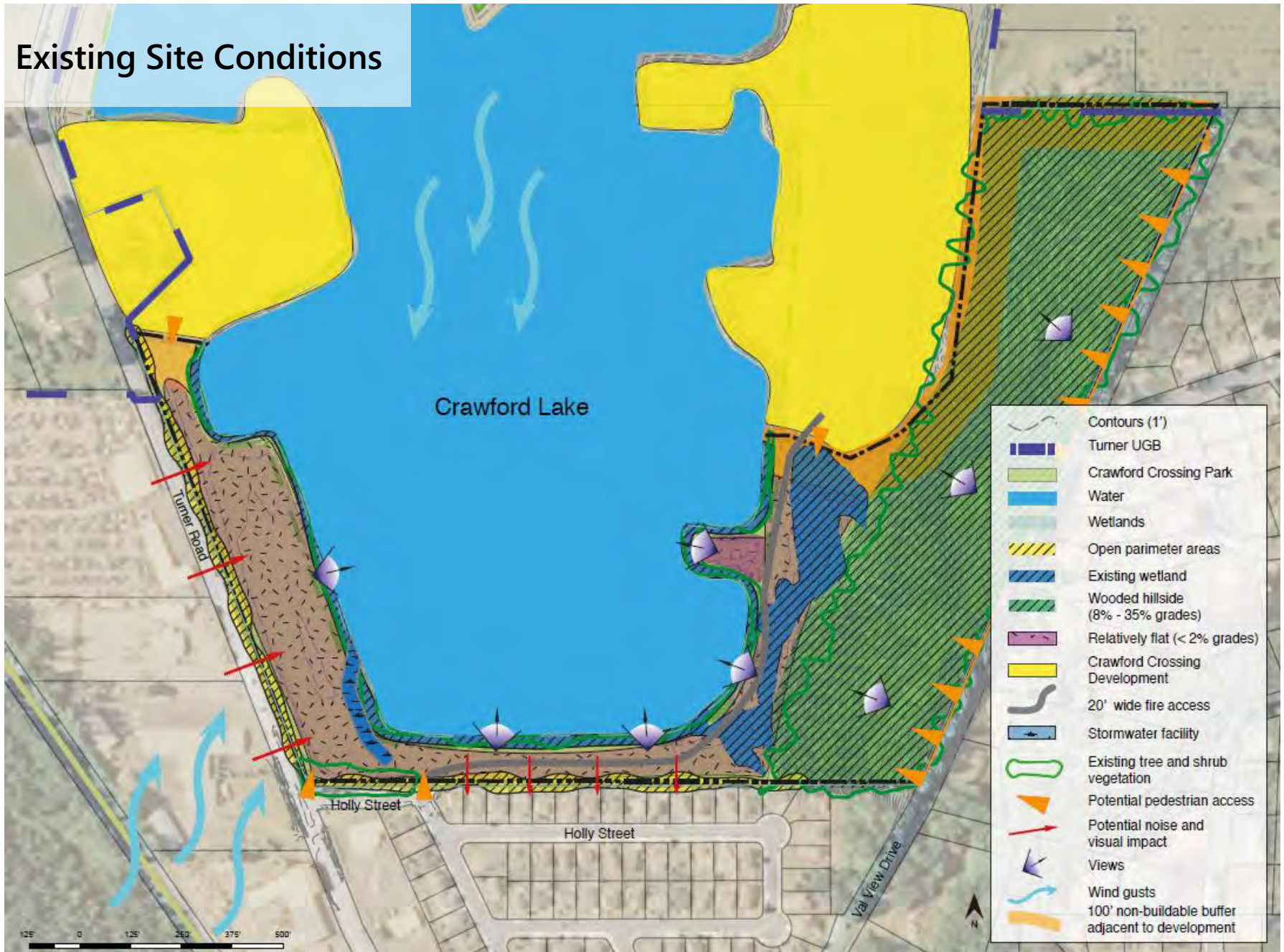


Large swale constructed to manage runoff on site, June 2017

Constraints

- In accordance with the proposed conditions to donate the lake and park property to the City of Turner, a 100-foot buffer is to be maintained adjacent to any residential development, regulating any park uses, including lighting.
- Over 2 acres of wetlands on the eastern side of the park as well as fringe wetlands along the edge of the lake limit development without proper mitigation.
- The forested hillside on the eastern portion of the property has steep grades up to 35% limiting future development to trails and possible overlook areas.
- The Crawford Crossing development requires the construction of a 20-foot fire access road to connect the south park entrance at Holly St. to the southeast corner of the housing development.

Existing Site Conditions





Wooded hillside on the eastern portion of the site, November 2016

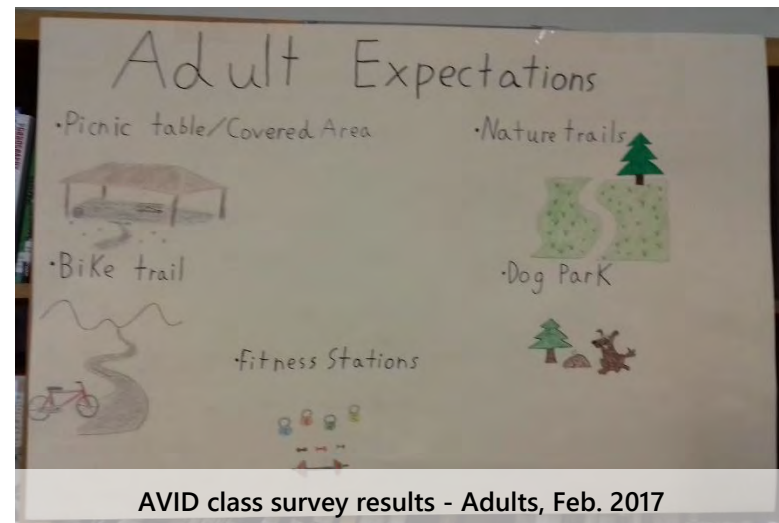
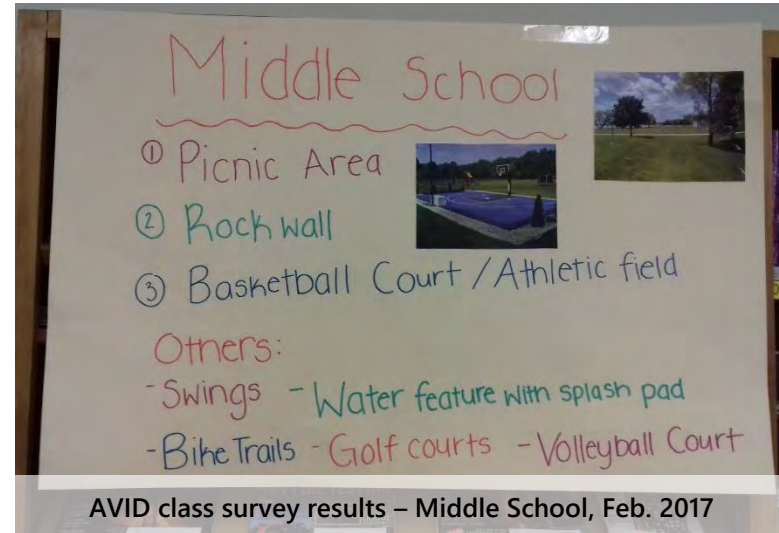
Section 4: The Conceptual Master Plan

The conceptual master plan for Crawford Crossing Park was developed based on information acquired through on-site analysis and background research, as well as input from conversations with community members and the public survey. The master plan should be used by the City as a conceptual document for both spatial layout and a recommendation for site amenities that reflect the current desires of the community. As implementation occurs, elements in the park design and layout may vary from the master plan depending on available funding, changing community needs and desires, and unforeseen constraints.

Goals

To complement the conceptual master plan, we provide a list of broad goals to direct the development of this community-focused park, outlined below:

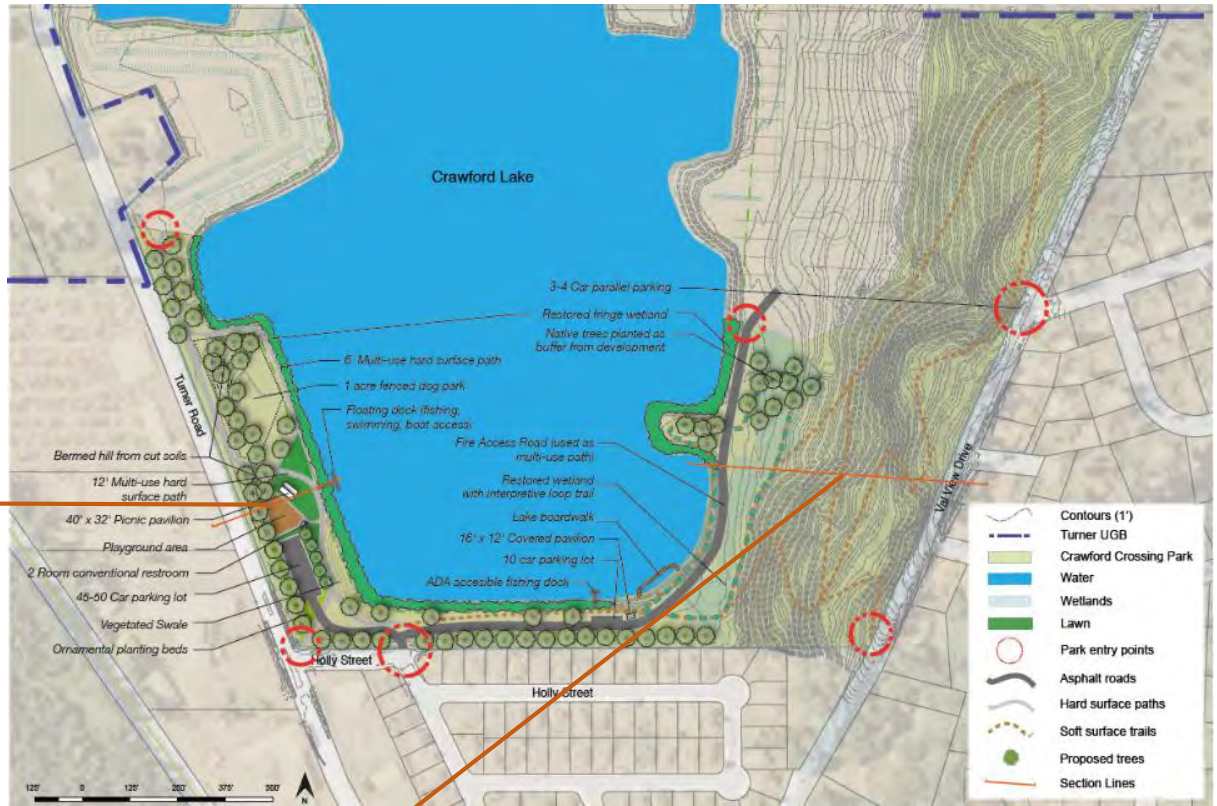
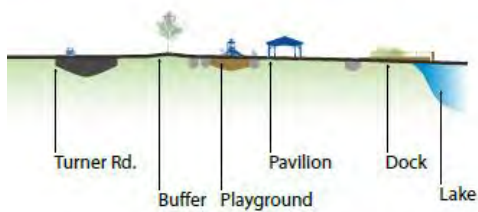
- Preserve and enhance natural features, including delineated wetlands and mixed Douglas Fir and hardwood forests on the eastern portion of the site.
- Develop a system of both hard surface paths and soft surface trails to access natural areas and provide ADA accessibility to major park amenities.
- Provide a diversity of unique park amenities that are inclusive to all ages and abilities.
- Ensure community access to the park through trails and bike paths that connect directly to existing neighborhoods and transportation infrastructure.
- Develop safe and ADA approved access for public water activities (fishing, non-motorized boat access, swimming).



Final Design Concept



Final Design Cross Sections



CRAWFORD CROSSING PARK SECTIONS

100'

Recommended Site Amenities

Parking – Two parking lots with a total of 60 possible parking spaces are proposed within the park. The main parking lot will accommodate up to 50 vehicles and provide access to the more highly programmed west side of the park including playground area, picnic pavilion, dog park, trails and lake access. The parking lot would be accessed from the entrance at the junction of Holly Street and 2nd Street. A second parking lot (10 spaces) is proposed to access wetland and forested trails at the southeast corner of the park.



Paths and Trails – As the most desired amenity for the new park, more than two miles of trails are proposed. Three different types of paths and trails are recommended, including soft surface hiking trails, five-foot wide concrete walking paths, and 12-foot wide concrete or asphalt multi-use paths. The more highly programmed west side of the park will be entirely ADA accessible with hard surface paths connecting all of the primary amenities. The less developed east side of the park, including wetlands, lakeside views and forested hillside will all be accessed by way of soft surface hiking trails. Interpretive signage should be provided along a wetland trail loop to add educational opportunities and raise public awareness about the ecology and

conservation efforts within the park. A 20-foot fire access road is currently required by the Crawford Crossing Development on the east side of the park. Permeable paver systems (resources included in Appendix C) should be investigated in order to create a 12-foot hard surface path with 4-foot vegetated paver shoulders to maintain the required 20-foot fire access.



Lake Boardwalk – A boardwalk is proposed as a part of the trail system on the southeastern portion of the park. The boardwalk would serve as an interactive feature with visitors elevated over a portion of the lake. Seating benches, interpretive signage, and ADA-compliant fishing access could be integrated into the boardwalk design.



Dock to provide access for fishing, swimming, and boat access –

There is strong local interest in lake activities, including fishing, swimming, and non-motorized boat access. In order to increase lake access and minimize disturbance to the lake’s fringe wetlands, a floating dock is proposed on the southwest side of the lake near the main parking area. At least one ADA compliant fishing platform should be considered along the southwest side of the park.

Playground – Input gathered from the community survey and various workshops suggest interest in a nature-play themed playground. This may be an area where local resources (boulders, timber, etc.) and local artistic talent can assist with design and construction phases. A combination of traditional and nature-based play structures can accommodate a wide range of ages and abilities and should be considered to create ADA access.



Preferred playground aesthetic (from survey)

Source: <http://www.play-scapes.com/play-design/natural-playgrounds/westmoreland-nature-play-area-portland-oregon-2014/>

Site Furnishings – Site furnishings include picnic tables, benches, trash receptacles, bicycle racks, BBQs, and drinking fountains. Bicycle racks should be located near park entrances and major features to encourage non-motorized transportation to the park. Benches and picnic tables should be scattered throughout the park, individually or in small groupings to provide a diverse array of settings for picnicking, socializing, or resting. Trash receptacles and drinking fountains should

be located near park access points, central locations, and areas of concentrated uses. Trash receptacles should be located for easy access by park maintenance staff.

Site Lighting – Lighting should be placed within the park to enhance security and safety. All parking lots and hard surface path areas should be lighted for security.

Picnic Pavilion – A 40-foot by 32-foot covered picnic pavilion is recommended near the playground area on the west side of the park. The pavilion should be located in close proximity to the restrooms and parking lot. The facility will have electricity and lighting and should be available for group rentals for a fee.



Preferred picnic pavilion aesthetic (from survey)

Source: <http://www.plantcitygov.com/770/Pavilion-Rentals>

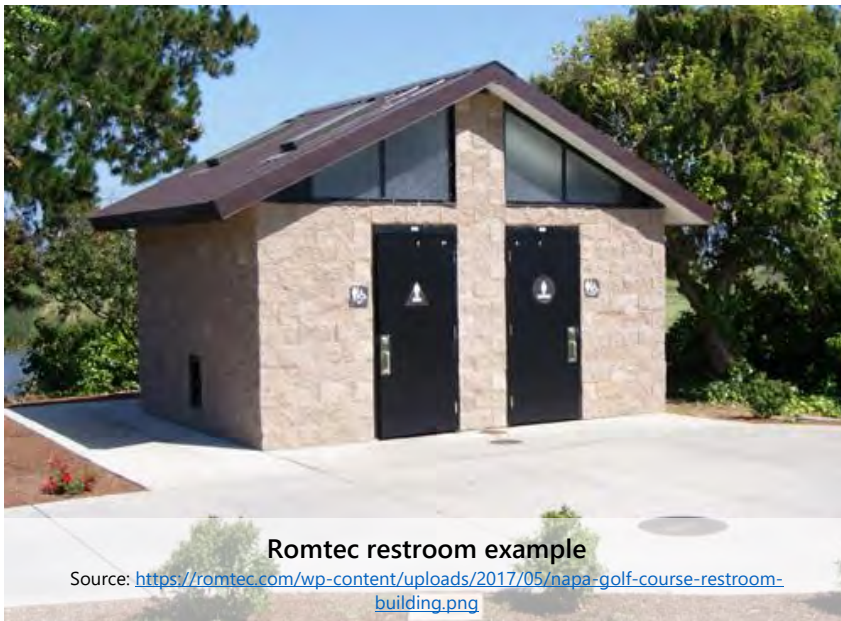
Dog Park – A one acre fenced dog park is proposed on the west side of the park. A new dog park should have entrances at both the north and south ends of the fenced area to accommodate use from the main parking lot as well as for residents in the new Crawford Crossing development. Amenities in the dog park should include doggie clean-up station, water spigot, shaded seating benches, and a maintenance entrance.



Dog park example

Source: <http://www.visitbuckscounty.com/listing/bucks-county-off-leash-dog-park-core-creek-park/3110/>

Restrooms – A two-room conventional restroom is recommended to be located at the north end of the main parking lot. The restroom design could include additional space for needed maintenance equipment and supplies.



Romtec restroom example

Source: <https://romtec.com/wp-content/uploads/2017/05/napa-golf-course-restroom-building.png>

Maintenance Supply Storage – Due to the large size of the park, it is recommended that an additional storage area be located in the park for maintenance equipment. Either the restroom or covered picnic pavilion could be designed to provide additional storage space.

Section 5: Developing Crawford Crossing

The development of Crawford Crossing will likely take many years – even decades – depending on funding availability and the capacity of the community to rally around the effort. We suggest a phased approach to park development so that residents can see some immediate improvements and begin using the space in the very near future. In this section, we propose phasing and provide cost estimates for the various recommended park elements. We also include a brief description of funding strategies for park development and park maintenance. These suggestions are based on a scan of financing strategies that other cities in Oregon similar to Turner are using to support their parks. The City and its partners can use the phasing, cost estimates, and financing strategy information as resources for making Crawford Crossing a reality.

Phasing and Development Cost Estimates

The proposed phasing for Crawford Crossing Park focuses on creating access to the parks core infrastructure, followed by the addition of a robust trail system and other amenities as funding becomes available. Phasing takes into consideration the community’s desire for specific park features as well as maintenance needs and the potential for developing sustainable community volunteer groups and partnerships.

With initial grants or other funding for park start-up and infrastructure, the major active area on the west side of the park should be developed in Phase I to include parking, primary hard surface paths, restrooms, and other amenities to draw the local community. Future lake access may also need to be assessed as Phase I is initiated. Phase II should focus on developing the trails system on the east side of the park as well as constructing some of the other features that will be unique to this park (such as the interpretive trail system). As park use increases, Phase III would add a small parking lot and picnic pavilion in the

southeast portion of the park. Below, we list the major features of each of the three phases along with an approximate cost estimate for each phase. Note that these estimates are for planning purposes only. As the most costly phase, Phase I may need to be broken into several “sub-phases” that are more manageable. Park development will ultimately depend on availability of funding, long-term maintenance strategies, and continued assessment of the public’s desires for the park.

Phase I – Access and Active West Side

Key Features: west main parking lot, large pavilion, playground area, restrooms, initial water access, and major hard surface paths to provide ADA access to amenities.

