

Birch Lake Regional Trail

North Extension – County Road H2 to Otter Lake

Preliminary Design & Alignment Plan

Prepared by Ramsey County Parks and Recreation Department

June 1, 2017

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Project Purpose

The information depicted in this document is the result of effort by Ramsey County Parks and Recreation staff to develop a preliminary design and alignment for the extension of the existing Birch Lake Regional Trail from the intersection of County Road H2 and Otter Lake Road, and possible future connection to the intersection of Otter Lake Road and County Road J. Funding for this project was provided by the Minnesota Clean Water Land and Legacy Parks and Trails Fund.

Introduction

Birch Lake Regional Trail is a 2.25-mile-long Regional Trail bikeway/walkway originally master-planned and approved in 1993. The trail is one of five regional trails operated and maintained by Ramsey County Parks and Recreation Department. The following are the goals that have guided the trail design:

- Make connections to Tamarack Nature Center from residences, businesses, and institutions
- Connect Hwy 96 Regional Trail to future regional trails within the Anoka County Trail system
- Provide an attractive environment and user experience for people of all ages and abilities

Regional Trail Planning

Figure 1 illustrates regional trail corridors in the northeast quadrant of Ramsey County that have been identified and master planned for by Metropolitan Council and administered by Anoka County, Washington County, and Ramsey County. The common goal is to plan for each trail and coordinate long term planning efforts to build a coordinated regional trail system across Minnesota metro areas. The Birch Lake Regional Trail in Ramsey County and the Bunker/Chain of Lakes Regional Trail in Anoka County are identified as making a coordinated connection at County Road J Just West of the I-35E interchange.

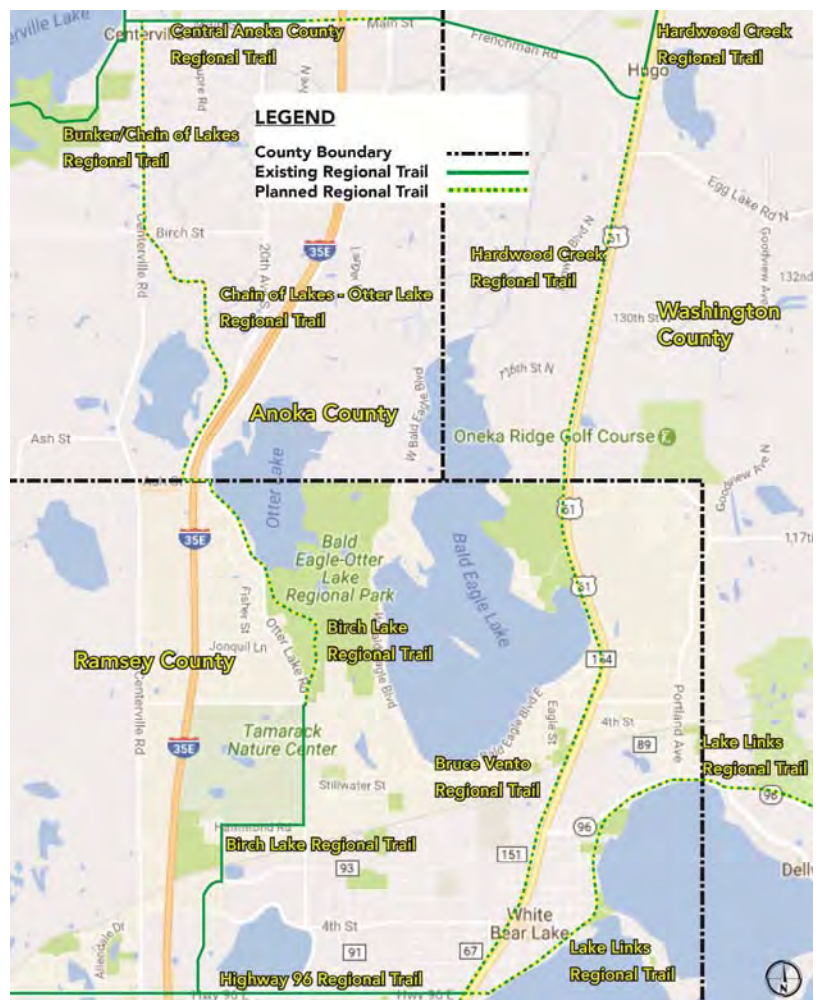


Fig. 1 - Regional Trails connections in project area

Birch Lake Regional Trail

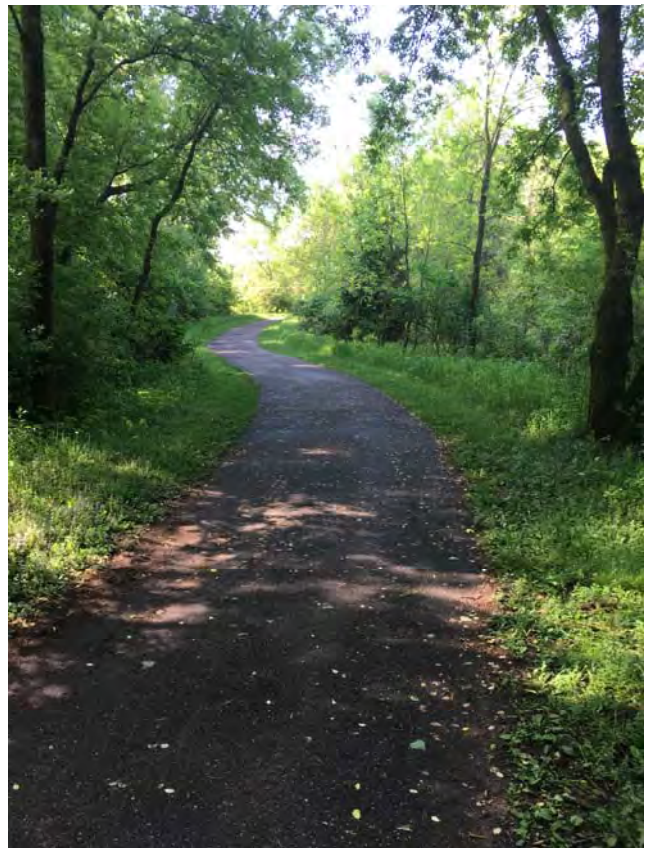
The existing trail has been constructed as a 10 wide bituminous multi-use trail beginning at the intersection of White Bear Parkway and Highway 96. The trail extends North along White Bear Parkway to Hammond Road. The Trail then extends from White Bear Parkway East along the north side of Hammond Road to Otter Lake Road. It then turns North and parallels the right-of-way of Otter Lake Road to County Road H2. **See Figure 2 - Plan of corridor showing existing trail**



