City of Duluth
Planning Division

411 West First Street • Room 208 • Duluth, Minnesota 55802-1197
218-730-5580 • Fax: 218-730-5904 • www.duluthmn.gov

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Planning Commission Agenda
Council Chambers, 3rd Floor, Duluth City Hall
SPECIAL MEETING
Tuesday, October 27, 2015, 5:00 PM

I. Call to Order and Roll Call

II. Old Business
- A. PL 15-090 Decision on the Environmental Assessment Worksheet (EAW) for Hartley Park Phase 1 Implementation of the Master Plan (KD)

III. Other Business

IV. Adjournment

Respectfully,

Keith Hamre, Director of Planning and Construction Services

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MEMORANDUM

DATE: October 19, 2015

TO: Duluth City Planning Commission

FROM: Kyle Deming, Planner II

RE: Decision on Hartley Park Phase 1 Implementation of Master Plan EAW (PL15-090)

At your October 27, 2015 special meeting, the Duluth City Planning Commission, as the Responsible Governmental Unit (RGU), will make a decision on whether an Environmental Impact Statement (EIS) is required for Phase 1 Implementation of the Hartley Park Master Plan. An EIS shall be ordered for projects that have the potential for significant environmental effects (Minn. Rules, Part 4410.1700, Subp. 1).

According to the Rule, the RGU (Planning Commission) shall base its decision regarding the need for an EIS on the information gathered during the Environmental Assessment Worksheet (EAW) process and the comments received on the EAW (Minn. Rules, Part 4410.1700, Subp. 3). In deciding whether a project has the potential for significant environmental effects, the RGU shall compare the impacts that may be reasonably expected to occur from the project with the following criteria (Minn. Rules, Part 4410.1700, Subp. 6 & 7):

a) Type, extent and reversibility of environmental effects;
b) Cumulative potential effects. The RGU shall consider the following factors: whether the cumulative potential effect is significant; whether the contribution from the project is significant when viewed in connection with other contributions to the cumulative potential effect; the degree to which the project complies with approved mitigation measures specifically designed to address the cumulative potential effect; and the efforts of the proposer to minimize the contributions from the project;
c) The extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority; and
d) The extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs.

Please find attached the EAW, draft Findings of Fact and Record of Decision prepared by staff for the Planning Commission to consider in making its decision on the need for an EIS. A decision on the EAW needs to be made by October 30, 2015, which is 30 days after the close of the 30-day comment period (Minn. Rules, Part 4410.1700, Subp. 2.A).

CITY OF DULUTH, MINNESOTA

DULUTH CITY PLANNING COMMISSION

FINDINGS OF FACT AND RECORD OF DECISION

~ DRAFT FOR PLANNING COMMISSION CONSIDERATION ~

Date: **October 19, 2015**

RE: **Decision on the Need for an Environmental Impact Statement**

Project: **Hartley Park Phase 1 Implementation of Master Plan**

BACKGROUND

The Duluth City Planning Commission is the Responsible Governmental Unit (RGU) for environmental review of the Hartley Park Phase 1 Implementation of the Park Master Plan. The preparation of the Environmental Assessment Worksheet (EAW) was in accordance with the Environmental Review Regulations of the Minnesota Environmental Quality Board (EQB) for a discretionary EAW.

The EAW was reviewed by the Duluth City Planning Commission and found to be complete for distribution at their August 11, 2015 meeting. The EAW was filed with the EQB and circulated for review and comment to the EQB's EAW Distribution List. The notice was published in the EQB Monitor on August 31, 2015 announcing a 30-day comment period that ended on September 30, 2015. A news release was issued informing the public that the EAW was available on the City of Duluth's web page, at the Duluth Public Library and at the offices of the City of Duluth Planning Division. The news release directed people wishing to make comments to file them with the City Planning Division or attend a public hearing on the matter.

The Duluth City Planning Commission held a public hearing on Tuesday, September 22, 2015, at 5:15 p.m. and received comments from two persons. The Duluth City Planning Commission reviewed the EAW document and considered oral and written comments from its staff and the public.

BRIEF PROJECT DESCRIPTION

Implementation of the 2014 Hartley Park Master Plan Phase 1 improvement projects include: forest management of red pine (selective thinning of 10 acres) and wildlife openings (5 acres) in aspen stands, invasive vegetation management (primarily buckthorn removal), new trail construction to repair and realign existing trails (a net increase of 2.6 miles of multi-use trails), and parking improvements at three park entrance locations and the main Hartley Nature Center entrance. The proposed project would be initiated when all permits and approvals are received.