Phase I Cost Estimates

	Program Element	Quantity	Unit	Cost/Unit	Total	
Phase I	Access and active west side					
	<i>Site Utilities</i>					
		Electrical Service	1	LS	\$ 15,000.00	\$ 15,000.00
		Lights (Parking Lots)	8	Each	\$ 2,500.00	\$ 20,000.00
		Lights (Paths)	22	Each	\$ 1,500.00	\$ 33,000.00
		Sewer	350	In. ft.	\$ 50.00	\$ 17,500.00
		Water service (meter)	1	Each	\$ 5,000.00	\$ 5,000.00
		<i>Earthwork</i>				
		Bermed areas (fill soil)	1794	Cu. Yd.	\$ 10.00	\$ 17,940.00
		<i>Parking</i>				
		West Main Lot - Parking cost per space	46	1 space	\$ 1,692.50	\$ 77,855.00
		<i>Playground Area</i>				
		Play Equipment (nature play theme)	1	Each	\$ 50,000.00	\$ 50,000.00
		Bark chip surfacing	185	Cu. Yd.	\$ 25.00	\$ 4,625.00
		<i>Restrooms</i>				
		restroom with utility room	1	Each	\$ 90,000.00	\$ 90,000.00
		<i>Pavilions</i>				
		40' x 32' picnic pavilion	1	Each	\$ 100,000.00	\$ 100,000.00

	Program Element	Quantity	Unit	Cost/Unit	Total
Phase I	Site Amenities				
	Picnic tables	8	Each	\$ 1,500.00	\$ 12,000.00
	BBQ grills	5	Each	\$ 150.00	\$ 750.00
	Seating benches (6' ADA)	4	Each	\$ 2,000.00	\$ 8,000.00
	Drinking fountain	1	Each	\$ 4,000.00	\$ 4,000.00
	Bike racks	1	Each	\$ 1,200.00	\$ 1,200.00
	Garbage can	3	Each	\$ 500.00	\$ 1,500.00
	Removable Bollards (on fire access road)	2	Each	\$ 500.00	\$ 1,000.00
	Entry sign	1	Each	\$ 3,000.00	\$ 3,000.00
	Park rules/safety signage	4	Each	\$ 500.00	\$ 2,000.00
	Water Access				
	30' x 10' Floating Dock (ADA accessible)	1	Each	\$ 80,000.00	\$ 80,000.00
	Paths				
	4' hard surface paths (4" concrete)	1,000	Sq. Ft.	\$ 7.50	\$ 7,500.00
	6' hard surface paths (4" concrete)	10,900	Sq. Ft.	\$ 7.50	\$ 81,750.00
	Vegetation				
	Topsoil @ new lawn areas 12"	700	Cu. Yd.	\$ 25.00	\$ 17,500.00
	Fine grading for lawn	19000	Sq. Ft.	\$ 0.25	\$ 4,750.00
	Compost (for trees)	22	Cu. Yd.	\$ 35.00	\$ 770.00
	Seeded Lawn	19000	Sq. Ft.	\$ 0.15	\$ 2,850.00
	Trees (2" caliper)	44	Each	\$ 250.00	\$ 11,000.00
	Planting beds (Soil prep, fertilizers, plant materials, mulch)	5000	Sq. Ft.	\$ 6.50	\$ 32,500.00
	Upland Savannah seed for disturbed areas	180000	Sq. Ft.	\$ 0.10	\$ 18,000.00
	Restoration/native plantings	25000	Sq. Ft.	\$ 3.00	\$ 75,000.00
	Irrigation				
	Lawn area	19000	Sq. Ft.	\$ 0.50	\$ 9,500.00
	Planting beds	5000	Sq. Ft.	\$ 0.50	\$ 2,500.00
	Phase I Total				\$ 807,990.00

Phase II – Trails, Trails, Trails, and More

Key Features: east side hiking trails, wetland restoration and wetland interpretive trail, more playground equipment, and more site amenities.

	Program Element	Quantity	Unit	Cost/Unit	Total
Phase II	Trails, trails, trails and more				
	Trails				
	Soft surface trails (crushed gravel)	17,800	Sq. Ft.	\$ 3.00	\$ 53,400.00
	Playground Area				
	Traditional Play Equipment	1	Each	\$ 50,000.00	\$ 50,000.00
	Site Amenities				
	Bike racks	1	Each	\$ 1,200.00	\$ 1,200.00
	Park rules/safety signage	4	Each	\$ 500.00	\$ 2,000.00
	Vegetation				
	Trees (2" caliper)	16	Each	\$ 250.00	\$ 4,000.00
	Restoration/native plantings		Sq. Ft.	\$ 3.00	
	Phase II Total				\$ 110,600.00

Phase III – Expanded Southeast Access

Key Features: southeast parking lot, small pavilion, lake boardwalk, ADA accessible fishing dock, dog park.

Program Element	Quantity	Unit	Cost/Unit	Total
Phase III Expanded southeast access				
Parking				
Southeast lot	10	1 space	\$ 1,692.50	\$ 16,925.00
Pavilions				
16' x 12' picnic pavilion	1	Each	\$ 30,000.00	\$ 30,000.00
Water Access				
ADA accessible fishing dock	1	Each	\$ 35,000.00	\$ 35,000.00
Site Amenities				
Picnic tables	2	Each	\$ 1,500.00	\$ 3,000.00
Seating benches (6' ADA)	4	Each	\$ 2,000.00	\$ 8,000.00
Garbage can	2	Each	\$ 500.00	\$ 1,000.00
Dog Park				
Fence	835	ln. ft.	\$ 20.00	\$ 16,700.00
Gates	2	Each	\$ 1,500.00	\$ 3,000.00
Benches	2	Each	\$ 2,000.00	\$ 4,000.00
Water spigot				\$ -
Signage/pick-up station	1	Each	\$ 250.00	\$ 250.00
Paths				
150' Lake boardwalk	150	ln. ft.	\$ 250.00	\$ 37,500.00
Phase III Total				\$ 155,375.00

Combined Phases – Total Cost Estimates

For planning purposes only, we estimate the total cost of developing Crawford Crossing will be around \$1.3 million. As park development continues, the City will have to obtain more accurate cost estimates from contractors for each project.

Phase I Total	\$ 807,990.00
Phase II Total	\$ 110,600.00
Phase III Total	\$ 155,375.00
SUBTOTAL	\$ 1,073,965.00
<i>Add 10% Design/Engineering</i>	<i>\$ 107,396.50</i>
<i>Add 15% Contingency</i>	<i>\$ 161,094.75</i>
<i>Add 2% Fees</i>	<i>\$ 21,479.30</i>
TOTAL	\$ 1,363,935.55

Ongoing Maintenance

With an additional 40 acres of developed and natural area park land, Turner park's system will experience a significant increase in maintenance costs. The new Crawford Crossing Park will consist of approximately three to five acres of developed park and 35 acres of natural area (undeveloped park). According to Tualatin's Park and Recreation District, between 2012 and 2016, the average annual maintenance costs were \$2,908 per developed acre and \$249 per undeveloped acre.

Developed Areas – The park's developed acres will require routine maintenance to keep the park in good working order. This includes regular mowing and weed management, cleaning of restrooms, and minor ongoing upkeep and repairs to structures, site furnishings, paths, signage, and other amenities.

Undeveloped Areas – In order to maintain healthy ecological systems within the park, natural areas should be both stabilized and incrementally improved. Maintenance and restoration regimes in natural areas will include: invasive species control, trail maintenance,

tree falling and removal, reseeding and planting, and potentially developing monitoring reports on species inventory and health.

Volunteers and partnerships will likely become a core strategy for managing upkeep of both developed and undeveloped park areas. Appendix D contains more detailed information about how other Oregon cities have leveraged community members, organizations, and businesses to assist with park maintenance.

Financing Strategies

The Turner Parks Master Plan discusses a wide range of funding tools available to cities for the development and maintenance of parks. To gather more specific detail about how cities in Oregon approach funding parks like Crawford Crossing, or park features similar to those proposed for Crawford Crossing, the CSC team interviewed representatives from six cities and parks districts across the state. Details of these interviews can be found in Appendix D: Financing Resources. In the following two sections, we summarize typical strategies used by the cities and districts we interviewed. The City of Turner can use these ideas for inspiration as staff begin to assemble a funding package for the park.

Financing Park Development

Financing strategies for parks development can include grants from government or nonprofit entities as well as partnerships with organizations to provide sponsorship or donate labor for capital improvements. The Oregon Parks and Recreation Department's (OPRD) grants program are the most abundant source of funding for parks development available statewide, and many of the communities we contacted reported having received one or more grants from OPRD for their most recent park developments.

Fundraising was also a popular strategy for funding capital improvements in parks. Fundraising can be a collaborative effort between local government and community partners such as local businesses and school districts, and has the potential to build

community support for parks. In many instances, communities were able to generate sustained sponsorship for maintenance along with actual money gathered during fundraisers. Examples of fundraisers discussed during interviews include sporting events such as triathlons and paddleboard races, community festivals and beer tastings, and smaller scale events like monthly bingo nights.

To complement funds raised for park development, many communities also rely on volunteer support or student projects to actually install new park features. Volunteers supervised by professionals can perform much of the labor involved with park construction, and students are often looking for community service or applied learning projects. In Mt. Angel, for example, students will be welding and installing signs for a heritage trail as part of their course work. For full case studies see Appendix D: Financing Resources.

Resources

- **Oregon Parks and Recreation Department: Local Government Grants:** OPRD awards \$4 million annually to communities for outdoor recreation projects, including parks development. Match criteria is 20% for communities with a population of 5,000 or less.

Website for all OPRD grants:

<https://www.oregon.gov/oprd/GRANTS/>

- **Oregon Parks and Recreation Department: Regional Trail Grants:** Available for hiking, biking, running and multi-use trail development. Matching criteria requires applicants (city) provide at least 20% of project total cost, which may include cash, materials, volunteer labor, other grants, etc.

Contact: Mike Law: 503-986-0592

- **The Ford Family Foundation: Community Spaces Grants:** Grants are focused on enhancing community participation and created physical spaces that are open to the public. Eligible projects include parks and playgrounds, with a limit of up to

\$25,000. Priority given to communities with populations of less than 35,000 and projects with demonstrated evidence of community investment and project sustainability.

Website: <http://www.tfff.org/what-we-do/vital-rural-communities/community-and-economic-development/rural-capital-projects>

- **Oregon Department of Fish and Wildlife: Restoration and Enhancement Grants:** Funds projects that increase public fishing access, including construction of docks.

Contact: R&E Program Coordinator: 503-947-6232

Website: <http://www.dfw.state.or.us/fish/RE/>

- **Oregon Community Foundation Grants:** Fund a wide variety of projects and activities through public organizations, including those which enhance community livability, healthy lifestyle behaviors, and outdoor stewardship. Park developments are not typical award recipients, but OCF has funded parks projects in the past.

Website: <http://www.oregoncf.org/grants-scholarships/grants/community-grants>

- **Salem Area Trails Alliance:** Work with public and private partners to develop and sustain trails in the Salem area and promote access to healthy, active recreation.

Website: <http://www.salemtrails.org/>

- **Trail Keepers of Oregon:** Support trail building projects throughout the state and organize volunteer maintenance.

Website: <http://www.trailkeepersoforegon.org/>

Financing Park Maintenance

All communities interviewed reported that long-term financing strategies for maintenance is a constant challenge. Many cities have

decided not to build new parks, even though they have sufficient funding for park development, because they don't feel they can cover the maintenance costs these new parks would create.

Although the cities spoken with expressed the difficulty of ensuring long term maintenance on a lean city budget, they offered some creative solutions to keep costs as low as possible. Many of the communities reported using volunteer labor for some maintenance tasks, although lack of continuity can be an issue. A park in Hood River has a unique "adopt-a-plot" strategy which allows businesses or individuals to volunteer to weed and maintain parcels of the park's landscaping. Community groups, religious organizations, and students may also be sources of routine or one-time maintenance projects. Other sources of maintenance funding include utility bill fees, facility rentals, day-use fees, and park adjacent camping or RV sites. For full case studies see Appendix D: Financing Resources.

Resources

- **Oregon Parks and Recreation: Local Government Grants:** Grants also eligible for periodic repairing, restoring or reconstructing on normal wear and tear of facilities.
- **Salem Area Trails Alliance:** Work with public and private partners to develop and sustain trails in the Salem area and promote access to healthy, active recreation.

Website: <http://www.salemtrails.org/>

- **Trail Keepers of Oregon:** Support trail building projects throughout the state and organize volunteer maintenance.

Website: <http://www.trailkeepersoforegon.org/>

Appendix A: Three Preliminary Designs

Design Concept 1: Nature Exploration



Design Concept 2: Lakeside Recreation



Design Concept 3: Regional Attraction



Appendix B: Community Engagement – Process and Results

To ensure the concept plan for Crawford Crossing Park responded to community desires, the CSC planning team gathered input from residents in a variety of ways:

- Stakeholder interviews
- An “open house” discussion at the Turnaround Café
- A survey conducted by Cascade High School AVID students
- An online community survey
- A booth for feedback on the final park design at the Turner Celebration¹

These activities occurred between November 2016 and June 2017. The comments gathered through these activities and the preferences expressed on through the survey have been incorporated into the final design concept. Here, we summarize key themes from the stakeholder interviews and the online community survey.

Stakeholder Interviews

In the fall of 2017, the City of Turner’s RARE AmeriCorps participant reached out to 7 community members to ask them about important issues to consider when developing the park design. Each stakeholder answered the following questions:

1. **Can you first tell us a little bit about yourself and your history and involvement in the Turner community?** i.e. How long have you lived there, what part of town do you live in, what do you do for a living/how are you involved in your community?
2. **Briefly, what do you see as the strengths and weaknesses of the Turner park system as a whole?**
3. **Opportunities – Crawford Lake Park: How might the development of the Crawford Lake Park strengthen Turner’s park system?** What amenities would you like to see it provide? How do you think the community would like to use this space?
4. **Challenges – Crawford Lake Park: What potential issues do you foresee as the City begins to develop Crawford Lake Park?** Are there any questions we should be asking now? Are there any specific concerns we should be researching?
5. **Is there anything else you would like to add?**

While each respondent contributed unique insight about the future park, a few main ideas arose from the conversations:

- **Strengths of Turner’s Park System**
 - Fifth Street Park is a well-used and appreciated amenity, especially because of the water access, the trees, and the open space.
 - Parks are mostly accessible and have nice playgrounds.
 - Parking is generally viewed as adequate at existing parks.

¹ This activity also included a craft activity for children and families. Participants created concrete mosaic-decorated stepping stones that will be installed at the new park as soon as development begins. These decorative items will serve as a reminder that the park is a community effort.

- **Weaknesses of Turner’s Park System**
 - Maintenance issues: vandalism is a problem, lighting may not be adequate, and there may not be enough trash/recycling receptacles.
 - There are not enough “adult uses” in the parks (they are mostly geared towards children).
 - Some parks lack adequate shade and resting places.
 - One interviewee mentioned lack of parking as a concern.
- **Opportunities for Crawford Crossing**
 - Almost all interviewees mentioned a desire for walking and biking trails – there is a strong desire to use the park as a safe and enjoyable place to walk, run, and bike.
 - Many interviewees mentioned a desire for picnic areas, especially covered picnic areas.
 - Many interviewees wanted to have a play structure for children.
 - Many interviewees stressed the need to provide adequate bathroom and waste disposal facilities.
 - Many interviewees highlighted lake access as an important consideration for the park. These interviewees expressed interest in using the lake for fishing, boating, and swimming. One interviewee specifically mentioned that creating ADA accessible lake access would be important.
 - A few interviewees expressed interest in having a fenced dog park as part of Crawford Crossing.
 - Other ideas mentioned by at least one interviewee included: areas for nature observation, basketball courts, soccer field, place for kite flying, and resting areas/benches throughout the park. One interviewee commented that it would be nice to involve Turner Elementary students in fundraising for the new park.
- **Challenges/Issues to Consider for Crawford Crossing**
 - Lake safety/liability: generally, interviewees were concerned about this issue, but felt that the benefits of lake access outweighed the potential issues.
 - Many interviewees mentioned parking as an issue, but had mixed feeling about how big of an issue this would be. Some pointed out that the park will be easily accessible on foot, others said they wanted to limit parking to keep traffic down, and others were concerned about having enough parking.
 - Maintenance: one interviewee stressed the need for a good maintenance plan. Others suggested that vandalism could be limited by providing good lighting, and keeping major amenities out in the open away from trees.
 - Other issues mentioned by at least one interviewee included: noise from the park disturbing the neighbors and the possibility of needing flood insurance.

Community Survey

The CSC team created a short online survey to gather input about preferences for park design and funding mechanisms from a broad range of potential park visitors. Residents of Turner and the surrounding area could take the survey between March 22, 2017 and April 19, 2017. The City of Turner disseminated the survey by posting a link on Facebook, including a link in the City Newsletter, and by sending the link to various email lists maintained by the City, with a request to forward the survey on to others who might be interested in providing feedback about the new park. In total, the survey received 228 full responses and 58 partial responses. Of these respondents:

- 98% were adults (18 or older)
- 76% were Turner residents
- 40% lived within at least a half mile of the park
- 64% had children (with the majority having 1-2 children)

Respondents skewed younger and wealthier: 61% were between the ages of 18 and 45, and 42% reported a household income of \$75,000 or more. This over-represents younger age groups, but roughly aligns with the income distribution of Turner residents: only about a third of Turner residents are 18-45 years old², but about 38% of Turner residents have a household income of \$75,000 or more³.

Since the survey was not administered using a random sample, the responses should not be considered directly representative of the views of residents of Turner and the surrounding area. However, it does provide valuable insight into the preferences of some residents who are likely to use the park (91% of respondents indicated they would visit the park at least a few times per year).

Here, we summarize the key themes evident in the survey responses, followed by a full report of the distribution of responses for each survey question.

Key Themes

Park Design and Use

Trails systems were one of the most important elements emphasized in park design and activities.

- 60% of respondents said they would like to use the park for hiking and walking (the only use option that more than 35% of respondents selected).
- Trails were the 3rd most popular park amenity (selected by 43% of respondents).
- Written comments in multiple categories also mentioned trails.
- Requests for trails were divided among different uses (through more respondents indicated walking/hiking than other uses). Respondents selected biking, walking, and running, with some write-in requests for horse riding trails.

A “natural” design and enjoyment of the outdoors were also important to survey respondents.

- Many of the park uses selected by respondents as activities they would most like to use the new park for were nature oriented: trails and hiking (60%), fishing (27%), enjoying nature/wildlife viewing (25%), swimming (22%), and boating (20%).
- Written comments emphasized desire for nature-oriented design and activities.
- Nature based amenities ranked highly on desired amenities: nature trails (43%), fishing dock (27%), and wetland boardwalk (25%).

Respondents’ desires for the park are more aligned with leisure and social uses than activity and sport based uses:

- Popular park amenities reflected a child and family friendly area and social uses: picnic tables (48%), playground equipment (40%), and covered pavilion (36%).
- Respondents were less interested in water-based amenities than the above mentioned “leisure and social use” amenities: only about a quarter of respondents or less selected fishing docks, wetland boardwalk, kayak docks, and beach as desired amenities.
- Sport-related amenities such as sports equipment rentals, sand volleyball court, and basketball ranked both low on list of desired facilities and high on list of undesired facilities.
- A dog park was popular across multiple questions and in write-in comments.

Although respondents indicated a desire for a natural park design and reported only moderate interest in water-based amenities, the “Nature Exploration” park design was less popular (30%) than the “Lakeside Recreation”

² US Census Bureau. 2011-2015 American Community Survey 5-year Estimates. Age and Sex, Table S0101.

³ US Census Bureau. 2011-2015 American Community Survey 5-year Estimates. Income in the Past 12 Months (in 2015 Inflation-Adjusted Dollars), Table S1901.

design (48%). Nevertheless, these two designs were more favored than the “Regional Attraction” design, which only 22% of respondents preferred. This suggests that the final design should work **combine a favorable balance of both nature amenities and lakeside recreation amenities.**

Finally, based on the heat maps produced for each of the three park designs, respondents across all three designs were likely to **show a preference for the design elements in the eastern arm of the park.** This suggests that this part of the park may see the heaviest use when the park is developed.

Park Funding

Respondents seem to understand the need to raise additional funds to pay for the new park.

- Only 15% of respondents said they would not support a fee of any kind to help pay for the new park.

Respondents indicated the most support for a monthly utilities bill fee.