Birch Lake Regional Trail along White Bear Parkway. View looking North



Birch Lake Regional Trail along Hammond Road. View looking East

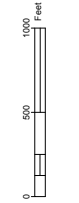


Birch Lake Regional Trail along Otter Lake Road. View looking South



LEGEND

- Existing Birch Lake Trail ———
- Proposed Birch Lake Trail - - - - -



BIRCH LAKE REGIONAL TRAIL
Highway 96 to County Road J

Fig. 2

Birch Lake Regional Trail Extension - Site Analysis

History of Proposed Corridor – Co Rd H2 to Otter Lake Off Leash Dog Area (OLDA)

The proposed trail corridor is located in an area that is part of Bald Eagle - Otter Lake Regional Park. It appears to have been primarily agricultural land use according to archived aerial photos from the 1940s. The land use utilized several large farms in the area with cleared land and structures such as farm houses and barns. In the 1960's as farms were sold, newer homes and streets were constructed off of Otter Lake Road to the east of the project area. The west side of Otter Lake Road which forms the largest near neighborhood was developed in the late 1980's and early 1990's. The remaining farmsteads were purchased by Ramsey County to create the Regional Park that exists today.

Soils

Site soils range from clay to sandy loams. See appendix A for geotechnical report prepared by Braun Intertec May of 2017, at the request of Ramsey County.

Topography and Grades

The topography of the proposed trail corridor is somewhat flat, with subtle rolling slopes. General slopes are highest at Otter Lake Road and gradually slope down to the east until it reaches the large wetland complex.

Water Resources

Otter Lake is the largest and nearest public surface water in relation to the trail corridor. There are also a variety of small wetlands and one large wetland complex which acts as a southerly extension of Otter Lake. In addition, a drainage course is located approximately 1200 hundred feet north of County Road H2 that facilitates drainage from the West side of Otter Lake Road development and directs it east toward the large wetland complex. This drainage course develops into a 10ft wide stream between Otter Lake Road and the wetland that will need to be crossed by the trail.

The project corridor exists entirely within an area managed by the Rice Creek Watershed District (RCWD). The purpose of the RCWD is to conserve and restore water resources in the are defined by the watershed of Rice Creek by reviewing development plans and measuring the impacts against a set of established rules. The following rules set forth by the RCWD will need to be considered for approval prior to construction of the trail extension project.



1953 Aerial photo showing predevelopment land use as agricultural

Rule C - Stormwater Management Plan

Construction activity resulting in 10,000 square feet or more of new or reconstructed impervious surface area. Sidewalks and trails 10 feet wide or less with 5 feet of vegetated area down-gradient are exempt from Rule C.

Rule D - Erosion and Sediment Control Plan

10,000 square feet or more of land if any part of the disturbed area is within 300 feet of any lake, stream, wetland, or ditch.

Rule E - Floodplain Alteration

Alteration or filling of land below the 100-year flood elevation of any lake, stream, wetland, drainage system, major watercourse or public water.

Rule F - Wetland Alteration

Filling, draining, excavating or otherwise altering the character or hydrology of any wetland.

Wetlands

The wetlands within or adjacent to the trail corridor consist of temporarily flooded palustrine scrub shrub and seasonally flooded palustrine emergent wetlands. More detail about these delineated wetlands can be found within the attached wetland delineation report in appendix B.

Plant Communities

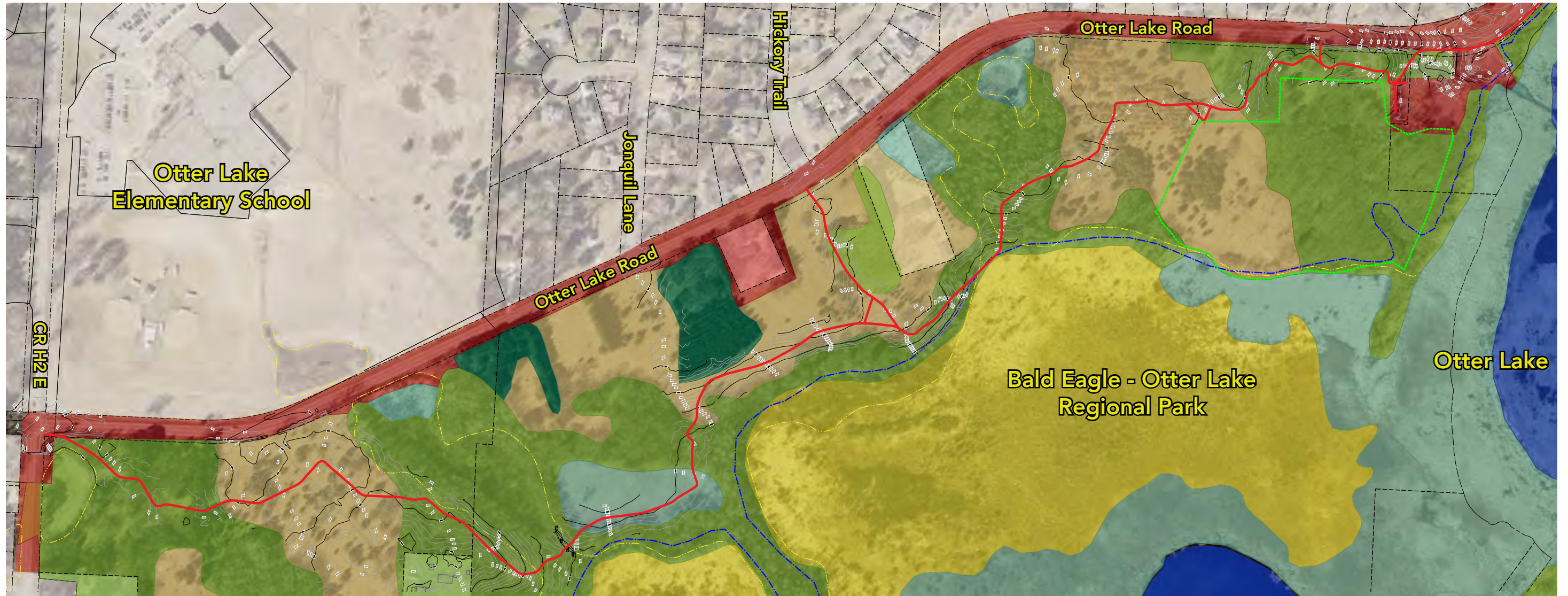
The Ramsey County regional park land surrounding the proposed Birch Lake Regional Trail extension segment A (see Fig. 4), currently consists of mixed deciduous and planted coniferous forest with some open fields consisting of brome grass and sparse tree cover (see Fig. 3). East of the corridor is a large wetland complex dominated by cattails. The forested areas consist of larger old growth oak forest, planted oaks and various planted coniferous trees, with most all forested areas dominated by invasive buckthorn. As stated in the Ramsey County natural resource management plan, this area is proposed to be restored to oak woods. This would entail removal of invasive species, such as buckthorn, and other less desirable trees to restore the existing oak woods. Conversion of brome fields to native grasses, planted with oak seedlings would close the gap creating a continuous oak woods and savanna, which historically dominated this landscape.