Hartley Park was created in 1941 when the Allendale Farm became tax forfeit land. The 1948 aerial photo (Figure R-1) shows that much of the newly created Hartley Park remained largely devoid of forest seven years later. During the 1940s, Boy Scouts planted the pine stands that are proposed for thinning.

Boy Scout tree planting projects continue into the present decade. Since the 1950s, the pine plantations have grown up, and the remainder of this former farmland (now park) has filled in with aspen and other northern hardwoods, as well as invasive species such as buckthorn. Trails were added during the 1970's as the vegetation continued to fill in. See attached Figure R-1 in Exhibit B.

COMMENTS RECEIVED, RESPONSES, AND OTHER DOCUMENTS REVIEWED

During the 30-day comment period from August 31, 2015 to September 30, 2015, a total of 12 written comment letters were received from the public and two agency letters; one each from the MN Pollution Control Agency and the MN Department of Natural Resources:

1. Daniel H. Mundt, Director of Gender Matters – three letters (9/22/2015), (9/29/2015), & Daniel H. Mundt, Attorney at Law (9/29/2015)
2. Mike Seyfer, Partner, President, and CEO, HTK Marketing Communications (9/22/15)
3. Barbara Stark/Christine Penney, Duluth Tree Commission (9/27/15) in Duluth News Tribune, received by the City as a public comment (9/30/15)
4. David C. Rutford, Hartley Park neighbor (9/28/15)
5. Jim Sharrow, Hartley Park neighbor (9/29/15)
6. James A. Olson, Owner of Stewart-Taylor Printing, (9/30/15)
7. Ken Lindberg, Top Hat Carriage (9/30/15)
8. Kerry Juntunen, Superintendent, Hermantown Community Schools, (9/25/15)
9. Russ Conrow, Attorney, Gender Matters (9/30/15)
10. MN Department of Natural Resources (9/1/15)
11. MN Pollution Control Agency (9/30/15)
12. Edmond Lundstrom, Hartley Park neighbor (9/30/15)

Two members of the public offered their oral testimony at the September 22, 2015 Public Hearing with the Duluth Planning Commission.

1. Russ Conrow, Gender Matters
2. Linda Ross-Sellner, Hartley Park neighbor

The following section provides a summary of these comments and responses to them. Specific comment letters are available for review in Exhibit C.

1. Public Comment – letter Daniel H. Mundt – 9/22/15

Comment: The Park's Department proposals would decrease the value of Hartley Nature Center to the children and society in general.

Response: The proposed actions provide improved access for all park users, specifically children and individuals with disabilities who cannot currently access many areas of the park. The trails provide access routes for the students, hikers, bikers, and skiers and all visitors to enjoy Hartley Park and to provide access to the Hartley Nature Center. The proposed parking provides additional parking at the Park and Nature Center and reduces on-street parking conflicts with adjacent neighborhoods. As described in the EAW as well as depicted in the September 27, 2015 Duluth Tree Commission editorial in the Duluth News Tribune (and submitted as comment on the EAW), the forest management actions are being proposed to preserve and protect the overall health of the park's pine stands, to improve vegetation diversity in wildlife habitat openings in the aspen stands, and to remove and reduce invasive species, such as buckthorn, which also affect wildlife habitat.

2. Public Comment – letter Daniel H. Mundt – 9/22/15

Comment: The EAW is wholly inadequate and fails to address water, habitat, how activities are going to occur, the cost, and the impact of each one on the other.

Response: The EAW does not address the Hartley Park Master Plan's recommendations to restore Tischer Creek and preserve Hartley Pond. Based on available funding, this EAW addresses only those master plan elements that are proposed for projects at this time. The definition of a "Project" under MN Environmental Rules 4410.0200 is "a governmental action, the results of which would cause physical manipulation of the environment, directly or indirectly." The determination of whether a project requires an environmental review shall be made by reference to the physical activity to be undertaken and not to the governmental process of approving the project. There are no plans or funds at this time to undertake other items address in the Hartley Park Master Plan. Therefore, this EAW will not address those issues which are beyond the Phase 1 scope of this project.