- 42% of respondents supported a utility bill fee, higher than any other funding mechanism.
- A monthly utility bill fee was the only option that more respondents supported than opposed. 73% of respondents supported a utilities bill fee of at least \$1 per month. The \$1- to \$2-dollar range was the most popular amount proposed.

There are mixed sentiments about the use of a vehicle-entrance fee and a parks and recreation special taxing district.

- Vehicle entrance fee was the option that received the least support in individual questions (32% supported, 58% opposed) and yet, in the question which proposed choosing between all fee systems it was the second most popular option (37%).
- While a 40% of respondents supported a parks and recreation special taxing district in individual questions, only 26% supported it in the question which proposed choosing between all fee systems.
- The written comments expressed concerns that Turner residents will pay the most for the park while out of town users will be able to enjoy the benefits while not sharing the burden. The vehicle entrance fee was the only option proposed that would charge non-Turner residents in any way.

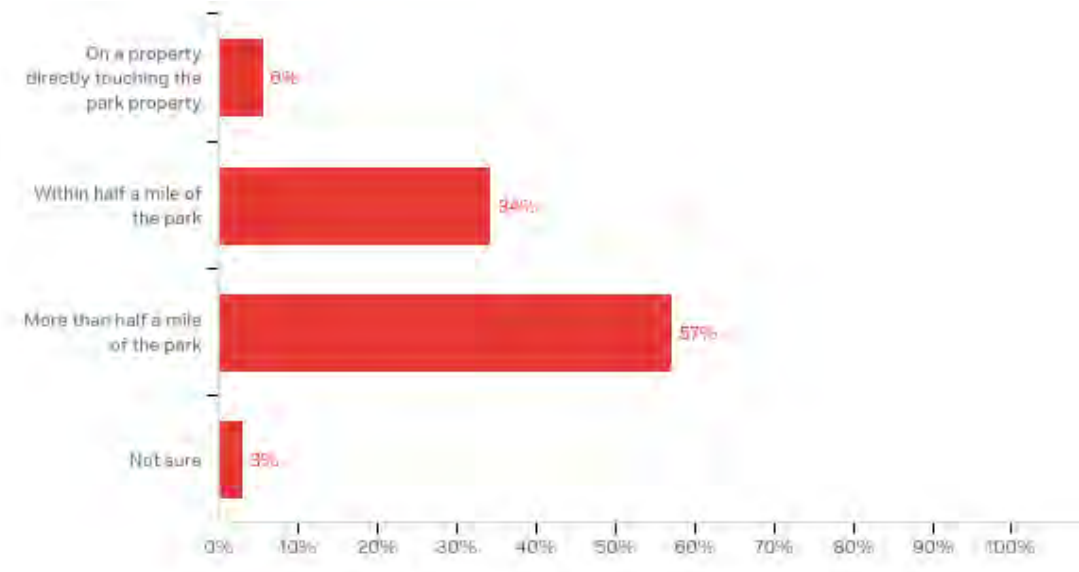
In addition to fee-based systems, respondents expressed the most support for holding special event fundraisers.

- Fundraisers and facility/boat rentals were more popular among respondents as funding mechanisms than selling food: more than half of respondents supported fundraisers and rentals, but only about a third supported food-based revenue-generators.
- Some written comments suggested that the park could find additional funding through sponsorships from area businesses/organizations.

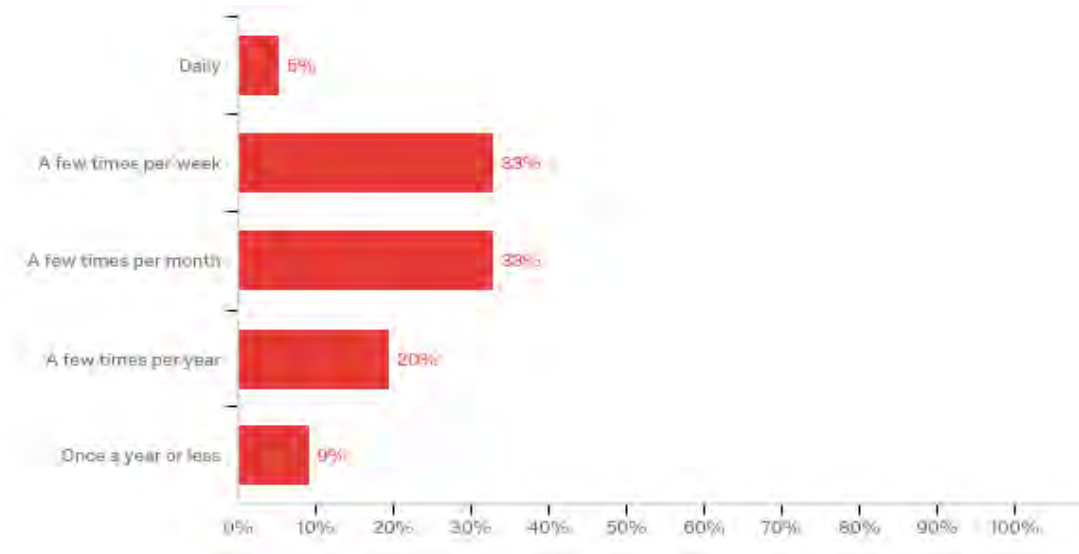
Survey Results

Part 1: Park Context and Overview

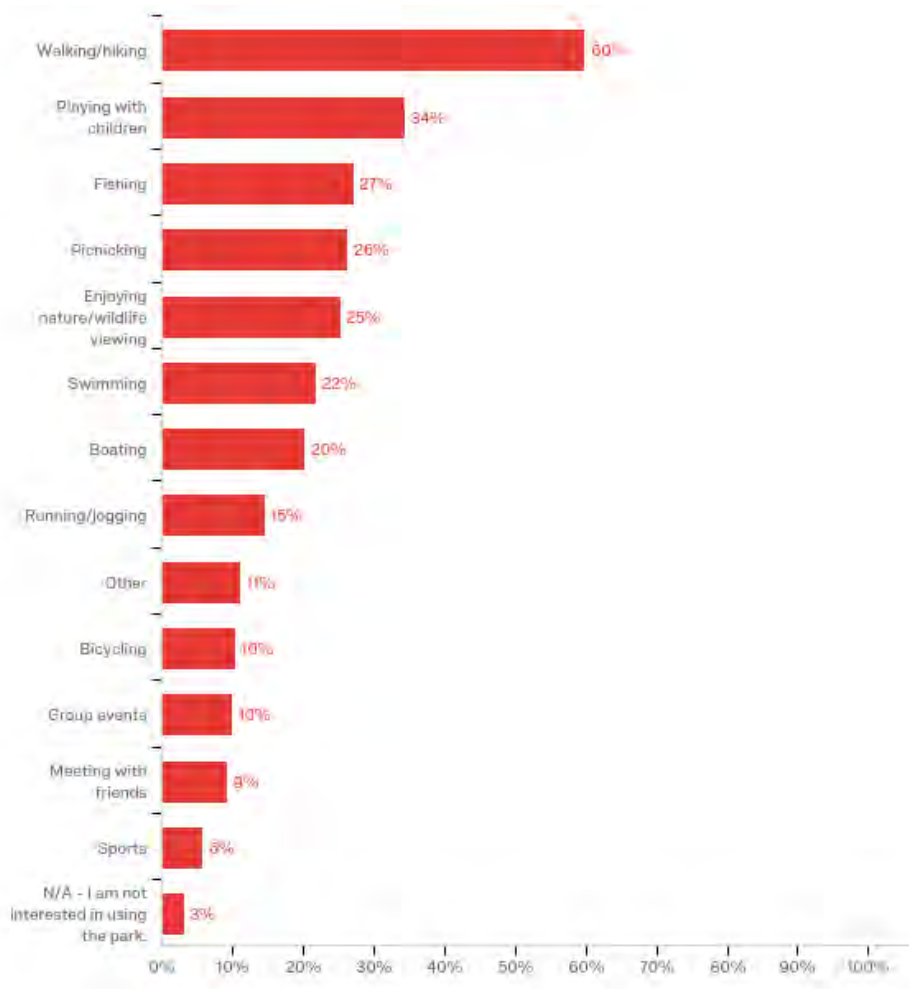
Q2. Where do you live in relation to the new Crawford Crossing Park? (n = 271)



Q3. How often do you think you will use the new park? (n=261)



Q4. What types of activities would you most like to use the new park for? Please select up to three (3). (n=262)

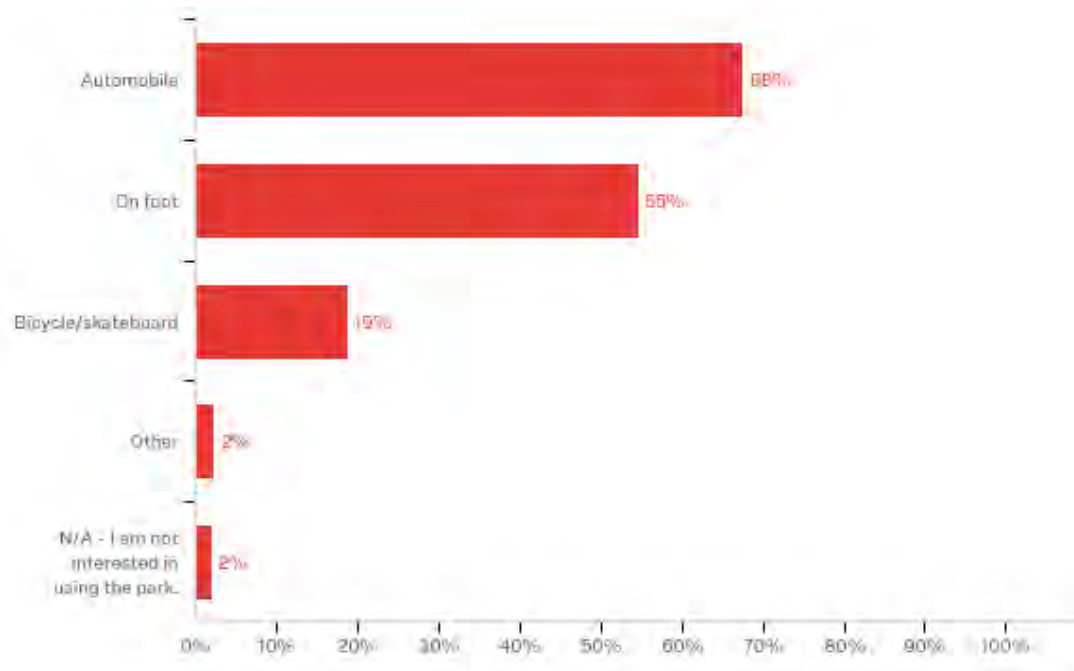


Of “Other” responses, the following were the most frequent written-in comments:

- Dog parks or lease-free areas (x15)
- Paddle boarding and other non-motorized boating (x5)

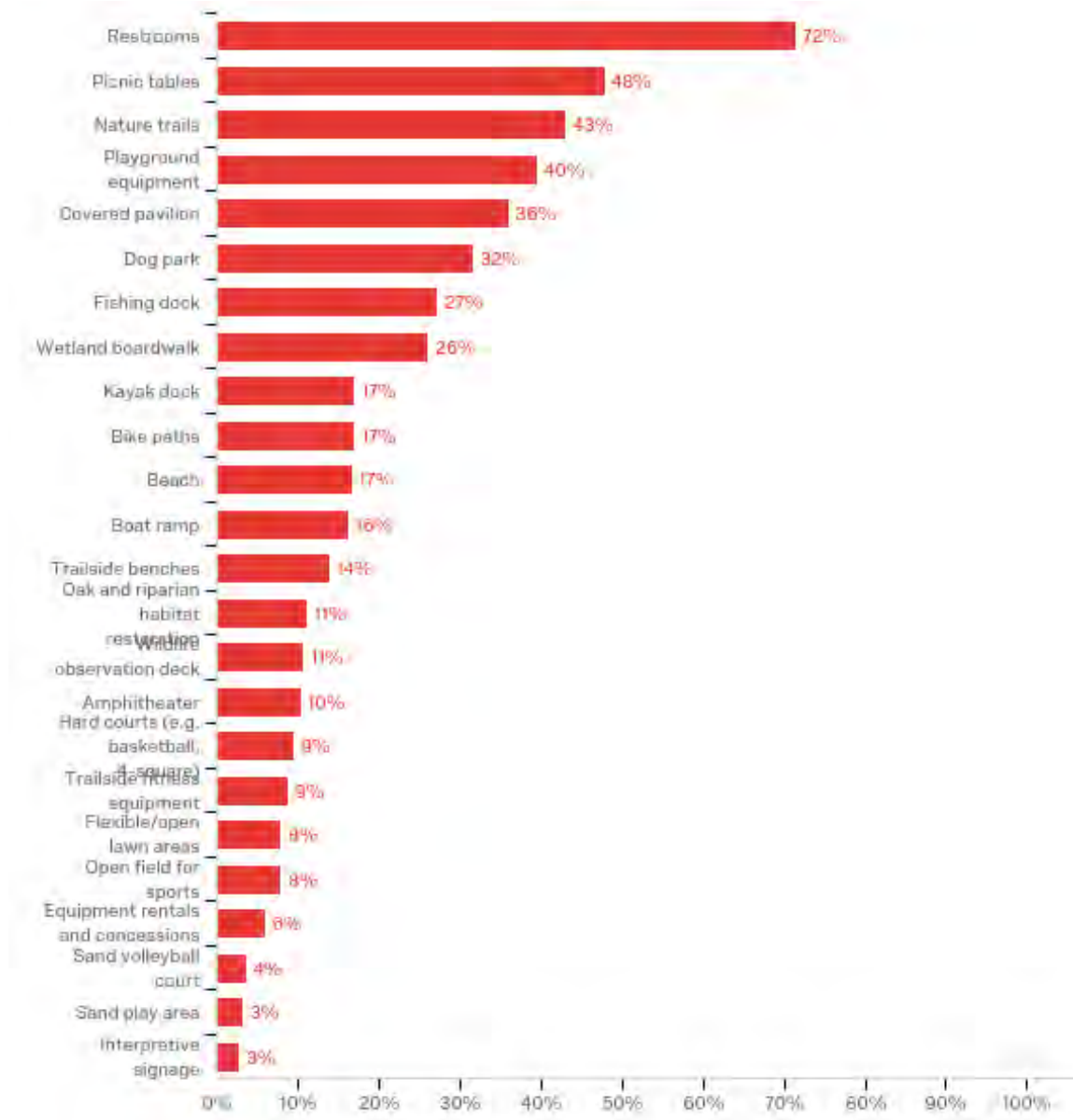
Other suggestions included: equestrian trails, disc golf, and skateboarding.

Q5. What type of transportation would you most likely use to access the park? Check all that apply. (n=262)



Part 2: Park Preferences

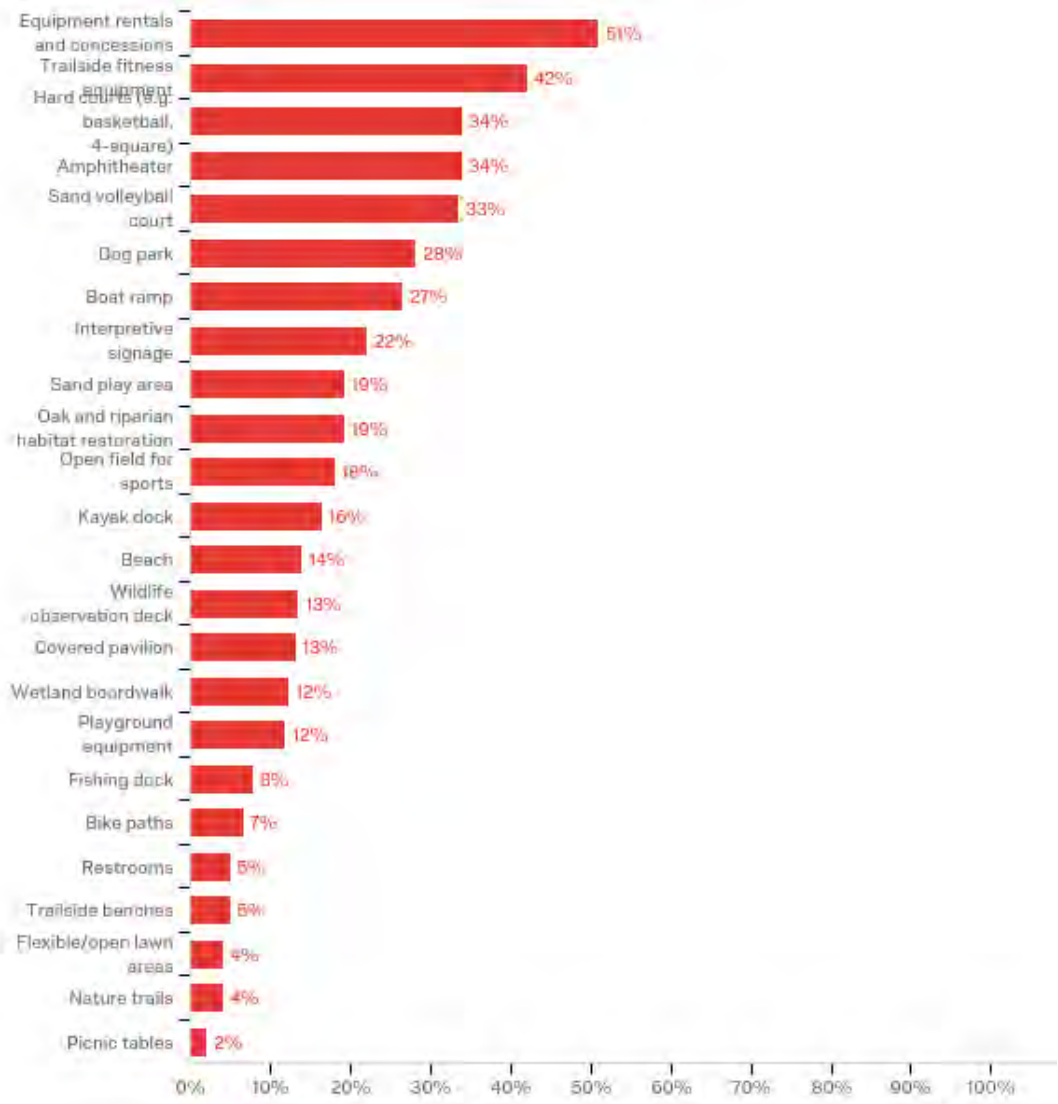
Q6. Please select five (5) specific site amenities that you would MOST like to see in the new Crawford Crossing Park. (n=253)



Q7. Are there additional amenities or park activities that you would like to see included in the final park design?

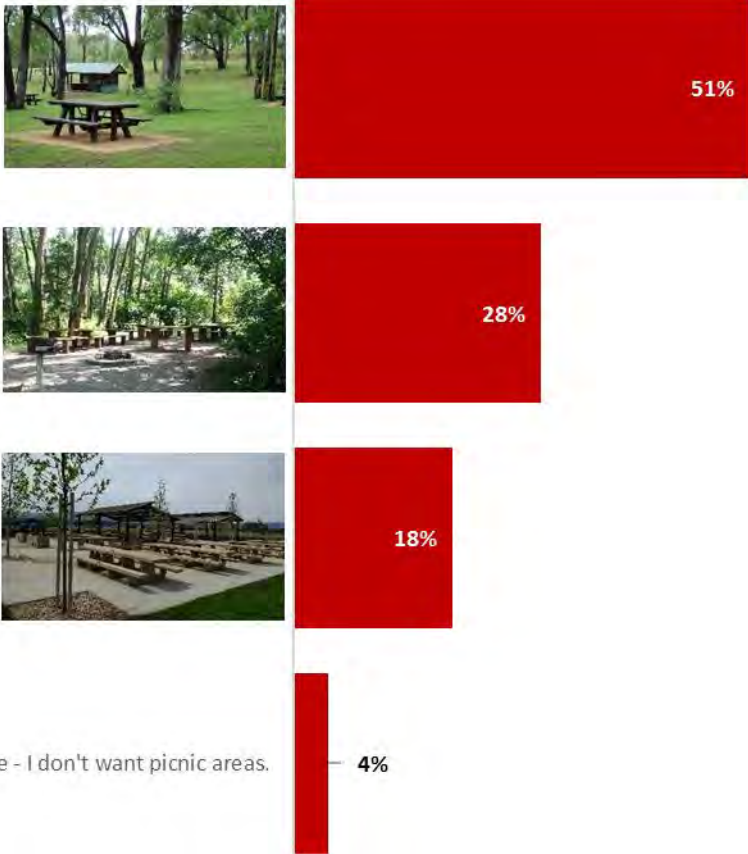
Responses to this question presented several core themes that are important to the survey respondents. Trail systems were the most numerous request (with twelve respondents), and include hopes of biking and running trails, horseback riding trails and trails that are accessible to the disabled and elderly. There was a strong emphasis on preserving the integrity of the natural environment, from adding nature observation decks to stocking the lake with fish. Facilities related to group activities and dining such as picnic tables, BBQs and water fountains were other high priorities. Sixty people provided written feedback for this question.