Photo – Existing wooded area



Photo – Existing old-field/brome grass



LEGEND

Conceptual Trail Alignment		Greater Than 40% Impervious Cover		Grassland with Sparse Tree Layer	
Dog Park Fence		Limnetic Open Water		Seasonally Flooded Deciduous Shrubland	
Rice Creek Watershed 100 Year Floodplain		Mixed Coniferous-Deciduous Forest		Semipermanently Flooded Emergent Vegetation	
Wetland Delineation		Coniferous Forest			



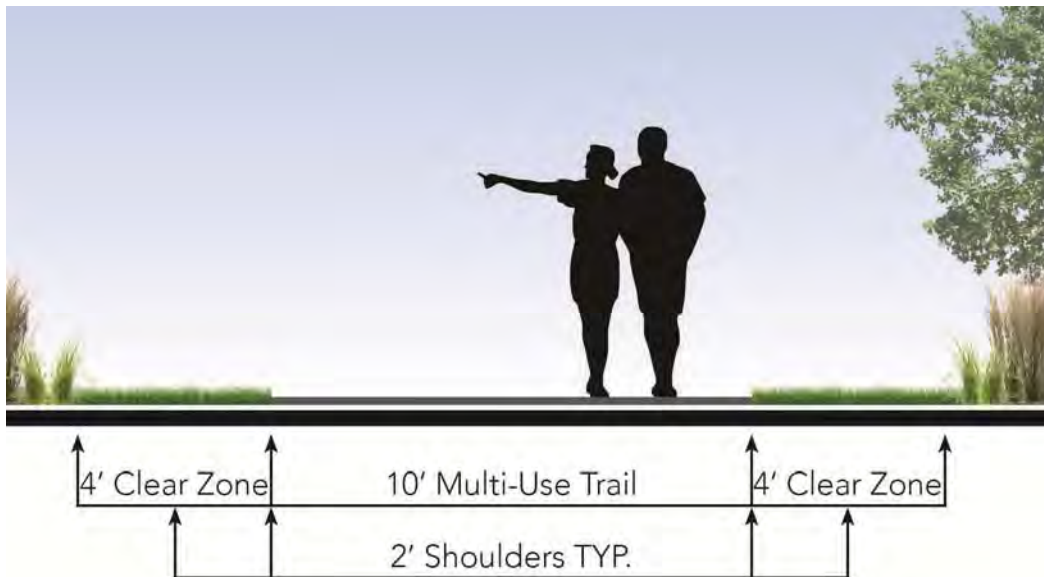
Fig. 3

Proposed Preliminary Alignment

Segment A - H2 to Otter

The proposed alignment for the Birch Lake Regional Trail extension begins at County Road H2 and Otter Lake Road. Refer to Figures 4, 5, 6, & 7 for trail alignment plans. The proposed trail alignment lies northeast of County Road H2 through the existing Bald Eagle Otter Lake Regional Park, to the east and away from Otter Lake Road. This portion of the regional park is defined on the West side by Otter Lake Road, and separated from other upland areas within the park by a large wetland complex. The wetlands start at the southern edge of Otter Lake and extending south and east to County Road H2 and Bald Eagle Blvd. respectively. The trail alignment passes through old farm sites and old fields, as well as some areas with oak tree plantings installed by the County.

The proposed trail will be designed as a 10-foot wide bituminous trail. The trail will have a 1-foot turf shoulder minimum on each side of the trail, as well as a 4ft clear zone minimum from fixed objects. The trail cross section will consist of 6 inches of class V base material with 3 inches of hot asphalt mix bituminous pavement. Typical regional trail mix design is 3" single lift, type SPWEA240B. The proposed total trail length is 6400 lineal feet, including connections to neighborhoods. The trail grades will be held to a maximum grade of 5% running slope and 2% max cross slope, which meets Americans with Disabilities Act (ADA) standards for accessible routes.



Access

Access for the Birch Lake Regional Trail will be accommodated by making crosswalk connections to neighborhoods and by existing public trailhead parking lots. Trailhead parking is available at Tamarack Nature Center, just south of County Road H2 and at Otter Lake off leash dog Area Trailhead on the north end of the proposed trail segment A.

LEGEND

- Conceptual Trail Alignment
- Dog Park Fence
- Rice Creek Watershed 100 Year Floodplain
- Wetland Delineation
- Proposed Crosswalk



Fig. 4

LEGEND

- Conceptual Trail Alignment
- Dog Park Fence
- Rice Creek Watershed 100 Year Floodplain
- Wetland Delineation
- Proposed Crosswalk