The EAW discusses water resources within the Park and how the proposed actions will minimize adverse impacts to water, including closing and restoring trail segments with eroded areas. In Section 6 under the Project Description heading is a discussion of the overall trail design with respect to wildlife habitat. Wildlife habitat and wildlife is described further in the EAW in Section 13 and Appendix D. Also, other studies on the effect of trails on wildlife are cited by reference on page 27 of the document. They support the argument that the proposed Phase 1 improvements do not have a significant adverse effect on wildlife or their habitat. MN EQB rules and guidance do not require the EAW to address cost.

3. Public Comment – letter Daniel H. Mundt – 9/22/15

Comment: The issue of hiking against biking is important and has been ignored or glossed over.

Response: Hiking and biking trail design is thoroughly discussed within the document. The project description details the proposed corrective actions and the appropriate respective design standards that have been incorporated to ensure sustainable trails as well as the closure and restoration of trails that are not sustainable. The EAW cites additional environmental studies that have determined that sustainable trails do not have a significant adverse effect on wildlife or their habitat. Most of the proposed trails are multi-use created for both hikers and bikers. Compatibility with other recreation master plans is discussed in Section 9 under Land Use.

Numerous studies have been completed that evaluate the impacts of hiking and biking trail use. Prior to 2010 over 132 studies have been completed and published that have reviewed trail design, trail uses and trail impacts; a review of scientific literature using Science Direct found 46 additional published studies since 2010, and a review of Google Scholar data searches found reference to 89 additional studies since 2010. These studies have found that properly designed and maintained trails can reduce the impacts and protect the environment. A review of these studies (Pickering et al 2010) found mountain bike and hiking trails have similar impacts and that slope is the most important factor influencing changes in trail conditions. Many of the user defined trails in Hartley Park have been rebuilt and rerouted since 2006 using IMBA and MN DNR guidelines; the trails to be rebuilt or rerouted as part of this project do not currently meet these standards and when rebuilt or rerouted will remove steep slopes and other unsustainable conditions that will reduce impacts.

4. Public Comment – Russ Conrow – 9/22/15 at Public Hearing

Comment: The EAW doesn't address how trails affect habitat. - What animals are going to be run out of these areas?

Response: Most of the trail system already exists and yet the Hartley Nature Center continues to observe wildlife in their natural habitat as reported in Appendix D. The additional scientific literature cited in the EAW discusses the temporary dispersal of wildlife when human interactions occur. Wildlife species are not necessarily going to leave the park because someone is hiking or biking along the trail system within the park. Despite the use by thousands of students who annually visit the Park and the Nature Center through the generosity of Gender Matters' gifts, the Hartley Nature Center continues to record the various wildlife that are encountered by visiting the Park along the trail system. The trail system which provides access to all visitors in the Park occupies approximately 1.5% of the total Park area; more than 93% of the park remains as wildlife habitat.

These EAW comments question if any adverse impacts from the loss or conversion of habitat and habitat fragmentation will occur due to trail work in Hartley Park. Habitat is defined as the physical environmental factors that permit a plant or animal to survive and reproduce. Conversion of vegetation structure can alter species use by changing plant community composition and structure.

Evaluation of habitat alteration impacts can be carried out on a species-by-species basis, which is valuable for species of concern (threatened or endangered species), but such an analysis of every individual species and every single ecological process is an insurmountable task and of limited value (Lindenmayer and Fischer, 2006. *Habitat Fragmentation and Landscape Change*: *An ecological and conservation synthesis*). A more useful, and insightful, habitat impacts evaluation approach, is to evaluate the potential changes in landscape patterns (i.e., vegetation structure, disturbance history) and any impacts upon species assemblages (i.e., bird communities, tree diversity). This landscape pattern approach to habitat evaluation asks two questions, 1) what are the primary causes of habitat loss and thus, how can activities that create these changes be avoided, and 2) are any of the proposed changes outside the "normal" range of ecosystem disturbances? In answering the first question, there are six key areas of landscape change that need to be evaluated with regard to habitat change or loss. Each of these six components of the first question are further explored below:

1. *Does the proposed project reduce habitat size or create fragmentation?*
   When forested plant communities are converted to large expanses of open communities, there are corresponding changes in wildlife communities. Species that rely on well-developed forest canopies for nesting, foraging, or shelter are displaced from the portions of the landscape where this alteration occurs. There are no large-scale conversions or fragmentation of forest land as part of the project.