Q8. Please select five (5) specific site amenities that you would LEAST like to see in the new Crawford Crossing Park. (n=245)



Q9a. Of the following images, which one is closest to representing your ideal of a picnic area for the new park? (n=254)

9a. Picnic Area Preferences

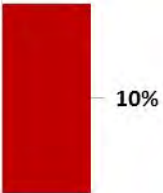


Q9b. Of the following images, which one is closest to representing your ideal of playgrounds for the new park? (n=252)

9b. Playground Preferences

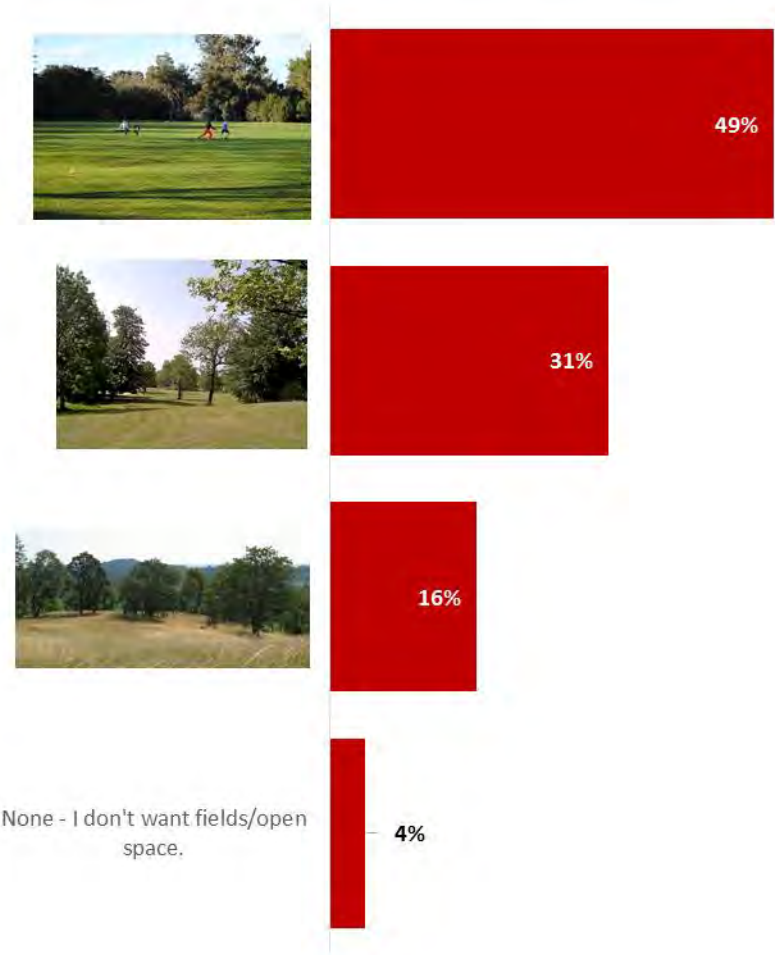


None - I don't want playgrounds.



Q9c. Of the following images, which one is closest to representing your ideal of fields/open space for the new park? (n=253)

9c. Fields/Open Space Preferences

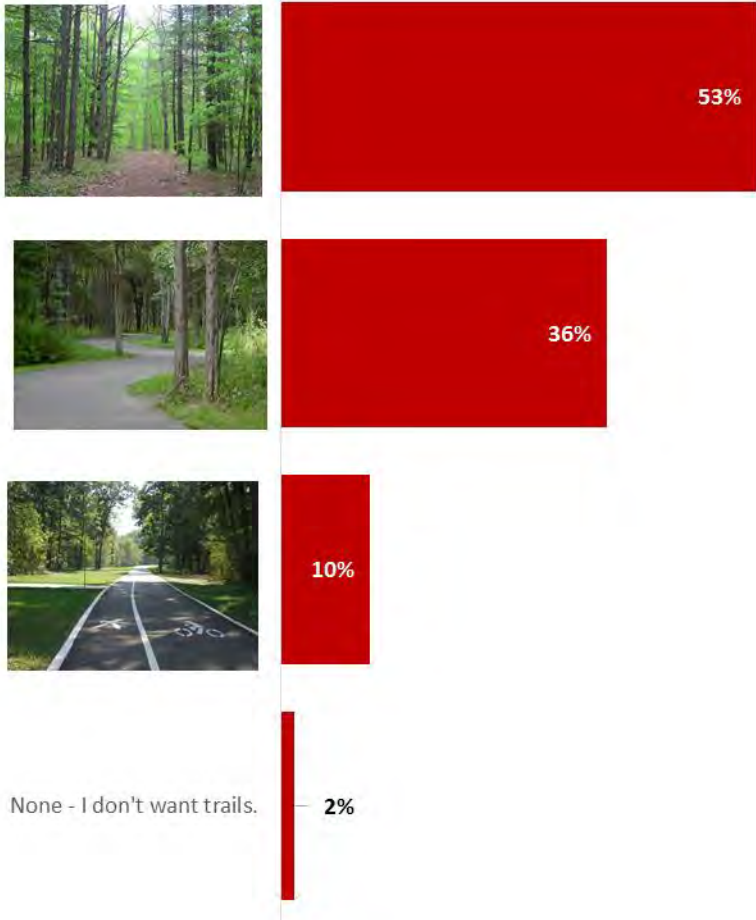


Q9d. Of the following images, which one is closest to representing your ideal of pavilions for the new park? (n=252)



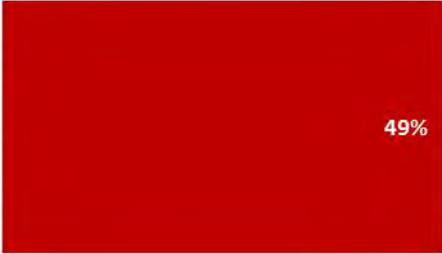
Q9e. Of the following images, which one is closest to representing your ideal of trails for the new park? (n=253)

9e. Trail Preferences

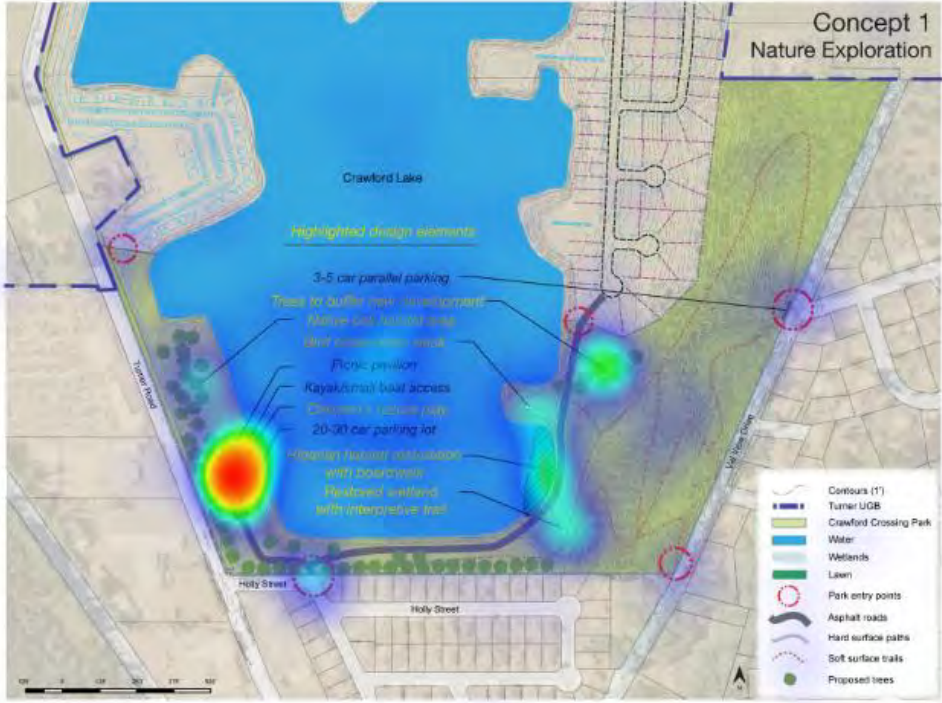


Q9f. Of the following images, which one is closest to representing your ideal of lake interface for the new park? (n=250)

9f. Lake Interface Preferences

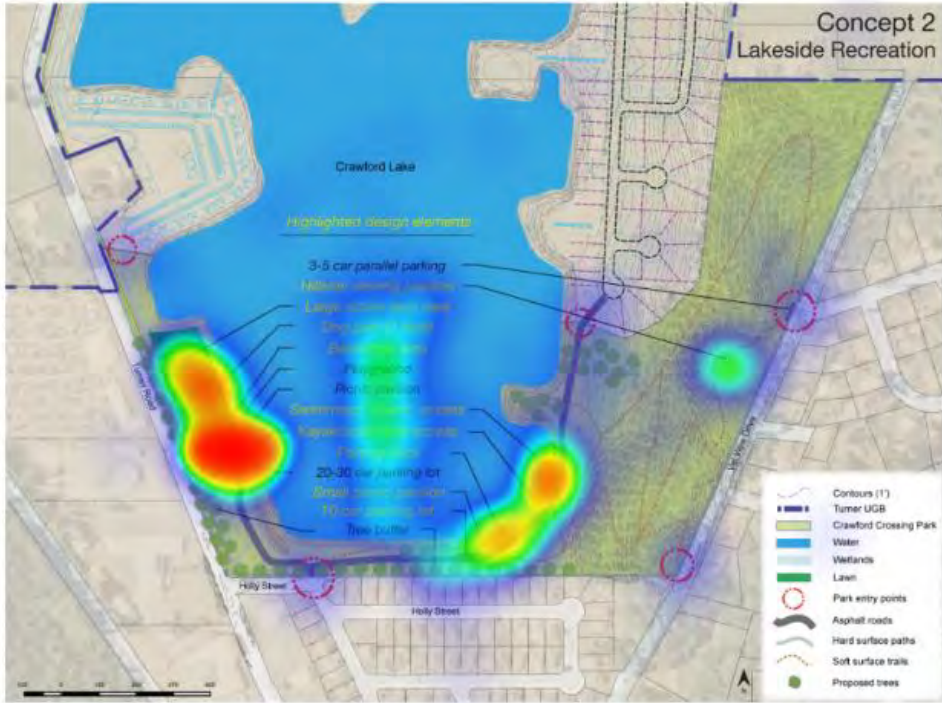


Q10. Design 1: Nature Exploration.



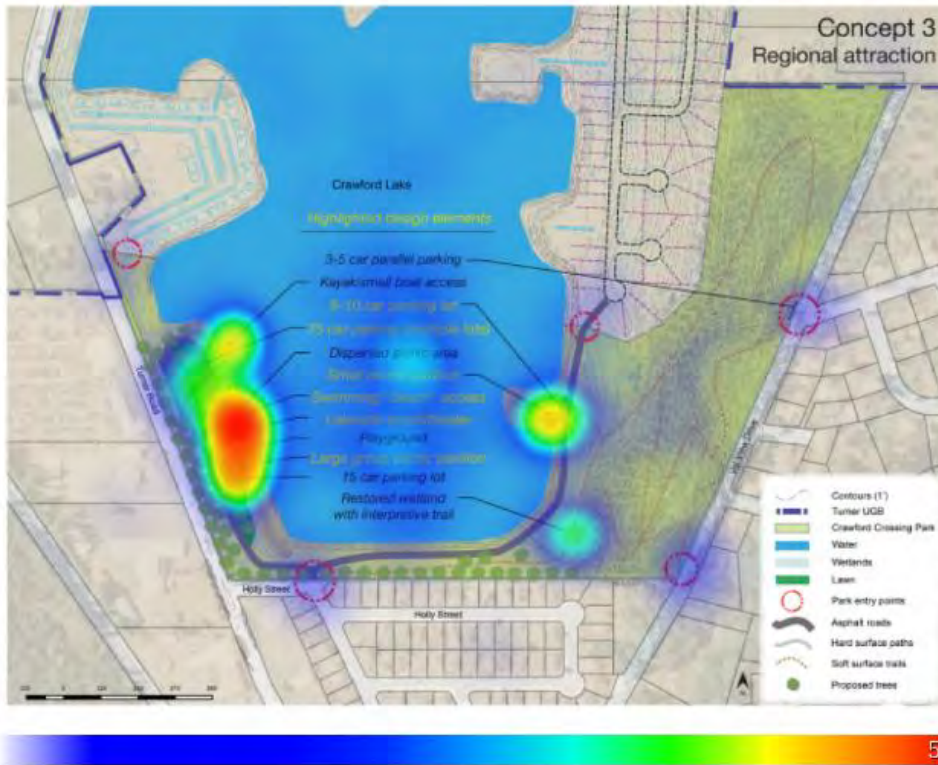
52

Q11. Design 2: Lakeside Recreation.

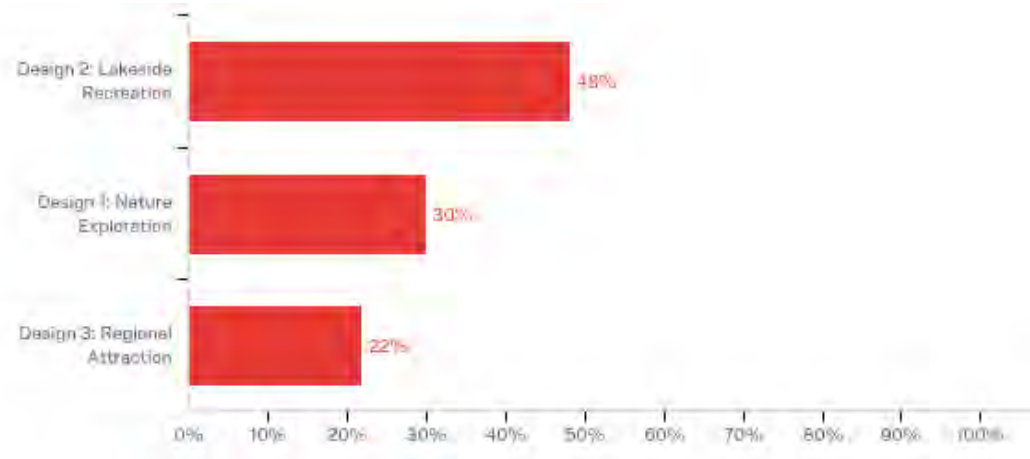


53

Q12. Design 3: Regional Attraction.



Q13. Of the three preliminary park designs, which one do you like the most? (n=224)

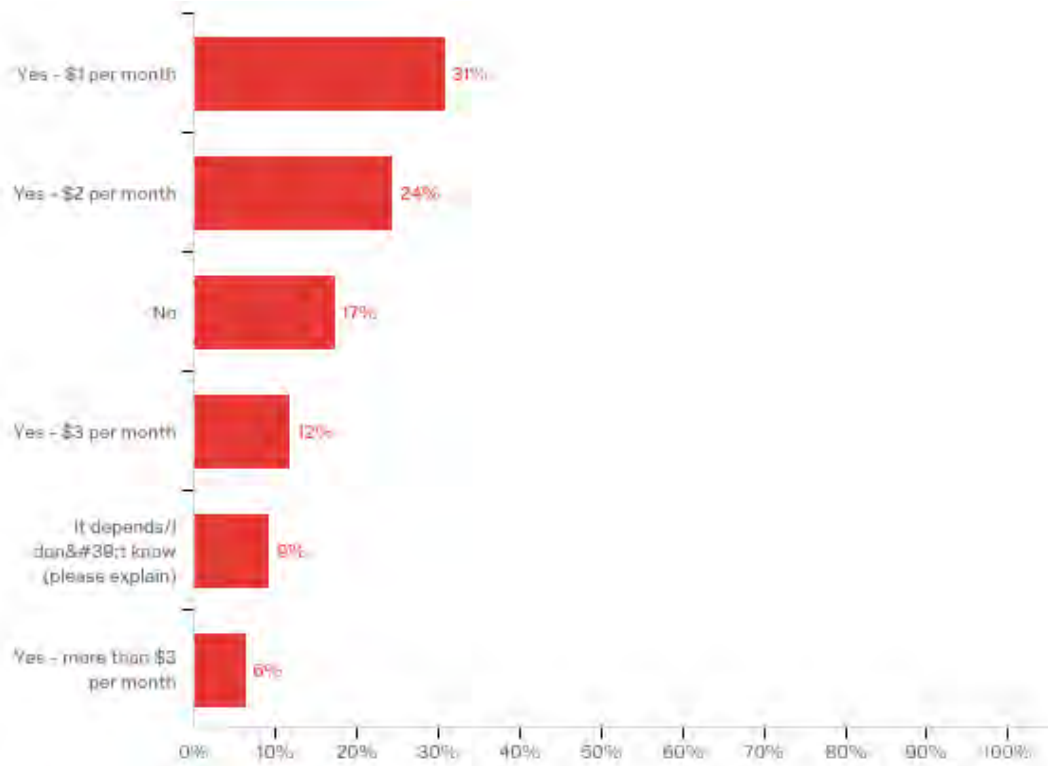


Q14. Please use the space below to tell us anything else you would like us to know about the design of the park or the amenities it might have.

The highest concentration of responses to this prompt dealt with the desire for pedestrian and bike trails to be more central to the design of the park as opposed to car based access (x13). In particular, many opposed the addition of a paved road connecting the housing development to the park and circling the lake. Respondents cited congestion and wish to maintain the “natural” feel of the area among their reasons. Water related suggestions were the second most numerous with ten responses, including desire for fishing areas and a splash pad for children too young to swim. A dog park, play structures, and well-maintained facilities such as restrooms were among other requests. Fifty-five respondents provided written feedback for this question.