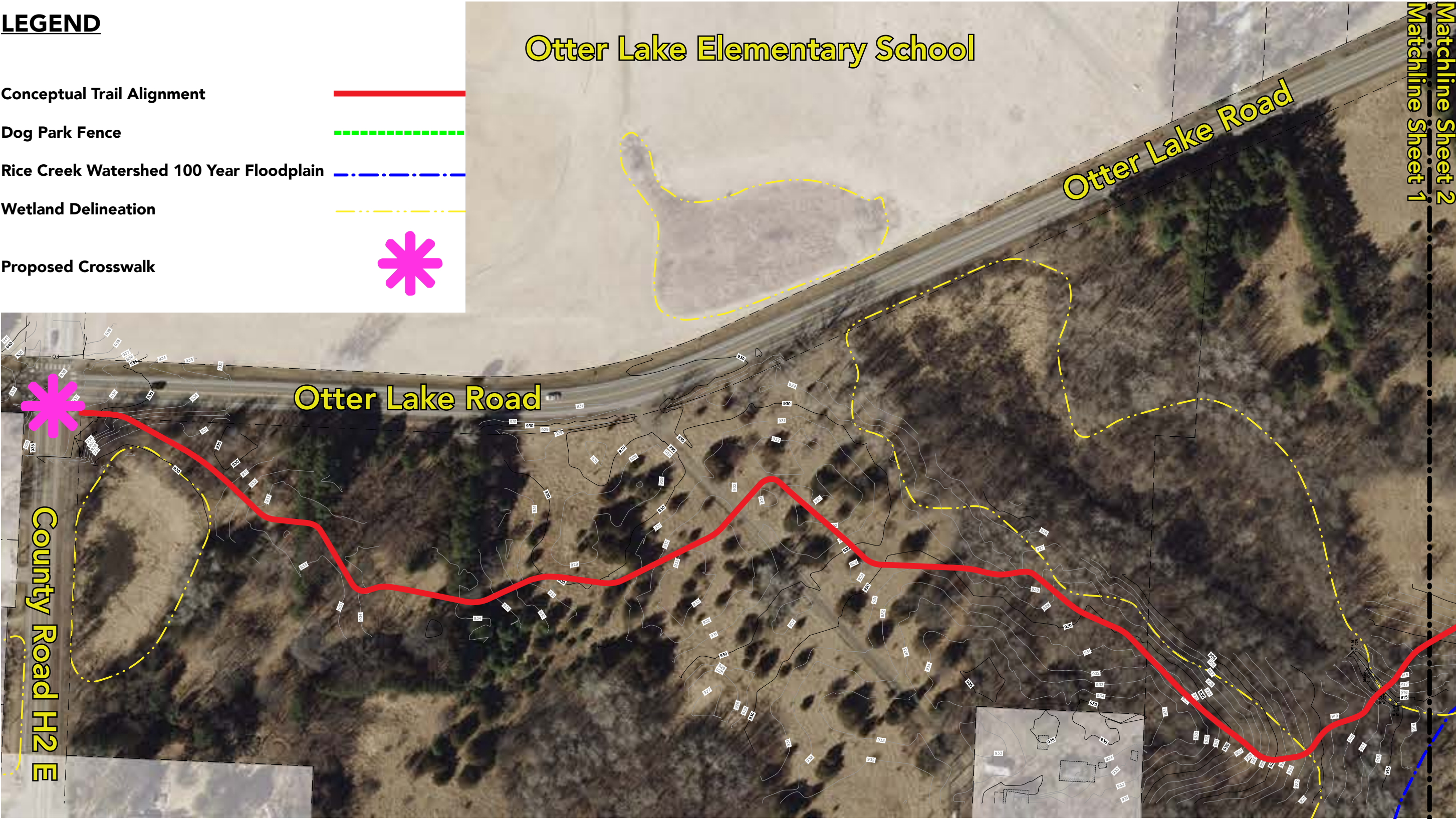


Fig. 5

LEGEND

Conceptual Trail Alignment

Dog Park Fence

Rice Creek Watershed 100 Year Floodplain

Wetland Delineation

Proposed Crosswalk

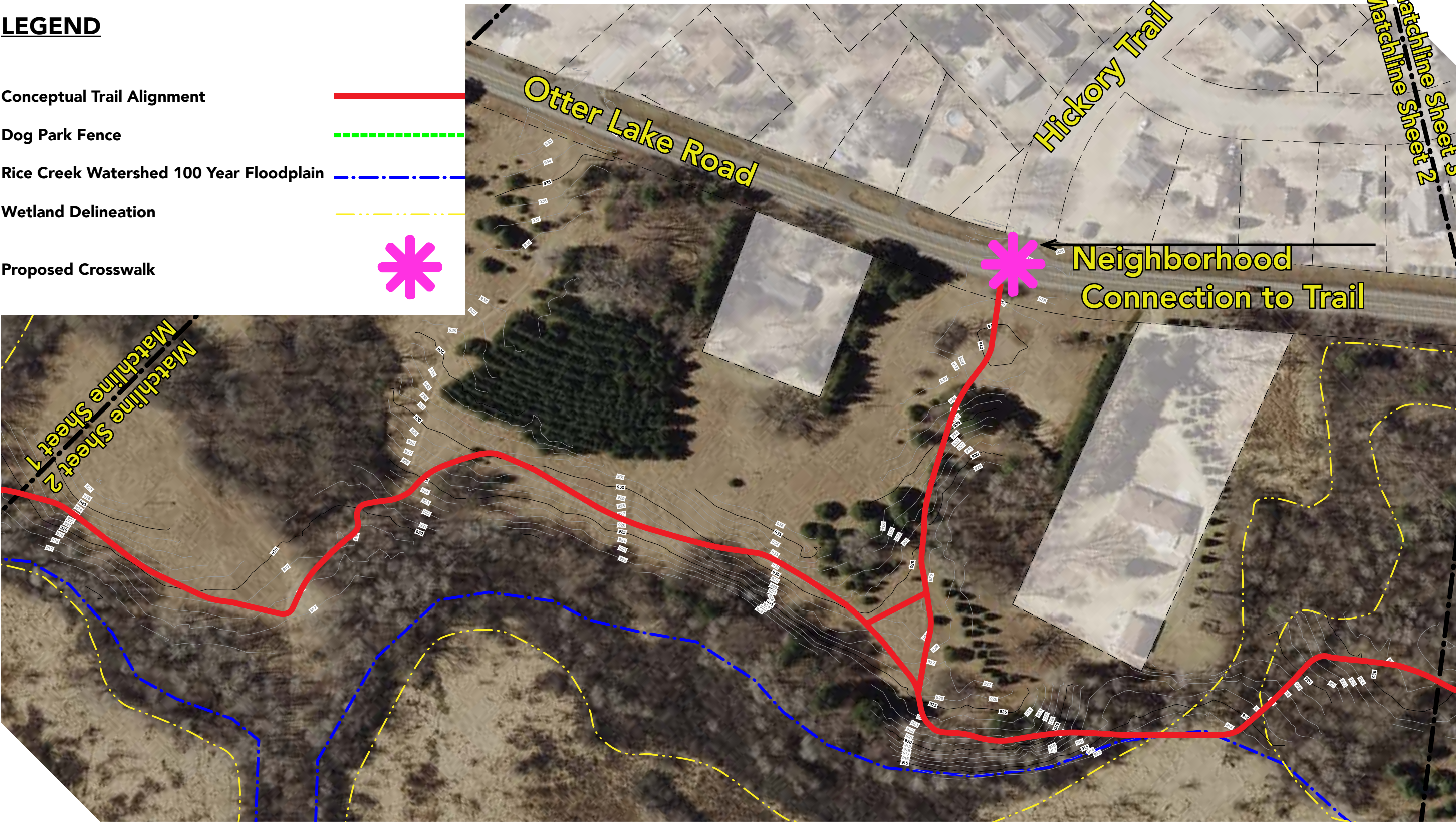


Fig. 6



LEGEND

- Conceptual Trail Alignment —
- Dog Park Fence ---
- Rice Creek Watershed 100 Year Floodplain - . - . -
- Wetland Delineation - . - . -
- Proposed Crosswalk ✱



Fig. 7

Drainage & Wetland crossing



Photo – Existing drainage stream

The proposed trail alignment has several locations where it will be necessary to provide a boardwalk structure to span an existing drainage stream and a portion of wetland located in the trail corridor. The drainage corridor and the wetland area, mentioned previously in the site analysis section, will require concrete abutments and a helical pile boardwalk structure. The total length of boardwalk will need to be 200 lineal feet. The type and depth of foundations will depend on the structural review as part of final design. Ramsey County regional trail boardwalk structures have a minimum standard rating of an H5 structural load capacity and are required to support the weight of emergency and

maintenance vehicles. The boardwalk structures will

require guardrails for heights 30" or more above grade. If areas of the boardwalk exist that do not require a guardrail, a 4" curb would still be required. The overall width of the structures proposed shall match the trail width of 10ft clear. Boardwalk material could be wood or concrete.

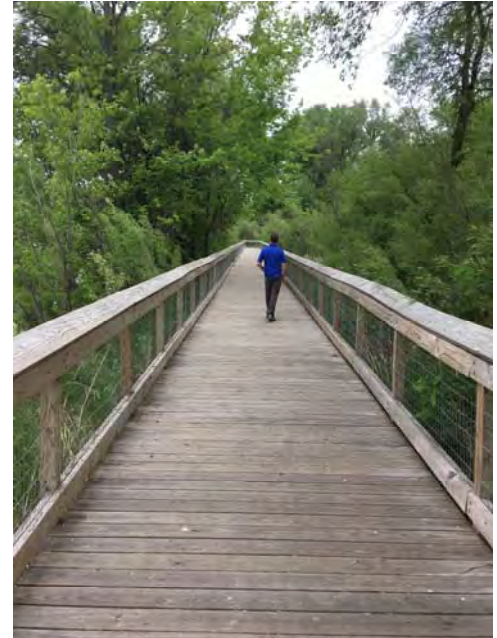
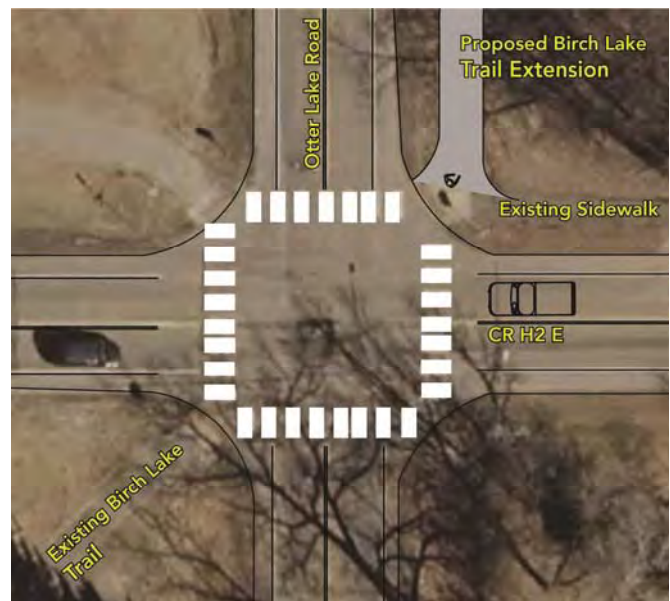


Photo – Boardwalk Example

Crossings of Otter Lake Road

The existing trail currently ends at the southwest corner of Otter Lake Road and County Road H2. This intersection has a four way stop and both roads are 2-lane rural section, with no curb and gutter or turn lanes. The existing intersection has crosswalks for each leg of the intersection. The proposed trail segment A will begin on the northeast corner of the intersection, requiring a new improved curb ramp with detectable warnings to be installed.

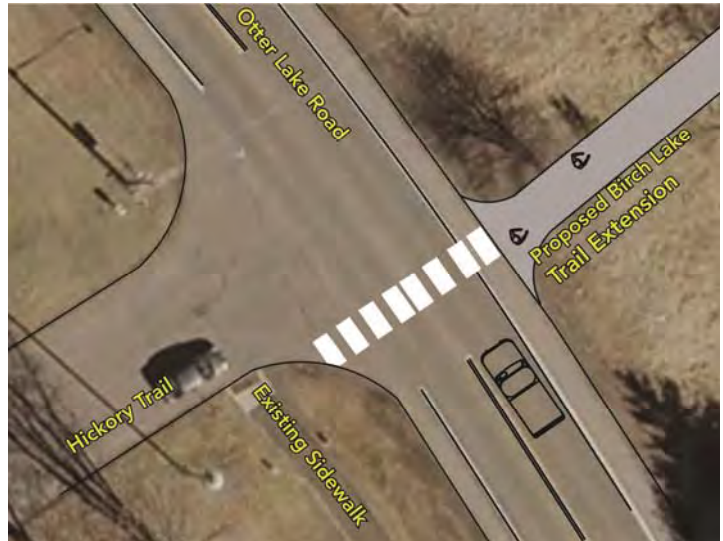
There are two additional crosswalks proposed as part of trail segment-A connections to neighborhoods located on the west side of Otter Lake Road. Crosswalk locations proposed were selected based on several factors, including road vertical viewing distances, road horizontal viewing distances, and where people were most likely to walk into the park from the



neighborhoods based on visible foot paths already established.