Part 3: Paying for the Park

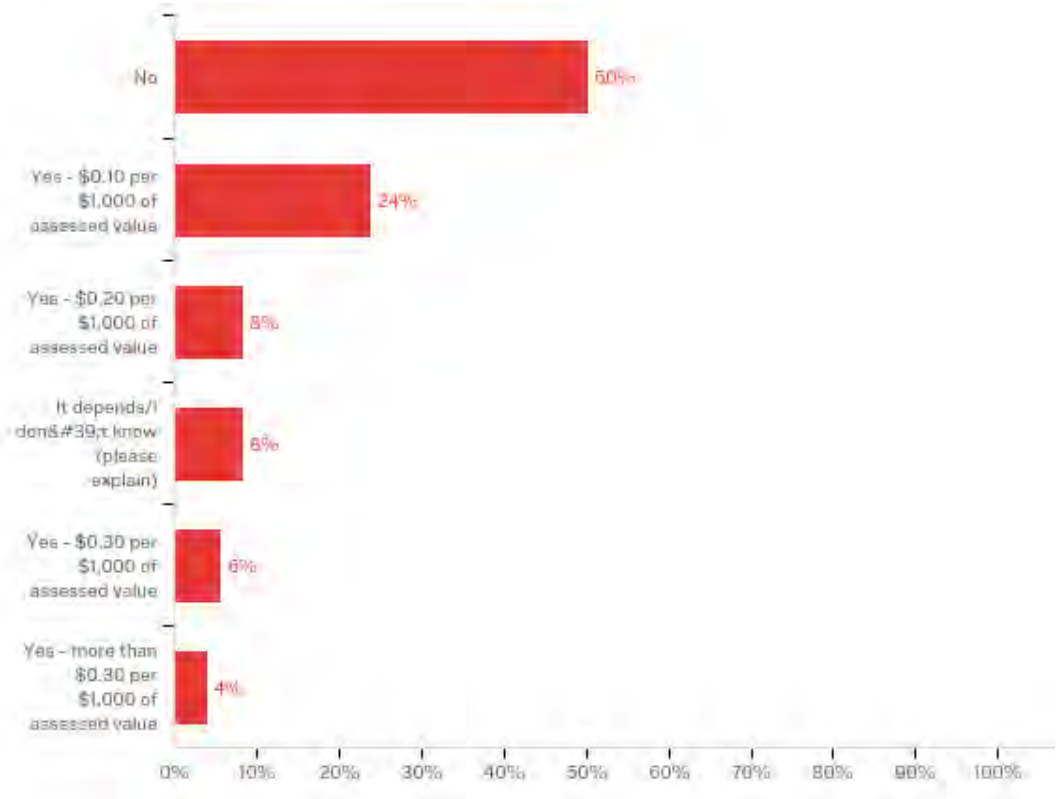
Q15. Would you support a new fee on your utility bill to help pay for the new Crawford Crossing Park?
(n=237)



Of “Other” responses, the following were the most frequent written-in comments:

- Need more information (x6)
- Depends on the quality or design of the park (x5)

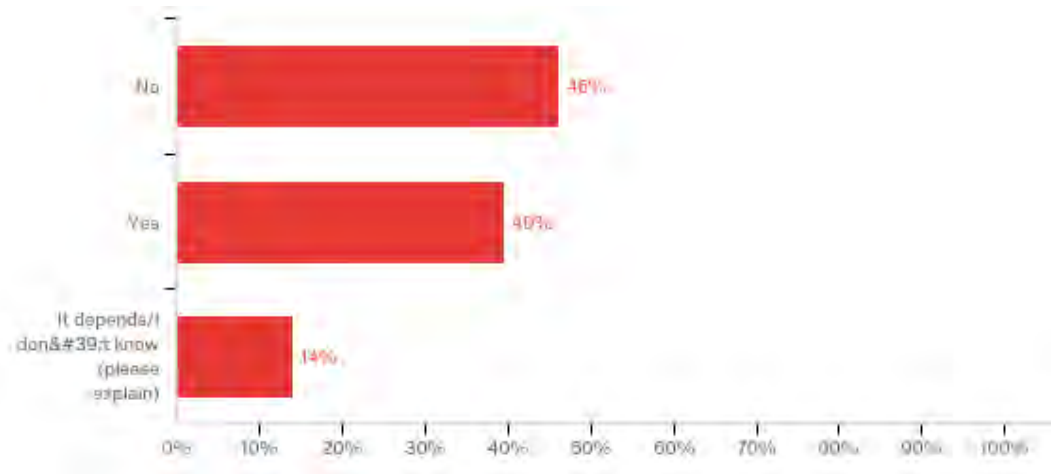
Q16. Would you support a general property tax levy on properties within the Turner city limits to help pay for the new Crawford Crossing Park? (n=231)



Of “Other” responses, the following were the most frequent written-in comments:

- Depends on what it goes to or quality of park (x4)
- Not a resident of Turner (x3)
- Prefer other payment strategy (x2)

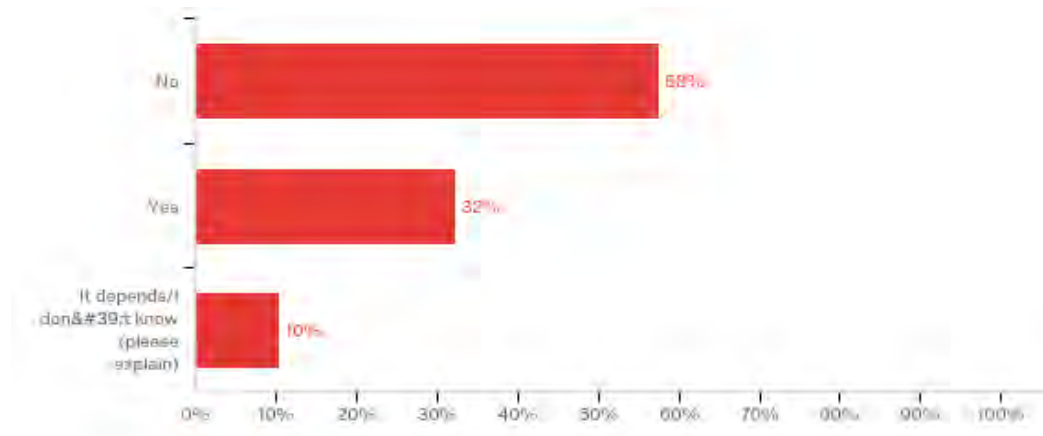
Q17. Would you support the formation of a special parks and recreation taxation district that includes Turner and the surrounding area to help pay for the ALL parks and recreation within the district? (n=227)



Of “Other” responses, these were the most frequent written-in comments:

- Need more info (x6)
- Depends on amount of use of funds (x2)

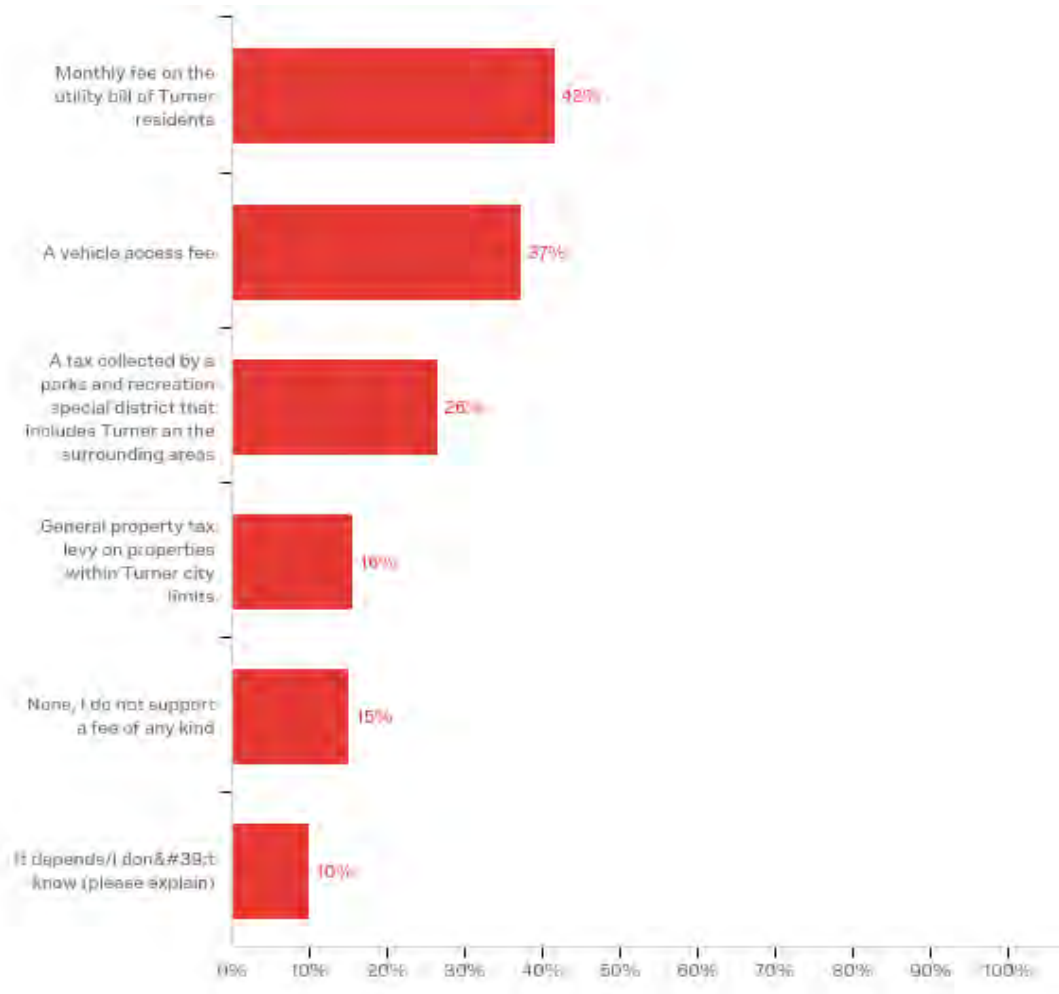
Q18. Would you be willing to pay a \$2-\$5 fee to have vehicle access to the new Crawford Crossing Park? (n=233)



Of “Other” responses, these were the most frequent written-in comments:

- Would prefer an annual membership fee to per-use fee (x7)
- Not in favor of the fee (x3)
- In favor (x2)
- Prefer a fee only for non-residents of Turner (x2)

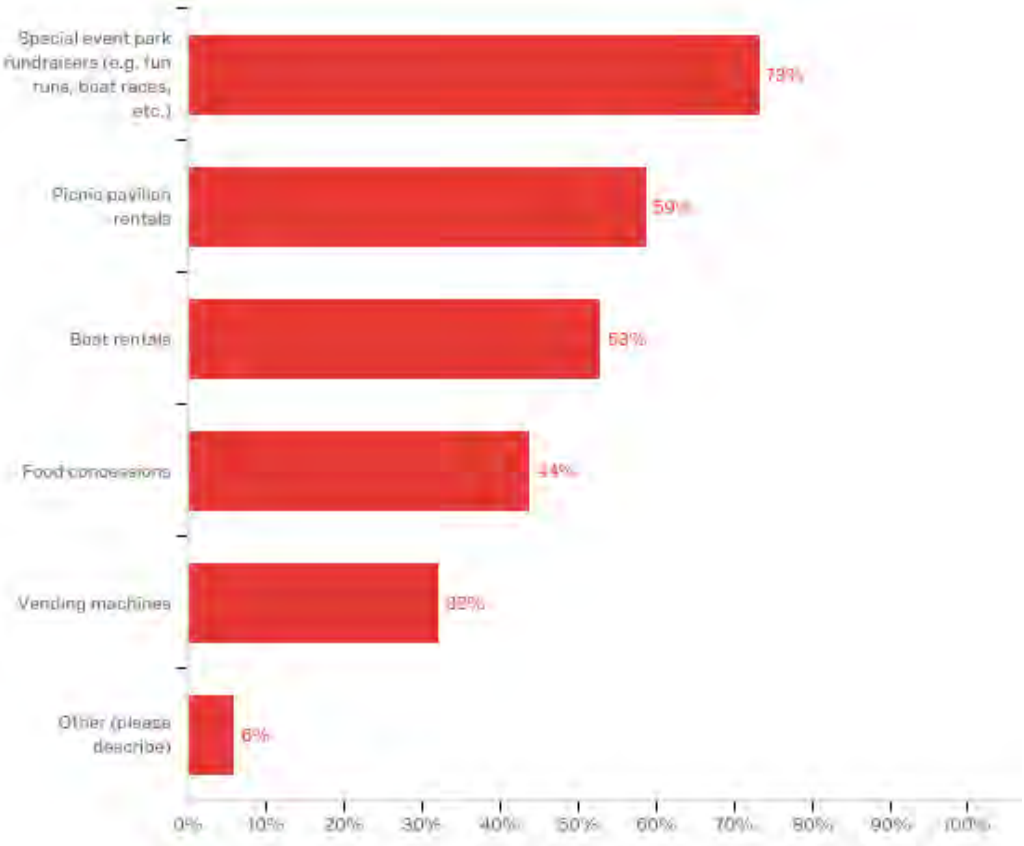
Q19. Which kind of fee systems would you like to see implemented to help pay for the new Crawford Crossing Park? Check all that apply. (n=231)



Of “Other” responses, these were the most frequent written-in comments:

- Fee only for non-residents of Turner (x4)
- Prefer a day-use fee (x2)
- Fee for non-residents of Turner and Turner residents pay in another way i.e. utilities bill or monthly fee (x2)

Q20. To cover the costs of operating and maintaining a park, many parks offer for-purchase amenities. Which of the following "for-purchase" amenities would you be interested in using at the new Crawford Crossing Park? Check all that apply. (n=221)

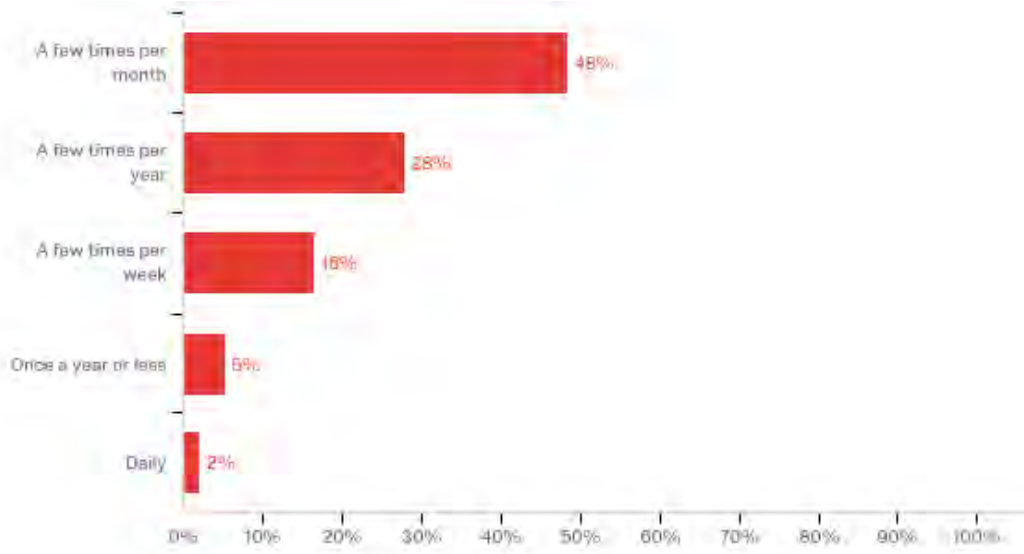


Of "Other" responses, these were the most frequent written-in comments:

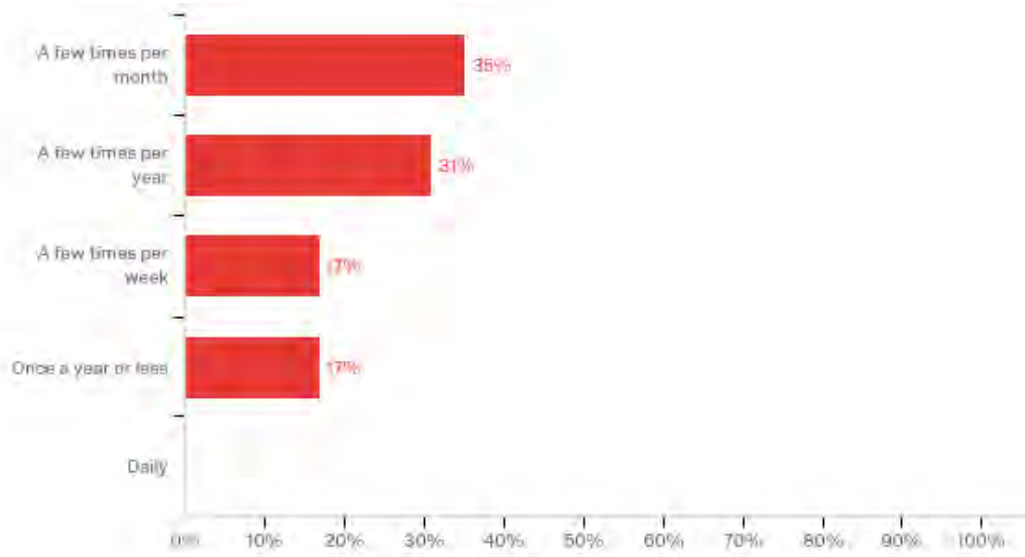
- None of the above (x6)
- Community events i.e. concerts, 5k runs (x3)

Q20a – Q20f were asked only of respondents who said in Q20 that they would be interested in using that “for-purchase” amenity.

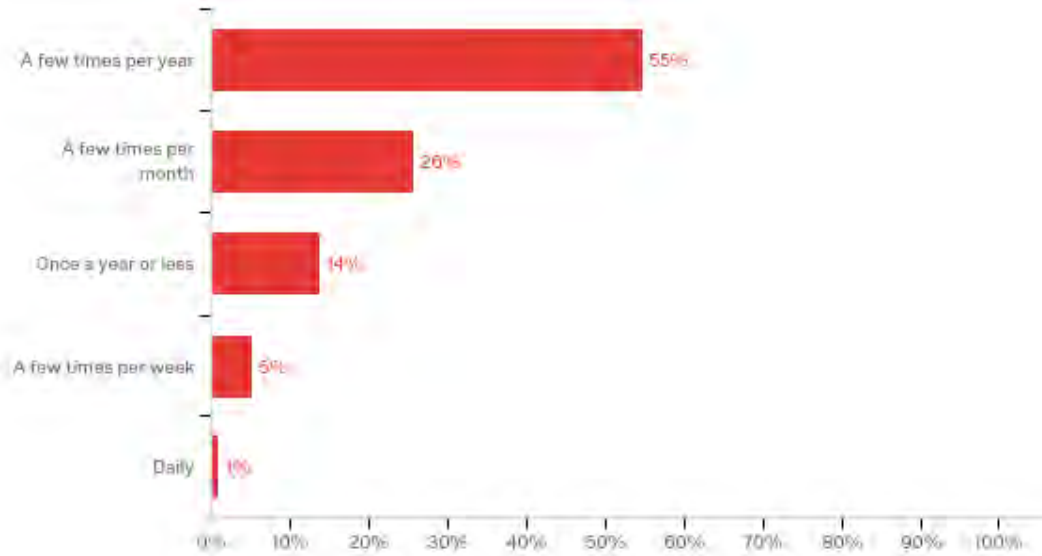
Q20a. How often do you think you would make use of food concessions? (n=97)



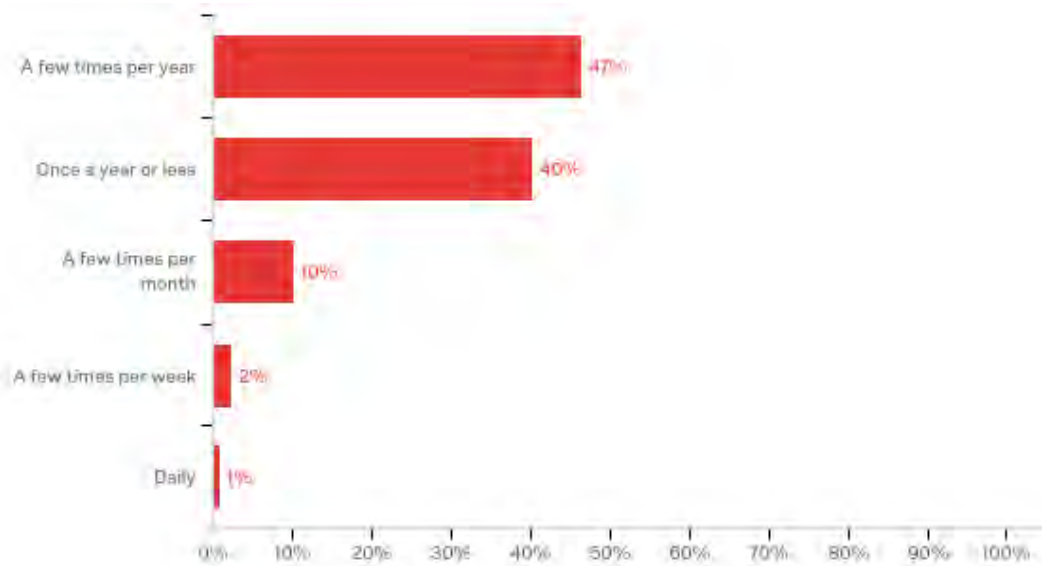
Q20b. How often do you think you would make use of vending machines? (n=71)



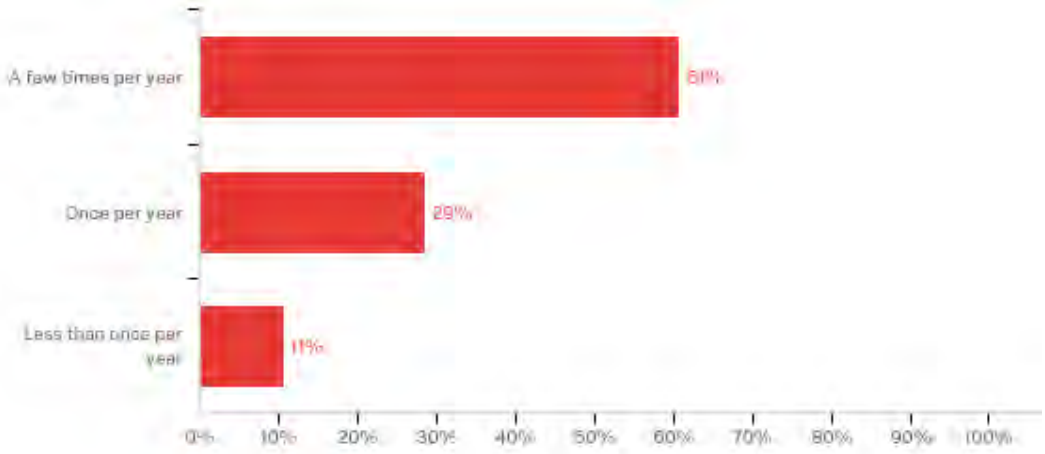
Q20c. How often do you think you would make use of boat rentals? (n=117)



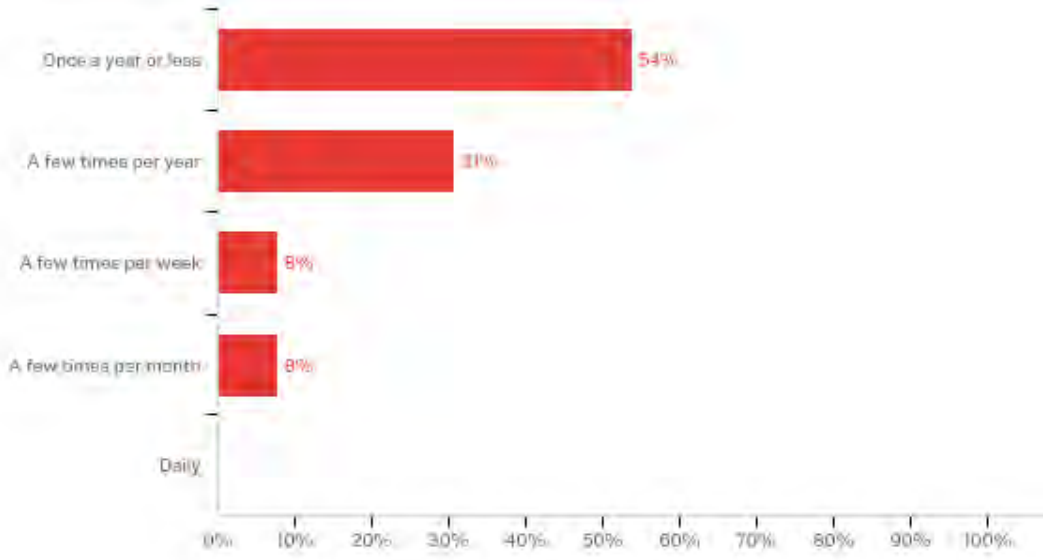
Q20d. How often do you think you would make use of picnic pavilion rentals? (n=129)



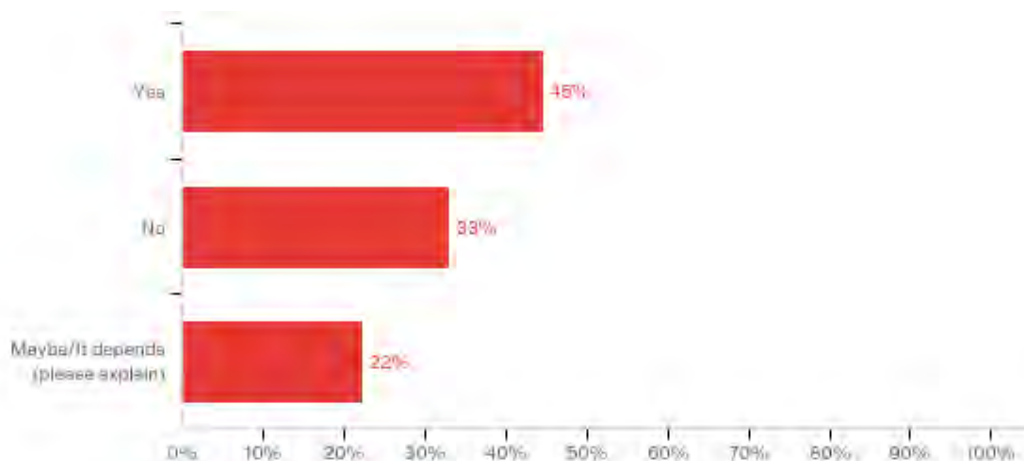
Q20e. How often do you think you would participate in special event park fundraisers? (n=161)



Q20f. How often do you think you would make use of your "other" for-purchase amenity? (n=13)



Q21. Would you be willing to volunteer some time each year to assist with park maintenance projects? (n=233)



Of “Other” responses, these were the most frequent written-in comments:

- Depends on project (x5)
- Physical limitations such as disability makes it difficult (x5)
- Depends on time of volunteering (x3)
- Willing, particularly through group (x3)
- Depends on design or use of park (x2)

Q22. Is there anything else you would like to tell us about paying for the new park?

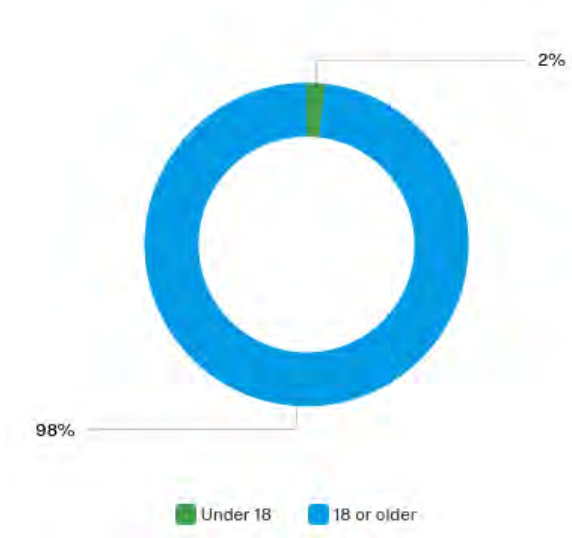
The largest category of responses in this section came from respondents voicing their opposition to or concerns regarding the park’s cost (x9). This was followed closely by calls for a discounted entry price for Turner residents, and general concern that town residents will be paying for the park while out-of-town users will receive the benefits at no cost (x8). Other respondents suggested adding fees to developers and/or homeowners in the new development (x5). Another prominent category included fundraising suggestions such as community events or inviting businesses and residents to “sponsor” park additions such as benches and other features (x7). Forty-six respondents provided written feedback for this question.

Q23. Is there anything else you would like to tell us about the new park in general?

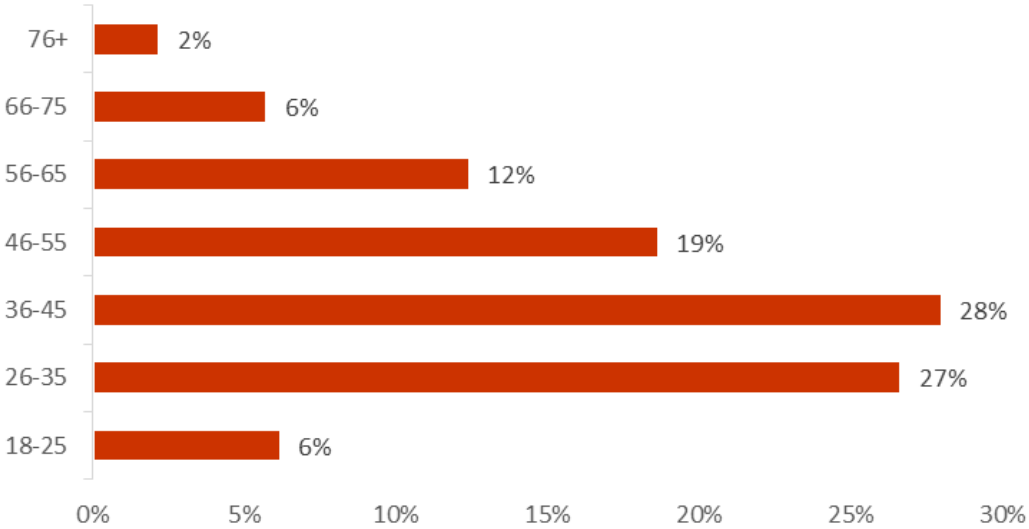
A significant portion of responses to this question involved respondents expressing their opinions about the new park, either support (x11) or opposition (x7). Another area of interest was the park’s relationship to the housing development; some expressed concerns about the connecting road and preference for a pedestrian path or trail (x3). Other homeowners expressed frustration that their views of the lake appear to be blocked by trees in the proposed designs (x5). Other common themes were desire to keep the park a natural area and requests to have rigorous security and maintenance so that the park feels safe and family friendly. Frequently requested facility additions included fishing areas and a dog park. Sixty-one respondents provided written feedback for this question.

Part 4: Respondent Demographics

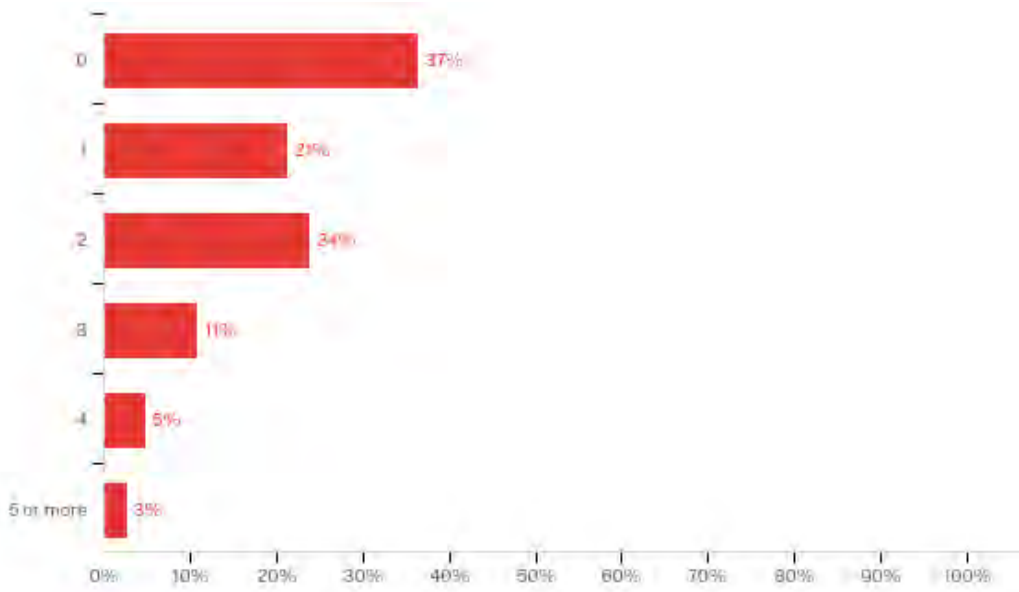
Q1. How old are you? (n=230)



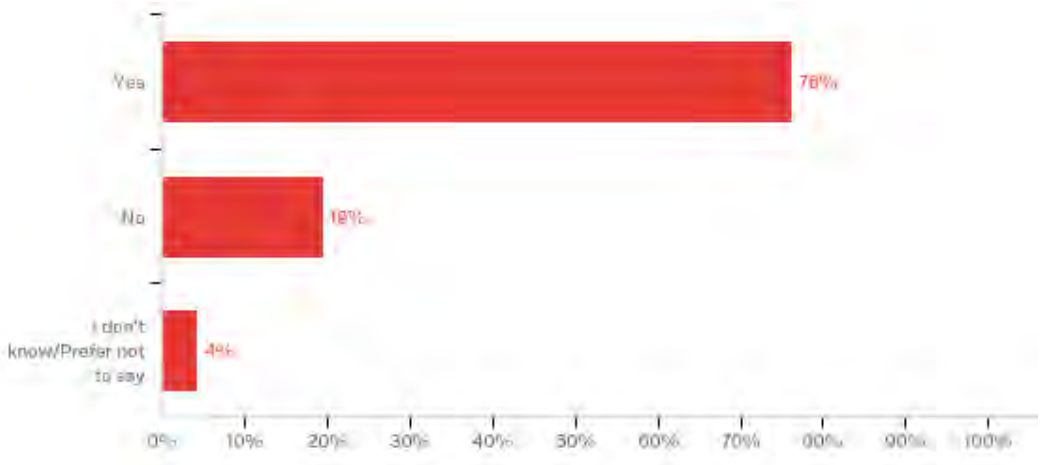
Q24. What is your age? (n=224)



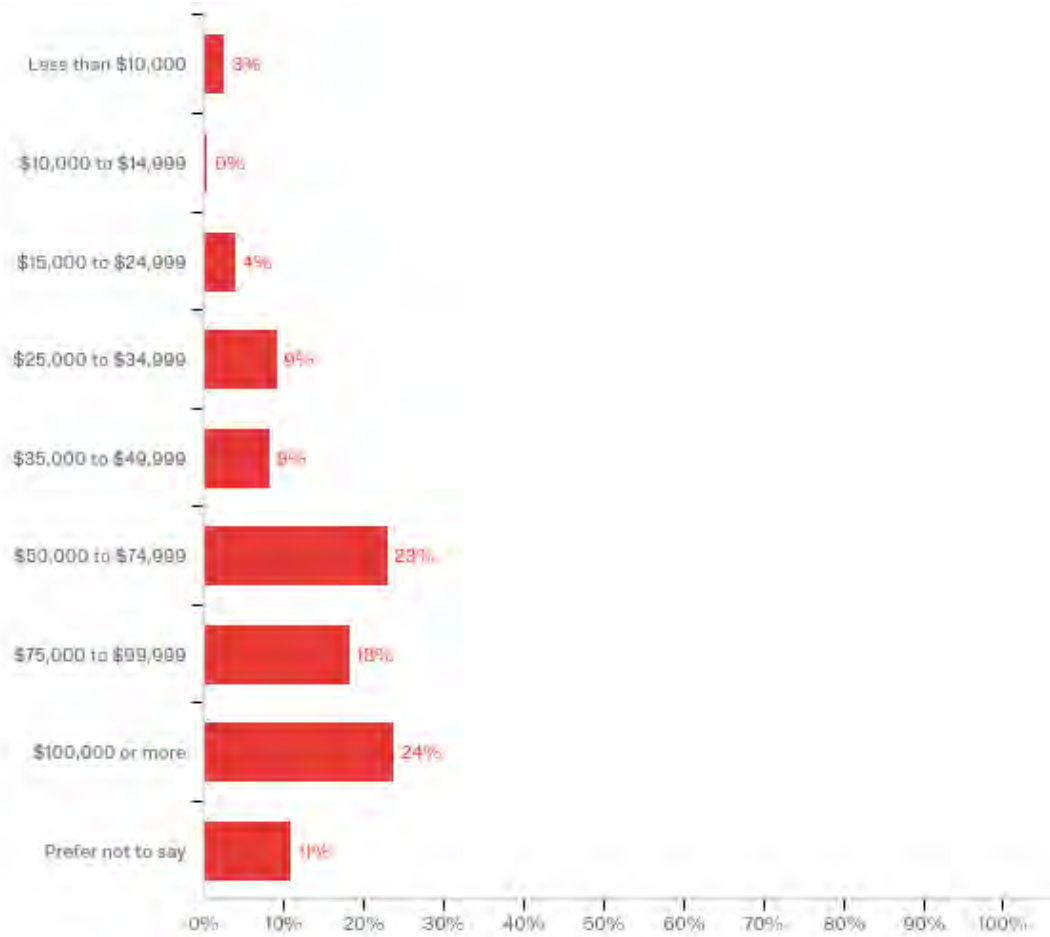
Q25. How many children are in your household? (n=230)



Q26. Are you a resident of the City of Turner? (n=232)



Q27. What was the combined income for your entire household last year? (n=231)



Appendix C: Resources for Park Development

This appendix includes a list of potential vendors for some of the amenities recommended for the new Crawford Crossing Park. We also include a list of recommended plants to use when landscaping the park.

Contacts

Docks

KFS Inc. Boat Docks
1701 Clackamette Drive
Oregon City, Oregon 97045
Website: <http://www.kfsboatdocks.com/index.html>
Phone: 503-449-6667

Oregon Marine Construction
9085 Arney Ln NE
Woodburn, OR 97071
Website: <http://oregonmarine.net/>
Phone: 503-982-5521

Fire Access Permeable Pavers

NDS
Website: <https://www.ndspro.com/permeable-pavers>
Phone: 1-888-825-4716

Invisible Structures Inc.
1600 Jackson St. Suite 310
Golden, Colorado, USA 80401
Website: <http://www.invisiblestructures.com/>
Phone: 1-800-233-1510

Playground Equipment

Columbia Cascade Company
1300 S.W. Sixth Avenue, Suite 310
Portland, OR 97201
Website: <http://playground.columbia-cascade.com/>
Phone: 503-223-1157

Buell Recreation Park and Playground Products
7327 Southwest Barnes Road #601
Portland, OR 97225
Website: <https://www.buellrecreation.com/>
Phone: 800-266-1250

Northwest Recreation
6925 SW Canyon Drive
Portland, OR 97225
Website: <http://www.nwrecreation.com/>
Phone: 503-248-7770

Northwest Playground Equipment
P.O. Box 2410
Issaquah, WA 98027
Website: <https://www.nwplayground.com/playgrounds.html>
Phone: 800-726-0031

Restroom Facilities

Public Restroom Company*
2587 Business Parkway
Minden, NV 89423
Website: <http://www.publicrestroomcompany.com/>
Phone: 888-888-2060

*Has manufacturing facility in Oregon

Romtec, Inc.*
18240 North Bank Rd.
Roseburg, OR 97470
Website: <http://romtec.com/>
Phone: 541-496-3541
*Based in Roseburg, Oregon

Shelters / Pavilions

Northwest Playground Equipment*
P.O. Box 2410
Issaquah, WA 98027
Website: <https://www.nwplayground.com/playgrounds.html>
Phone: 800-726-0031
* Reseller of pre-fab shelters from Poligon

Romtec, Inc.
18240 North Bank Rd.
Roseburg, OR 97470
Website: <http://romtec.com/>
Phone: 541-496-3541

Site Furnishings (Bike Racks, Trash Receptacles, Drinking Fountains, Etc.)

Columbia Cascade Company
1300 S.W. Sixth Avenue, Suite 310
Portland, OR 97201
Website: <http://playground.columbia-cascade.com/>
Phone: 503-223-1157

Huntco Site Furnishings, LLC
P.O. Box 10385
Portland, OR 97296
Phone: 503-224-8700

Cascade Recreation, Inc.
PO Box 64769
University Place, WA 98464
Phone: 253-566-1320

Recommended Plant List

Developed Park Areas

This list of plants will provide the basis for durable, deer and drought tolerant plantings within the major programmed areas of the park. Comprised of both native and non-native species, as well as full-sun to full-shade plants, these species can be combined to create beautiful, four-season interest throughout the park.