Hickory Trail – at grade crosswalk

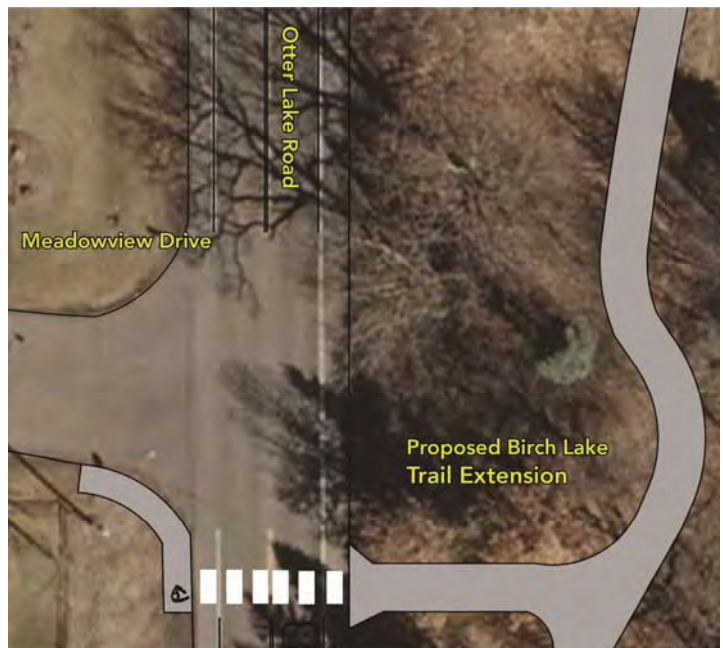
The preliminary plan identifies the intersection of Otter Lake Road and Hickory Trail for an uncontrolled at grade crosswalk and connection to Birch Lake Trail. While none of the local street intersections require Otter Lake Road traffic to stop, the intersection has adequate viewing distances for drivers and pedestrians making it feasible for an uncontrolled at grade crossing. It also has an existing White Bear Township trail located in the road right-of-way that begins at Otter Lake Elementary School ending on the south side of the Hickory Trail intersection.



Intersection at Otter Lake Road and Hickory Trail

Meadowview Drive - at grade crosswalk

The preliminary plan also identifies the intersection of Otter Lake Road and Meadowview Drive for a proposed uncontrolled at grade crosswalk and connection to Birch Lake Trail. Otter Lake Road traffic is not required to stop here either, however the intersection has adequate viewing distances for drivers and pedestrians making it feasible for an uncontrolled at grade crossing.



Intersection at Otter Lake Road and Meadowview Drive

Segment B – Options for Otter Lake Trailhead to Co Rd J

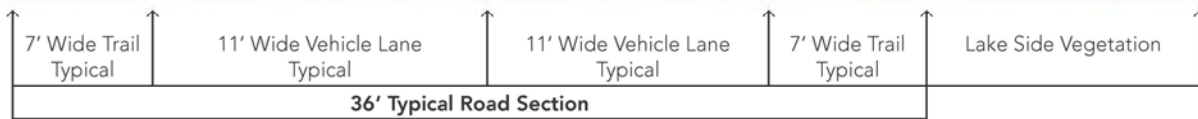
Segment B was studied to determine future feasibility of a connection from Otter Lake trailhead to County Road J. Refer to figures 8, 9, & 10 for illustrative plans. This segment of trail from the Otter Lake Trailhead to County Road J is extremely difficult due to many factors. The County looked at the feasibility of continuing an off road trail in the right of way of Otter Lake Road. The west side of the road has adequate right-of-way; however, it has many challenges. The number of residential driveways, landscaping, walls, utility poles, mail boxes, grade and drainage issues make creating an off-road trail unlikely. On the east side of Otter Lake Road, Ramsey County owns a majority of the property from Otter Lake to County Road J, however most of the property is steeply sloping from the road to the lake and is located in wetland and floodplain making trail construction impractical.

Based on these observations, Ramsey County developed several on-road concepts to achieve a pedestrian and bike connection to County Road J. The existing road section consists of two 11ft wide driving lanes and two 5ft wide shoulders. In either option, some additional pavement would be necessary to achieve the desired pavement width. The following on road options were presented to the public for comments.

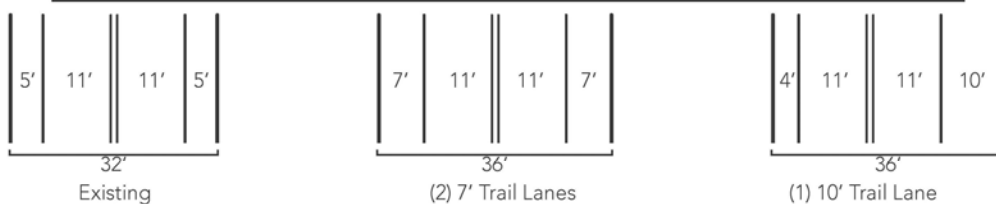
7ft Shoulder (one each side of Otter Lake Road)

This option requires the 32ft wide roadway to be widened slightly to accommodate widened shoulders. The widening would take place on the west side of Otter Lake Road due to the steep grade issues on the east side and within the existing right-of-way. The road would be widened 4 feet and the striping on the existing pavement would be adjusted to allow for two 11ft wide lanes and two 7ft wide shoulders.