Trees

- Acer circinatum - Vine Maple
- Acer sp. - Maple
- Fraxinus spp. - Green Ash or White Ash
- Gingko biloba - Gingko
- Quercus garryana – Oregon White Oak
- Quercus palustris - Pin Oak
- Quercus rubra - Red Oak

Shrubs

- Berberis thunbergii - Japanese Barberry
- Cornus sp. - Dogwood
- Cotinus coggygria - Smoke Tree
- Mahonia aquifolium - Oregon Grape Holly
- Myrica californica - California Myrtle
- Osmanthus x burkwoodii - Burkwoodii Osmanthus
- Potentilla fruticose - Shrubby Potentilla
- Rhododendron spp. - Rhododendron
- Ribes sanguineum - Red Flowering Current
- Sarcococca confusa - Fragrant Sarcococca
- Spiraea sp. - Spirea

Perennials

- Achillea spp. - Yarrow
- Echinacea purpurea - Purple Coneflower
- Penstemon spp. - Penstemon

- *Perovskia atriplicifolia* - Russian Sage
- *Rudbeckia* spp. - Black-eyed Susan
- *Salvia nemorosa* - Sage

Groundcover

- *Arctostaphylos uva-ursi* - Kinnikinnik
- *Cotoneaster dammeri* - Bearberry Cotoneaster
- *Gaultheria shallon* - Salal
- *Juniperus horizontalis* - Groundcover Juniper
- *Mahonia repens* - Creeping Oregon Grape
- *Polystichum munitum* - Sword Fern
- *Prunus laurocerasus* Mt Vernon - Mt Vernon Laurel Cherry

Undeveloped Park Areas

This list suggests key species that should be considered and encouraged in the parks various undeveloped natural areas.

Oak Savanna – Key Species

- *Pinus ponderosa* - Willamette Valley Ponderosa Pine
- *Quercus garryana* - Oregon White Oak
- *Amelanchier alnifolia* - Saskatoon Serviceberry
- *Corylus cornuta* - Beaked Hazelnut
- *Holodiscus discolor* - Oceanspray
- *Oemleria cerasiformis* - Indian Plum
- *Polystichum munitum* - Western Sword Fern
- *Rosa nutkana* - Nootka Rose
- *Symphoricarpos albus* - Snowberry
- *Agropyron trachycaulum* - Slender Wheatgrass
- *Aster hallii* - Hall's Aster
- *Bromus carinatus* - California Brome
- *Danthonia californica* - California Oatgrass
- *Festuca idahoensis* - Idaho Fescue
- *Festuca roemerii* - Roemer's Fescue
- *Koeleria macrantha* - Junegrass

Mixed Woodland/Riparian Forest – Key Species

- *Alnus rubra* - Red Alder
- *Acer macrophyllum* - Big-leaf Maple
- *Populus trichocarpa balsamifera* - Black Cottonwood
- *Rosa nutkana* - Nootka Rose
- *Cornus albus* - Red-osier Dogwood
- *Lonicera involucrata* - Black Twinberry
- *Physocarpus capitatus* - Ninebark
- *Sambucus racemose* - Red Elderberry
- *Symphoricarpos albus* - Snowberry
- *Polystichum munitum* - Sword Fern
- *Agrostis exarata* - Spike Bentgrass
- *Calamagrostis Canadensis* - Bluejoint
- *Deschampsia elongata* - Slender Hairgrass

Prairie Wetland and Willow Slough – Key Species

Trees and Shrubs

- *Salix scouleriana* - Scouler's Willow
- *Cornus albus* - Red-osier Dogwood
- *Salix lucida* ssp. - Lasiandra Pacific Willow
- *Salix sitchensis* - Sitka Willow
- *Spiraea douglasii* - Hardhack
- *Juncus effuses* - Soft Rush
- *Carex aperta* - Columbia Sedge
- *Carex obnupta* - Slough Sedge
- *Juncus ensifolius* - Dagger-leaf Rush

Ground Cover

- *Rosa nutkana* - Nootka Rose
- *Spiraea douglasii* - Hardhack
- *Camassia quamash* - Camas
- *Beckmannia syzigachne* - American Slough Grass
- *Carex densa* - Dense Sedge
- *Danthonia californica* - California Oatgrass
- *Deschampsia elongata* - Slender Hairgrass
- *Deschampsia cespitosa* - Tufted Hairgrass

- *Festuca rubra* - Red Fescue
- *Hordeum brachyantherum* - Meadow Barley
- *Plagiobothrys figuratus* - Popcornflower
- *Sisyrinchium idahoense* - Blue-eyed Grass
- *Subspicatus douglasii* - Douglas' Aster

Appendix D: Financing Resources

To complement the financing strategies, we present in the Crawford Crossing Concept Plan, this appendix offers examples of financing strategies that other communities in Oregon have used successfully for parks projects. We divide these examples into two categories:

- **Capital development projects** (building trails, docks, play structures, etc.)
- **Ongoing operational and maintenance funding**

For each example, we include a brief project description, a discussion of funding sources, and relevant contacts that can supply Turner staff with additional information and details.

Capital Development Projects

Mt. Angel Heritage Trail		
Source: http://elgl.org/2014/03/25/local-governments-new-normal-eileen-stein-city-administrator-mt-angel/		
Location: Mt. Angel, OR		
Project Description: “Trail” of historic sites and buildings throughout the town with interpretive signage and welded plaques (to be developed)		
Funding Sources Used		
<i>Funding Source</i>	<i>Used for</i>	<i>Amount Generated</i>
Marion County Community Development Grant		
Oregon Community Foundation Grant		
Additional Notes		
The City is collaborating with the Mt. Angel and Silverton school districts to have their vocational classes do some of the welding work pro-bono, and a few students will likely to do installation work as a senior project.		
For both this project and maintenance of their small parks, the City of Mt. Angel relies heavily on volunteer labor from local businesses. Businesses will host work days or “sponsor” certain projects by providing ongoing maintenance (for example, the downtown flower baskets).		
Contact(s): City Manager		

Hood River Waterfront Park		
Source: http://hoodriverwaterfront.org/index.html		
Location: Hood River, OR		
Total Cost: \$1.377 million – \$860,000 has been fundraised to this point, and they are in need of 517,000 to complete the park.		
Project Description: Park developed along the Columbia River water in Hood River. Amenities include a swimming beach, paths, picnic pavilions, play areas, restrooms, etc.		
Funding Sources Used		
<i>Funding Source</i>	<i>Used for</i>	<i>Amount Generated</i>
Oregon Parks and Recreation Grant	Phase I of construction: initial landscaping, solar powered restrooms, children’s play area	\$500,000
Ford Family Foundation Grant		
Waterfront Community Park Association Fundraising	Phase II: 2 picnic shelters, 2 drinking fountains, a rinsing shower, shade trees	\$860,000
Additional Notes		
<p>Park development has essentially been spearheaded by the Waterfront Community Park Association (WCPA), a citizen’s group turned 501(c)3. They convinced the city to donate the land and have done most of the fundraising for it.</p> <p>Fundraisers events include hosting events like a kids’ triathlon, paddle board races, and beer tastings. The nonprofit also solicits individual donations. Maintenance strategies include an annual earth day weeding party and allowing families, schools and businesses to “adopt-a-plot”, or volunteer to weed and maintain a garden bed in the park. The WCPA has an informative website with many interesting details: http://hoodriverwaterfront.org/index.html.</p> <p>Hood River has a complicated parks funding structure in general as they have parks under the jurisdiction of several different bodies, including the City, the Port, the school district, and the Parks and Recreation Special District. The Parks and Recreation Special Tax District was set up about ten years ago, and is mostly used to maintain the pool, leaving little money for parks development. The City Manager doesn’t see it as the best funding strategy outside of the pool because the tax rate is very low. He also indicated that it complicates responsibility of the parks, as the public often doesn’t know who is responsible for which parks.</p>		
Safety Note:		
The City has dealt with safety and liability on the swimming beach at the Waterfront Park by posting signs that alert swimmers that there is no lifeguard on duty and to “swim at your own risk”. They also do not allow dogs in the swimming area as it creates water quality issues.		

Funding for Operations and Maintenance

Sisters Parks District http://5starcampgrounds.com/sisters-city-park-campground/		
Location: Sisters, OR		
Funding Sources Used		
<i>Funding Source</i>	<i>Used for</i>	<i>Amount Generated</i>
Taxes		
Fundraising events	Parks programming	Up to \$146,000 per year
Additional Notes		
<p>The director of the Sisters Parks and Recreation District offered insight into the benefits and drawbacks of creating a special tax district for parks funding and operations. The tax district in Sisters is unique because it operates much like a nonprofit and tax revenue only represents 26% of its total funding. The director emphasized that while a special district has its own funding issues, not being dependent on the budget of the City allows greater stability. It also provides a much greater tax base – Sisters has a population of 2,200 but the parks tax district population ranges from 8,000-10,000.</p> <p>The district has primarily used grants for their capital developments, but fundraising finances most of their programming and recreation. Past fundraisers include basketball and lacrosse tournaments, car shows, cross country championships, a luau, and a brewfest. The district once undertook a large scale fundraiser that brought people from out of town: the district hosted a bike ride over the McKenzie pass, which drew crowds from all over the state. Although the fundraisers don't always raise that much individually, they build valuable social capital through engaging the community.</p> <p>The district has primarily used volunteer labor to keep the cost of maintenance low, but staff don't see this as a sustainable solution to the costs in the long range. Maintenance is the most difficult issue to find continual funding for, even with the special tax district. A drawback of the special tax district is that it lacks the formal structure to guarantee its future stability outside of the taxes collected. However, the director overall sees the special district structure as an advantage.</p>		
Contact(s): Liam Hughes: 541-935-2191		

Warrenton Parks		
Source: http://www.ci.warrenton.or.us/parksandtrails/page/city-community-park		
Location: Warrenton, OR		
Funding Sources Used		
<i>Funding Source</i>	<i>Used for</i>	<i>Amount Generated</i>
Taxes (City's general fund)	Maintenance	
System Development Charges (SDCs)	Capital Development	
Quincy Robinson Trust Fund	Capital Development	
Warrenton Trails Foundation	Trail development and maintenance	
Additional Notes		
<p>Warrenton parks benefit from a trust fund set up by a local family that has provided a steady source of revenue to pay for park development and improvements. Maintenance comes out of the City's general fund. It is a small budget and can be a challenge to work with. A portion of systems development charges go to parks. These funds can only support development, however, and the City has been cautious about developing more parks when they do not know how they would pay for the maintenance. Community organizations such as the Warrenton Trails Foundation and the Warrenton Kids Association have donated time or resources to support the city parks.</p>		

Estacada Parks		
Source: http://www.mearsdesigngroup.com/gallery.php		
Location: Estacada, OR		
Funding Sources Used		
<i>Funding Source</i>	<i>Used for</i>	<i>Amount Generated</i>
System Development Charges (SDCs)	Capital development	
Oregon Parks and Recreation Grants	Skate park development	
Additional Notes		
<p>The City received two grants from Oregon Parks and Recreation to develop their skate park, one for each phase of construction. Systems development charges have garnered a significant amount of money that would be available for park development but the City does not feel they have the maintenance capacity to add another park at present. They had only about 4-5 public works staff who cover the entire city, including park maintenance, which makes maintenance a challenge. Recently, however, they just funding approved for a designated parks employee which may improve maintenance capacity.</p>		

Gervais Parks Source: http://www.gervaisoregon.org/city-parks.html		
Location: Gervais, OR		
Funding Sources Used		
<i>Funding Source</i>	<i>Used for</i>	<i>Amount Generated</i>
System Development Charges (SDCs)	Capital Development	
Oregon Parks and Recreation Grants	Black Walnut Community Park	\$474,600
BINGO (local nonprofit)	Elm Street Park	
Volunteers	Maintenance	
Additional Notes		
<p>The City has two parks developed through unique efforts.</p> <p>The City received a grant from Oregon Parks and Recreation in 2011 to develop Black Walnut Community Park, which they used in conjunction with SDC funds they had been saving over the past two decades for the purpose of a park. The park, which is just over three acres, has had a lot of maintenance support from volunteers.</p> <p>Elm Street Park was developed through collaboration between a local non-profit, the French Prairie Community Progress Team, the Gervais School District, and the City of Gervais. Together, these groups established BINGO to help fund the park's initial development. BINGO was hosted every month at the local high school, with cash and prizes donated from local businesses, nearly totaling \$300,000. After three years of BINGO, the City had enough funding to install a playground and add landscaping to the park in 2006.</p>		

Additional Cities to Investigate

Turner might also consider reaching out to the following cities to gather additional ideas for funding.

- Lowell – Has a similar population to Turner and borders the Lowell reservoir. The reservoir is operated by the Army Corps of Engineers, however, so this example may be slightly less applicable to Turner's situation.
- Vernonia – similar population, they have a [park on a lake](#)
- Silverton – Linda has brought up the [Silverton Reservoir](#) a few times...
- Gold Hill – Has a similar population to Turner and operates public park property along the Rogue River.
- [Veneta](#) – Veneta is slightly larger than Turner and does not operate any parks with lakes, however, the City has been very creative with funding strategies and may have some useful ideas.
- [Philomath](#) – Philomath is larger than Turner and does not operate any parks with lakes, but may have some useful funding ideas.
- [Winston](#) – Winston is larger than Turner, but the Riverbend Park & Skatepark offers river access and the City may have some useful safety ideas.

Appendix E: Wetland Resources

As a condition of a Department of State Lands permit for the Crawford Crossing housing development, the Crawford Crossing park site must include a section of wetland. This appendix includes a resources from the Department of State Lands about Removal-Fill Permits (the type of permit issued for the Crawford Crossing housing development) and maps of the wetland within the park boundaries (Wetland A/Hillside Seep). These resources can help the City of Turner plan for how to appropriately incorporate the Wetland A into the park design.

Happy Valley Wetland Precedent

Other jurisdictions experience with wetland mitigation in parks may also inform the City’s decision making. We talked with Happy Valley about a 50-acre park they have developed that includes 24-acres of wetland. Below, we provide a brief summary of the Happy Valley’s park/wetland project.

The Project

Happy Valley Park (also called the “wetlands park”) is a 50-acre park in Happy Valley Oregon. The park contains 24 acres of wetlands that have been preserved, and includes the headwaters of Mt. Scott Creek. The park contains a boardwalk trail that is designed to highlight the natural features and views of the park’s wetlands. The City is currently in the process of adding signage to the trail to explain these important elements.

Funding

Although the City applied for multiple grants, they were unsuccessful in obtaining grant funding for the project. Ultimately the entire project was paid from the City’s general fund. Access to grant funding was somewhat limited by the fact that the project was a renovation of an

existing facility that already had a boardwalk; more grants could be available for new construction. Additionally, more grants might have been available if the boardwalk trail system could have been connected into regional trail systems.

Other Support

Although the city has been responsible for funding the project internally, community partners have been important for ongoing maintenance and care of the park. Two different river basin councils have provided support and the City has also partnered with Friends of Trees. Community partners are important for ongoing projects such as invasive species removal and annual plantings.

Additional Information

For more project information see:

<https://www.fws.gov/oregonfwo/ToolsForLandowners/UrbanConservation/Greenspaces/Documents/Projects/1996/96HappyValleyNaturePark.pdf>

Contact: City of Happy Valley Public Works: (503) 783-3844 – Chris Randall, Public Works Director

REMOVAL-FILL PERMITS

ASSISTANCE AND ADDITIONAL INFORMATION

DSL resource coordinators are available to answer questions about permit requirements and refer you to other resources that may help you design your project to avoid or reduce impacts to state waters. A list of the coordinators and their county assignments is available on the DSL Web site.

OREGON DEPARTMENT OF STATE LANDS

Western Region Office – Salem
(Serving Oregon west of the Cascades)
775 Summer St. NE, Suite 100
Salem, OR 97301-1279
Phone: 503-986-5200

Eastern Region Office – Bend
(Serving Oregon east of the Cascades)
1645 NE Forbes Rd., Suite 112
Bend, OR 97701
Phone: 541-388-6112

www.oregonstatelands.us

U.S. Army Corps of Engineers
333 SW First Ave.
Portland, OR 97204
Phone: 503-808-4373

www.nwp.usace.army.mil



Planning to Work in Wetlands or Waterways?

YOU MAY NEED A PERMIT



DSL's Removal-Fill Permit Program

This brochure provides an overview of state removal-fill permit requirements. It is intended for general guidance only and does not include all the requirements contained in the regulations.

The Department of State Lands (DSL) administers Oregon's removal-fill law to protect, conserve and make best use of Oregon's water resources for navigation, fisheries and public recreation.

When is a Permit Required?

A permit is required to do earthwork - removing, filling or altering (moving) materials - in "waters of the state." These waters include:

- The Pacific Ocean (within three miles of shore)
- Tidal bays and estuaries
- Rivers, streams, creeks and lakes, including some intermittent streams and certain "ditches"
- Natural and some artificially created wetlands and ponds

The volume of material being removed, filled or altered is also considered when determining if a permit is required. Any amount of removal, fill or alteration requires a permit in streams designated as **essential salmon habitat (ESH)**, and within ¼ mile of a **state scenic waterway**.

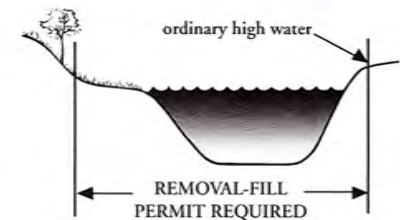
In other wetlands and waterways, a combined volume of 50 cubic yards or more of removal, fill or alteration of material requires a permit.

Visit www.oregonstatelands.us for:

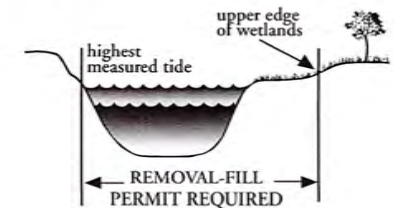
- Permit applications and fee structure
- Status of permits
- Maps
- Wetland fact sheets
- Mitigation information
- Staff contact list

Areas Where Permits Are Required

NON-TIDAL WATERS (Rivers, Creeks, Lakes)



TIDAL WATERS (Bays, Estuaries, Tidal Rivers)



WETLANDS



OREGON DEPARTMENT OF STATE LANDS — WORKING IN WETLANDS AND WATERWAYS

GETTING STARTED:

Identifying Wetlands and Other Waters of the State:

The first step in determining if a removal-fill permit is required is to identify all waters of the state, including wetlands, on the project site. This identification – called a **jurisdictional determination** – may be requested from DSL using forms available on the DSL Web site, or you may call the agency for additional information. There is no fee for this service.

An important component of Oregon's removal-fill law is to minimize or avoid adverse impacts to state waters. If wetlands or other jurisdictional waters are present in the project area, a **wetland delineation** (mapping of the boundaries) is required to determine the extent of wetlands and other waters. Wetland delineation reports are prepared by consultants and submitted to DSL for review and concurrence. Review of wetland delineation reports takes up to 120 days and requires a fee. Information about hiring a wetland consultant is available on the DSL Web site.



For some activities, an even quicker permit process may be used – the **Expedited General Authorization**. In most cases the authorization is granted within 15 days. Examples of these authorizations include minimal disturbance (less than four cubic yards) in essential salmon habitat, and the placement of unanchored large wood for habitat restoration.

During flooding or other instances where an emergency situation arises, DSL has the ability to issue an **Emergency Authorization** to prevent irreparable harm, injury or damage to persons or property.

Recreation and small-scale placer mining: Non-motorized recreational prospecting that affects less than one cubic yard per site, and cumulatively not more than five cubic yards in any ESH stream or state scenic waterway, does not require a permit. Motorized recreational placer mining activities involving less than 25 cubic yards of material annually in essential salmon habitat may be eligible for an Expedited General Authorization (GA). Eligibility for this GA depends on where you will conduct the activity and what you intend to do. Applications are processed online: www.statelandsonline.com. Use of a suction dredge is not allowed in state scenic waterways.

Note: Permit fees vary and are adjusted annually; check the DSL Web site, www.oregonstatelands.us, for details.

Types of Permits

An **Individual Permit** is used for projects that do not qualify for an expedited permit and for projects with potentially significant impacts. DSL is allowed up to 120 calendar days, from receipt of a complete application, to process an Individual Permit.

A **General Authorization (GA)** provides an expedited review process for certain categories of projects, including stream bank stabilization, minor impacts to wetlands (less than 0.1 acre) in urban areas, fish habitat and wetland enhancement projects, and certain transportation projects. DSL is allowed up to 40 calendar days to process a GA application.