Segment B Option B - 36' Wide Road Section With 7' Shoulder Trails



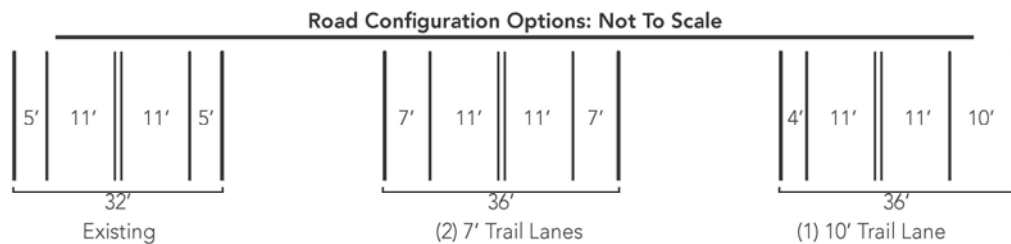
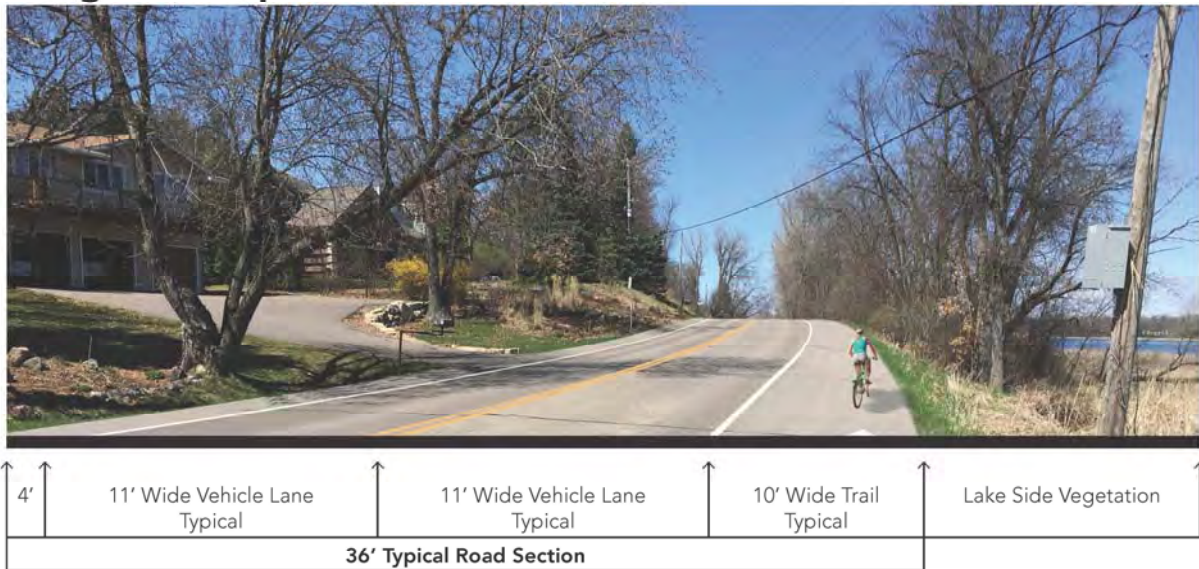
Road Configuration Options: Not To Scale



10ft shoulder (East side of Otter Lake Road Only)

This option requires the 32ft wide roadway to be widened slightly to accommodate a widened shoulder. The widening would take place on the west side of Otter Lake Road due to the steep grade issues on the east side and within the existing Right of way. The road would be widened 4 feet and the striping on the existing pavement would be adjusted to allow for a 4ft shoulder on the west side and 10ft wide shoulder on the east side.

Segment B Option A - 36' Wide Road Section With 10' Shoulder Trail



Neither scenario has been selected as the preferred option and more study will be needed to determine the final on-road pedestrian and bicycle facilities.

LEGEND






- Conceptual Trail Alignment 
- Dog Park Fence 
- Rice Creek Watershed 100 Year Floodplain 
- Wetland Delineation 
- Proposed Crosswalk 



Fig. 8

Matchline Sheet 4
Matchline Sheet 3



Fig. 9

Matchlinesheet 5
Matchline Sheet 4



BIRCH LAKE REGIONAL TRAIL
Segment B Sheet 5

Fig. 10

Amenities

Regional trails typically have amenities to support the access and users of the trail system. Restrooms are available at Tamarack Nature Center and the Otter Lake off leash dog area trailhead parking lot. The Otter Lake restroom is summer seasonal restroom building with flush toilets. In the winter season portable toilets are provided because the building is not open.

Ramsey County has provided benches throughout the regional park and trail system to allow people of all abilities to be able to enjoy outdoor environments. Benches will be installed approx. 1200 feet apart which allow for people of all abilities to rest as needed. Trash and recycling would also be part of the trail facilities and trailheads services.



Standard Ramsey active living trail side bench

Signage and Wayfinding

Regional trail facilities and trail facilities within the right of way of a County road utilize Minnesota Uniform Traffic Control Device (MUTCD) standards for signing trails. Trail and park rule signs will be designed to match existing rule sign standards used across all Ramsey County park and trail facilities.

Wayfinding signage will follow Ramsey County wayfinding sign aesthetics which display maps with key points, distances, and directions to park and trail amenities. Wayfinding signs are generally located at park and trail entrance points, trailheads, and trail intersections.



Standard Ramsey County wayfinding map with rules



Standard Ramsey County wayfinding trail post

Cost Estimates and Phasing

The following preliminary design estimate has been completed for Segment A ONLY for the birch lake Trail extension from County Road H2 to the Otter Lake Trailhead.

Birch Lake Trail Preliminary Design Estimate				
Date 6/1/2017				
Funds - TBD				
Segment A - H2 to Otter Lake Trailhead Estimate				
Item	Unit	Total Quantity	Unit Price	Total Cost
Mobilization (5%)	LS	1	\$ 40,000	\$ 40,000
Tree removal	LS	1	\$ 10,000	\$ 10,000
Earthwork	SF	130,000	\$ 0.50	\$ 65,000
Erosion control - silt fence or bio roll	LF	15,000	\$ 0.80	\$ 12,000
10FT asphalt Trail - 3" Bit.	LF	6,416	\$ 28.00	\$ 179,648
Trail Base - 6"	CY	2,620	\$ 30.00	\$ 78,600
Ped ramps w/detectable warning	EA	8	\$ 3,000.00	\$ 24,000
Concrete slab for trash and benches	SF	400	\$ 8.00	\$ 3,200
Benches	EA	10	\$ 800.00	\$ 8,000
Signage	LS	1	\$ 15,000.00	\$ 15,000
Bollards	EA	4	\$ 700.00	\$ 2,800
Restoration - Hydromulch turf seed	AC	3	\$ 2,000.00	\$ 5,800
Boardwalk- helical pile	LF	200	\$ 575.00	\$ 115,000
Concrete abutments	EA	4	\$ 3,500.00	\$ 14,000
Crosswalks paint and crossing signs	LS	4	\$ 2,000.00	\$ 8,000
Subtotal				\$ 581,048
Civil Site Design, Engineering				\$ 69,726
Record Survey - Topographic				\$ 10,000
Permits - Rice Creek WD, DNR, City, NPDES				\$ 3,500
Construction testing - conc., compaction, soils verification, etc				\$ 8,000
Sub-Total Project				\$ 672,274
Construction Contingency 10%				\$ 80,673
Total Project Complete				\$ 752,947

There is no estimate for the cost of constructing Segment B.

Construction

There is no timetable for construction of the trail at this time. Construction length is approximately 3-4 months, including fabrication time for boardwalk structures.

Maintenance

Summer maintenance would consist of mowing one mower width along the trail in the summer, clearing woody vegetation to 6ft on either side of trail, and blowing organic material off of the trail surface. Winter maintenance would include snow plowing and limited ice removal from the trail.

Boardwalk and bridge structures will require snow to be removed with a mechanical brush or be blown off with a snow thrower. Summer maintenance will include structure inspections and clearing of vegetation that may grow through the railings or deck structure.

Public Open House Comments May 10, 2017

Public Input

Ramsey County Parks and Recreation provided an open house format public meeting to discuss the trail extension with the public. The meeting was held at Tamarack Nature Center near the proposed trail project. Approximately 30-40 people attended the meeting with generally positive feedback.

Public comments received

- Run trail down Centerville Rd. from County Rd J to County Rd H 2 rather than Otter Lake Rd – for safety concerns.
- Will we still be able to park on the street in front of our house like we can do now?
- What about the 18 wheeler trucks that use Otter Lake Rd for “J” coming off 35 E going south.
- If this goes down Otter Lake Rd – will they fix the drainage issue so that it doesn’t go across the west side of the road to the east side – This is very dangerous when it freezes and thaws.
- Safety concerns: Speed, traffic, blind spots, curves. Who is responsible for death/etc.
- Lower speed limit to 30 mph-to many speeders and accidents on Otter Lake Rd.
- We have lots of trails we really do not need another one and we bike.
- If this trail is projected for 6 years, ask us in 6 years. If it comes down to choices now, I would opt for the trail going lake side, not home side.
- A 7’ path is wide enough.
- Trail should only be on the lake side along Otter Lake Road.
- Brandlewood should be a 3 way stop & right side should be cleared back (bushes & tree) so you can see. And the drainage on Otter Lake between Brandlewood & Meadowview needs to be fixed my backyard is full of water at the far end by Otter Lake.
- Why doesn’t the trail go down H 2 around Bald Eagle Lake. You could bike a loop, parking at Tamarack park and back.
- Meadow View intersection is dangerous | fast drivers – coming over the hill and coming up the hill. Better to enter from dog park – safer.
- Going around Otter Lake would be great! Off street.

- Brandlewood intersection is a blind spot by car – cut brush back farther or put in a 3 way stop to slow down those that speed on the open stretch to Brandlewood.
- I suggest a boardwalk along Otter Lake Rd north of the boat ramp. The value is that it keeps people away from the dangers of the road and is also a more natural environment. (Tom Keane 651-429-1584).
- How about a little privacy for the home owners that pay the big taxes for the view?
- Widen the lake side shoulder trucks and trailer turning onto J swing wide or go through the corner drain.
- Cars, truck and semis speeding. A lot of vehicles go off the road now.
- Please consider making Otter Lake Rd (between J and H2) one way (like Lake Avenue in WBL) that would allow an above grade walking & bike path which would be much safer.
- How will parking & dog park be impacted? Where is the master plan for the dog park? Fence at dog park falling down and your adding walkers and bikes near fence.
- Check township records originally this was voted to be open space. No Development. If Jerry Pervon was still alive, he would have the notes on it. Check with township. I cannot remember a meeting changing that.
- Whatever you do- Please lower speed limit on Otter Lk road to 30 with constant patrols. Thanks
- There are bike paths on each side of the road already – just widen both of them if you have to.
- Will you make bikers by permits to help pay for the upkeep?
- This proposed project is on “Ramsey County Open Space” area designated for wildlife protection let the wildlife keep the little space remaining!
- I prefer the trails on both sides- safer for bikers.
- As a dad with young kids I’d prefer the 10’ ft. scenario. Right now I refuse to allow my kids to ride bikes on Otter Lake Rd. Having a wider path would potentially make it safer for families to use the trail.
- Big safety concern for people and bike north of dog park to County J. Would be nice to connect a trail to Bald Eagle.
 - Trail entrance into park should go Jonquil south not between the two home owner’s property on East Side of Otter lake.
- All the huge semi’s that regularly use Otter Lk Rd.
 - Regular geese crossing that sometimes stops traffic (summer & fall). The sharp curve areas are a game field for the muscle cars & motor cycles. High Speed route – even though posted 35 MPH. Otter Lk Rd folks already have to wait & be very careful pulling out of drives.

- I am very much in favor of the mass construction. Of two road options. I would support this two 7' shoulders over the single 10' shoulder option. Suggestions: There is a trail at the Jonquil Lane intersection that goes east from the proposed Regional trail. In winter it is heavily used to access land near Bald Eagle lake. In wet years, there is a 50yard stretch of swamp that prevents passage. Please look at the possibility of providing some type of bridge through this area. It would be heavily used and would provide access to the proposed regional trail for neighborhoods to the east along Bald Eagle Blvd.
- Will we be paying for this in addition to our regular property taxes a special assessment to people on Otter Lake Rd?
- Do they pay for property taken?
- Due to topography of parts of Otter Lake Rd, steep banks/driveways make loss of any driveway footage hazardous. How will this be addressed?
- Traffic on Otter Lake Road routinely moves far in excess of the 35 MPH posted speed limit. There are several blind drive ways. Making auto ungress and egress already hazardous. Locating walk| bike trail on lake side make more sense form safety point.
- Homeowners concerned about how much actual widening will occur? The diagram shows 5' "shoulder" whereas it is likely less than 3'. Will homeowners be accommodated for loss of landscaping, driveway modifications, etc.?
- Will no parking be allowed if bike path is approved?
- Changing drainage on home owners side – add new lighting poles/parking restrictions on both sides all year around.
- I like the trail w/one side being 10 ft. wide. Cars are going too fast along Otter Lk Rd and people swerve onto the trail going around the curves. The trail going to H 2 Rd. looks great! Good job putting this together!
- 10ft. trails allow for multiple people to run together as well as dogs on leashes and strollers. Thank you!!
- Move path form Co. Rd. to Centerville Rd. instead to H 2 It's straight Rd & would be safer. Otter Lake is curvy and thus several blind curves blind curves biking there. I know as I walk it several times a week. Very Dangerous.

Appendix A – Geotechnical Evaluation Report, Proposed Trail at Bald Eagle - Otter Lake Regional Park

Appendix B – Wetland Delineation Report, Proposed Trail at Bald Eagle - Otter Lake Regional Park