Corps of Engineers Permit

Many projects that require a DSL removal-fill permit also require a separate federal permit from the U.S. Army Corps of Engineers. DSL and the Corps use a joint application form that you will need to submit to both agencies.

Wetland Mitigation

When DSL issues a permit to impact wetlands, the permittee is required to replace, or mitigate, the impact by enhancing, creating or restoring a wetland on- or off-site. Mitigation can be accomplished by constructing a mitigation site, buying credits in a mitigation bank, if available, or using the "payment-in-lieu-of-mitigation" program administered by DSL.

Mitigation Banks

A mitigation bank is a business venture in which a large wetland is restored to generate wetland credits for sale to offset wetland impacts. Each bank has a service area in which it may sell credits. Information about establishing a mitigation bank, as well as bank service areas, is posted on the DSL Web site; or call the wetland mitigation banking specialist.

Wetland Grants Program

Monies paid into the mitigation fund are used for grants to restore, enhance and create wetlands statewide. Information about the grant program is available on the DSL Web site, or call the payment-in-lieu specialist.

Working Without a Permit

Working in waterways or wetlands without a permit, or contrary to the conditions of a permit, is a criminal misdemeanor punishable by a fine of up to \$6,250 and one year in jail. Violators also may be subject to a civil penalty of up to \$10,000 per day of violation.

Reporting a Possible Violation

If you suspect that someone is placing fill or excavating in waters of the state without a removal-fill permit, contact DSL. Persons reporting violations may do so without giving their name.

Ocean Shore Projects


Activities involving earthwork on the beach are regulated by the Oregon Parks and Recreation Department. For information and forms, go to www.oregon.gov/OPRD or call 503-986-0733.

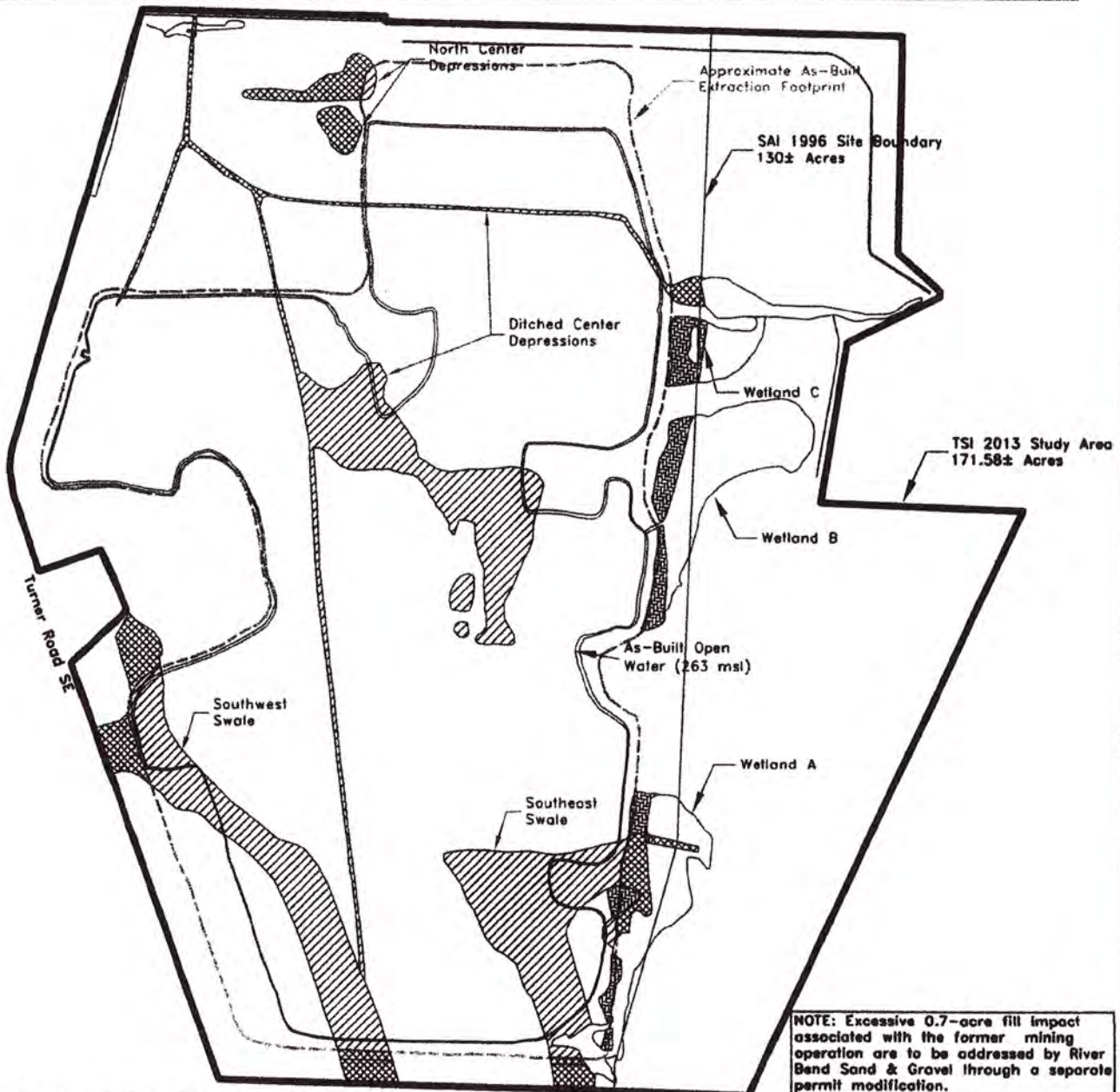


Scenic Waterway Projects

The Oregon Parks and Recreation Department must be notified of certain activities proposed within ¼ mile of the bank of Oregon's designated scenic waterways. Such activities include cutting trees; mining; and constructing roads, railroads, utilities, buildings or other structures. The proposed uses or activities may not be started until the written notification is approved, or until one year after the notice is accepted. Activities impacting wetlands and waterways also require a DSL permit. For additional information, go to www.oregon.gov/OPRD or call 503-986-0733.

	Realized Mining Impacts		Realized Pre-Development Impacts	
	Fill	Removal		
North Center Depressions	0.8-acre	0.1-acre	Potentially Drained Wetland A	0.5-acre
Southeast Swale	0.2-acre	3.7 acres	Potentially Drained Wetland B	0.7-acre
Southwest Swale	1.1 acre	3.8 acres	Potentially Drained Wetland C	0.4-acre
Ditched Center Depressions	0.4-acre	4.8 acres	Southeast Swale Impact	0.5-acre
			Southwest Swale Impact	0.1-acre
			Ditched Center Depression Impact	0.2-acre
TOTAL	2.5 acres	12.4 acres	TOTAL	2.4 acres

 TSI Delineation Boundaries
 (Pending Final DSL / Corps Approval)

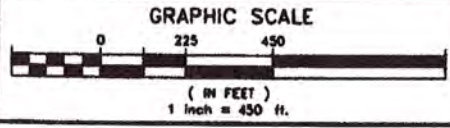


Source: Adapted from digitized DSL WD#1996-0024 & 10293-RF files and Marion County GIS linework.

Terra Science, Inc.
Soil, Water, & Wetland Consultants

AFTER-THE-FACT AUTHORIZATION FOR THE TURNER LAKE REDEVELOPMENT PROJECT
(Corps NWP 1997-847/1)
City of Turner, Marion County, Oregon

REALIZED IMPACTS



March 2014

FIGURE 2

Wetland Delineation for the Turner Lake Redevelopment Project
DSL WD#2012-0359 & Corps NWP 1995-847/1, City of Turner, Marion County, Oregon

Table 1. Delineation summary of identified features

Feature	Verified Cowardin Classification	Verified HGM Classification	DSL Jurisdiction	Corps Jurisdiction†	Acreage
Turner Lake Waters*	L1UBx	OW	Yes	Yes	70.77 acres
Turner Lake Lacustrine Fringe Wetland*	L2USEMx / L2USSSx	LF	Yes	Yes	1.9 acre
Hillside Seep (Wetland A)	PEME / PSSE	S	Yes	Yes	2.01-acre
Central Broad Swale (Wetland B)	PEME	S	Yes	Yes	2.42-acre
Subtle Swale (Wetland C)	PEME	S	Yes	Yes	0.59-acre
Forested Drainage (Wetland D)	PSSE / PFOE / R4SB7x	RFT	Yes	Yes	0.65-acre
Forested Drainage (Waters)	R4SBx	RFT	Yes	Yes	0.01-acre
Excavated Drainage (Wetland E)	R4UB3x	RFT	Yes	Yes	0.15-acre
Excavated Ditch (Wetland F)	PEMCx	RFT	Yes	Yes	0.01-acre
Impounded Depression (Wetland G)	PEMCh	DO	Yes	Yes	0.12-acre
Remnant Stock Pond (Waters)	PAB5x	DO	Yes	Yes	0.04-acre
Turner Road SE Ditches (Waters)	R4UB/ABx	RFT	Yes	Yes	0.17-acre
DSL and Corps Regulated Waters					70.99 acres
DSL and Corps Regulated Wetland					7.85 acres

†: Jurisdictional attributes as approved by Corps March 31, 2014 Approved Jurisdictional Determination NWP 1995-847(1).

*: Turner Lake open water feature (beginning at approximately 263 msl) lacks five-percent (or greater) emergent species coverage, therefore qualifies as open water. Identified Lacustrine Fringe wetlands support emergent / scrub-shrub vegetation which technically qualifies as wetland as it supports greater hydrophytic vegetation.

Cowardin Modifiers:

- L1UBx: Lacustrine, Limnetic, Unconsolidated bottom, excavated
- L2USEMx: Lacustrine, Littoral, Unconsolidated Shore / Emergent, excavated
- L2USSSx: Lacustrine, Littoral, Unconsolidated Shore, Scrub-Shrub, excavated
- PEME: Palustrine, Emergent, Seasonally Flooded / Saturated
- PSSE: Palustrine, Scrub-Shrub, Seasonally Flooded / Saturated
- PFOE: Palustrine, Forested, Seasonally Flooded / Saturated
- R4SB7x: Riverine, Intermittent, Streambed, Vegetated, excavated
- RB4SBx: Riverine, Intermittent, Streambed, excavated
- R4UB3x: Riverine, Intermittent, Unconsolidated Bottom, Mud, excavated
- PEMCx: Palustrine, Emergent, Seasonally Flooded, excavated
- R4UB/ABx: Riverine, Intermittent, Unconsolidated Bottom / Aquatic Bottom, excavated
- PAB5x: Palustrine, Aquatic Bed, Unknown Submergent, excavated

HGM Modifiers:

- OW: Open Water
- LF: Lacustrine Fringe
- S: Slope
- RFT: Riverine Flow Through

J. Disclaimer

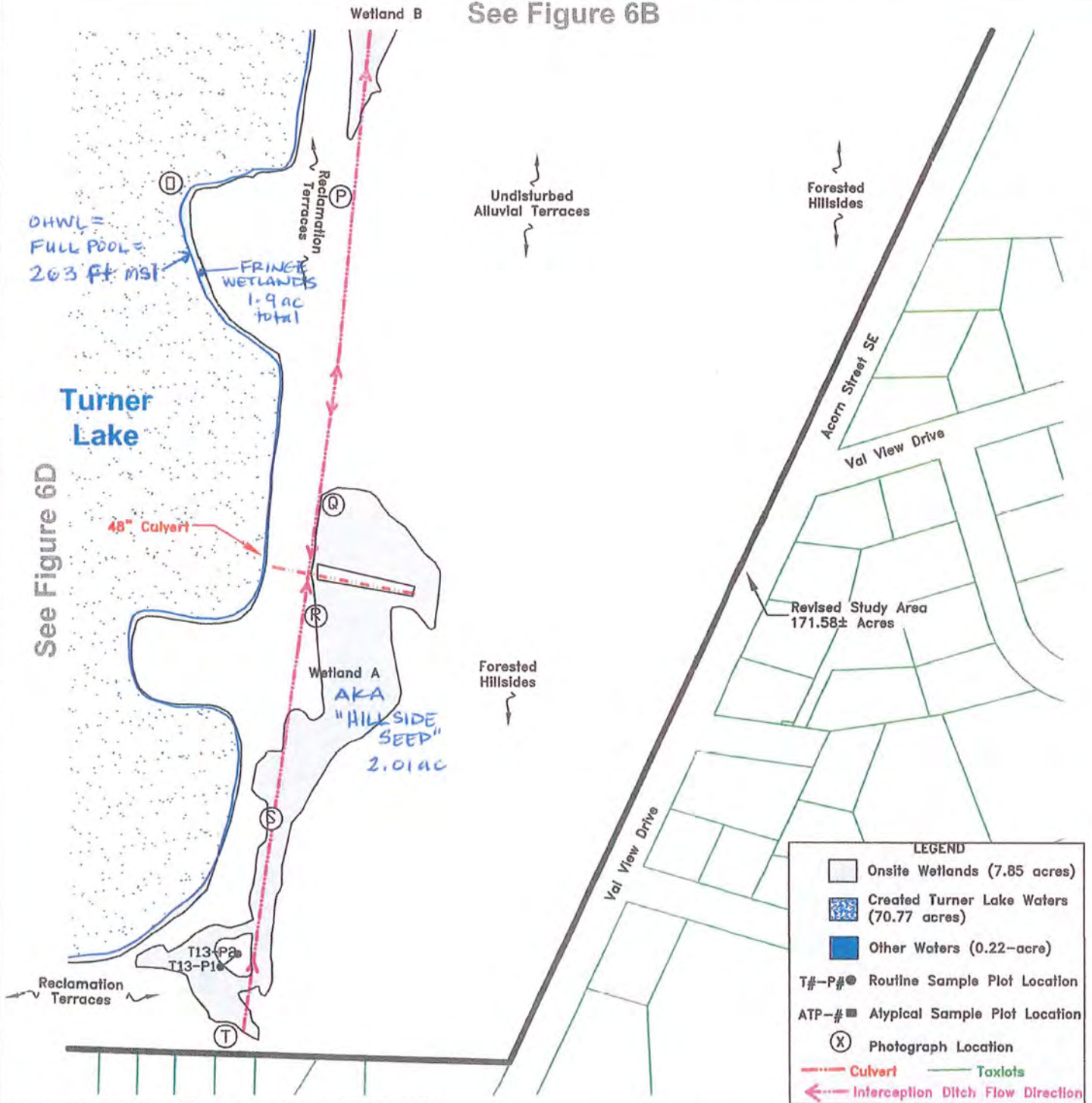
As required by the Oregon Department of State Lands, the following statement must be included as part of this document:

“This report documents the investigation, best professional judgment and conclusions of the investigator. It is correct and complete to the best on my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.”

NOTE: Due to recent and ongoing disturbances associated with Active Reclamation Area, these areas were delineated using Atypical Methodology outlined in the 1987 Manual. As hillsides in eastern and northernmost portions of the site have remained relatively undisturbed for greater than twenty years, field team delineated these areas using routine delineation methodology as outlined in the Western Mountains, Valleys and Coasts regional supplement. See report text for specific methodology approaches.

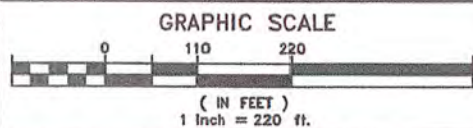
All sample plot locations and identified wetland / waters features were mapped using Trimble GeoXH unit and processed using Pathfinder Office. Processed GPS files then inserted into City of Salem GIS files. All features are in the Oregon State Plane North, NAD 83 projection system. Wetland and water acreages were then calculated using AutoCAD computer aided drafting software. Delineated boundaries, sample plots, infiltration trenches and site boundaries are accurate to within ±1.0 foot. See report text for specific feature mapping determinations.

See Figure 6B



Source: Adapted from City of Salem GIS and TSI GPS files.

Terra Science, Inc.
Soil, Water, & Wetland Consultants



WETLAND DELINEATION FOR THE TURNER LAKE REDEVELOPMENT PROJECT
DSL WD#2012-0359
Corps AJD 1995-847(1)
City of Turner, Marion County, Oregon

EXISTING CONDITIONS, SOUTHEAST QUARTER

DSL WD # 2012-0359

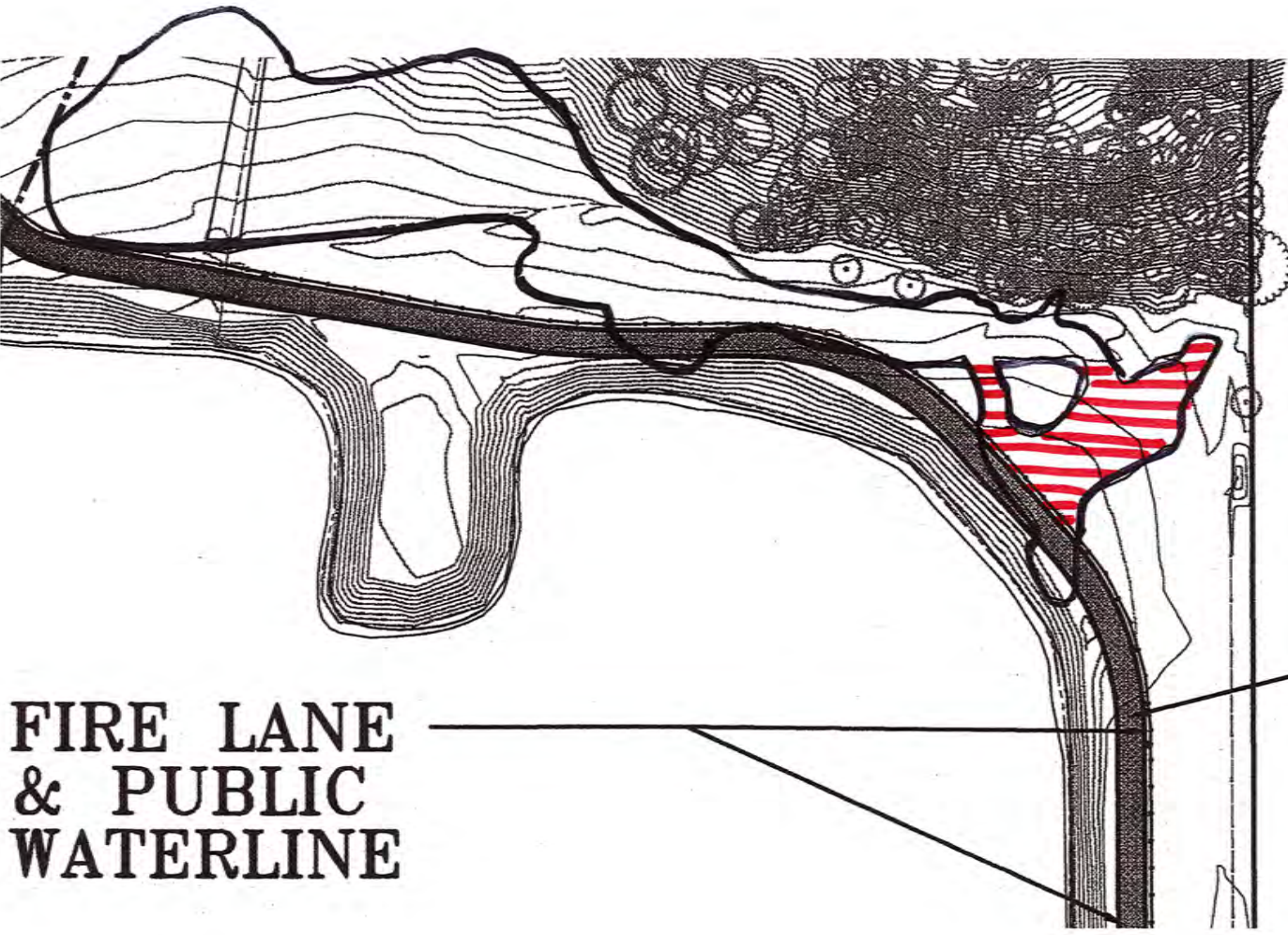
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Approval Issued 6/10/14

Approval Expires 6/10/19

May 2014 (Final Revision)

FIGURE 6C



**FIRE LANE
& PUBLIC
WATERLINE**

TOP ST.

**PED. PATH
(FUTURE)**