   The proposed improvements would close and restore 3.7 miles of trail to natural vegetation, stop erosion and provide improved wildlife habitat. The trail system, which provides access to all visitors in Hartley Park, occupies approximately 1.5% of the total Park area; more than 93% of the park remains as wildlife habitat. At the same time, there will be a net gain of 2.6 miles of multi-use trails in the Park. These 2-4 foot-wide trails will not remove the forest canopy, do not create new open areas and will not present a significant adverse effect on 597 acres of wildlife habitat in the Park's 640 acres.

Habitat fragmentation can reduce the size of contiguous blocks of vegetation; this reduces the total area of contiguous habitat available to wildlife species and increases the isolation of the habitat. The alteration of plant community composition and structure can adversely affect those species that rely on the presence of certain plant species or vegetative cover. Fragmentation effects are greatest where large contiguous blocks are broken up into smaller patches that reduces interior forest habitat necessary for some species such as song birds. No such fragmentation will result from the project.

When habitat loss reaches and surpasses a certain threshold, negative impacts can occur. This is due to loss of plant community composition and structure which reduces habitat available to animal species and thus can reduce species abundance and reproduction success. Most research has shown that habitat loss thresholds are variable across species; salamanders need 20% to 30% forest cover, therefore impacts won't be seen until there is a 70% to 80% decrease in habitat area (Homan, et al 2004). Birds and mammals see declines when less than 10% to 30% of the landscape is suitable habitat, which equals a 70% to 90% decrease in habitat area (Andren 1994). Wood frogs require 88% of adjacent areas to be in suitable habitat to prevent declines, which equals a 12% decrease in habitat (Homan, et al 2004). Fungal species have reduced reproduction when suitable habitat is less than 60%, which equals a 40% decrease in habitat (Otten, et al 2004). Moth abundance is reduced when suitable habitat is less than 40% to 50%, which equals a 40% decrease in habitat (Schmidt and Roland 2006). Amphibians generally decline when suitable habitat is less than 55% to 60%, which equals a 40% decrease in habitat (Gibbs 1998; Homan et al 2004). [References available upon request]

As can be seen in the in the table presented below, all of the habitat changes proposed as part of Phase 1 of the Hartley Park Master Plan Implementation are very small and will not present a significant adverse effect on 597 acres of wildlife habitat in the Park's 640 acres.

Habitat Changes by Cover Types	Before	After	% change
Wetlands	92.9	92.8	-0.1%
Deep water/streams	18	18	0.0%
Wooded Forest	430	423	-1.6%
Brush/grassland	58	63	8.6%

2. *Does the proposed project result in a change in vegetation structure?*
The proposed selective thinning is a standard forestry management practice designed to create openings in the forest canopy, which enhances wildlife and woodland diversity. Thinning helps create better spacing and reduces competition, which improves individual tree and overall forest health. Selective thinning encourages diverse natural plant regeneration, optimum growth, health, and canopy layering, which enhances both wildlife and woodland diversity. The thinning component of the project will also reduce mortality due to pine bark beetles. Species that rely on shrub layer or ground layer habitats may be less susceptible to, and often benefit under alterations associated with

forestry stand management because the changes in vegetation community structure and environmental factors, such as light intensity, lead to greater plant diversity.

3. *Does the proposed project lead to loss of connectivity?*

   Habitat area is important, but equally important is access to adjoining suitable habitat. Fragmentation effects are greatest where large contiguous blocks are broken up into smaller patches that reduces interior forest habitat necessary for some species such as song birds. No such fragmentation will result from the proposed project since it does not create any barriers to plant and animal dispersion or movements. The 2-4 foot-wide trails will not remove the forest canopy, do not create new open areas, and will not present a significant adverse effect on 597 acres of wildlife habitat in the Park's 640 acres.

4. *Does the proposed project lead to loss of buffer area?*
   The proposed project does not remove or alter buffers in or around the park. Trails are located within the different plant communities (woodland, wetland, etc.) and not along the transitional edges of the plant communities where impacts upon buffers or ecotones would be greatest.

5. *Does the proposed project lead to loss of heterogeneity?*
   The proposed selective thinning creates openings in the forest canopy, which enhances wildlife and woodland diversity by increasing the heterogeneity of the Park's vegetation. Thinning helps create better spacing and reduces competition, which improves individual tree and overall forest health. Selective thinning encourages diverse natural plant regeneration, optimum growth, health and canopy layering, which enhances both wildlife and woodland diversity.

6. *Does the proposed project introduce invasive species?*

   Non-native invasive or pioneering plant species may encroach where disturbance provides a competitive advantage and an avenue of introduction. The proposed improvements would close and restore 3.7 miles of existing trail to natural vegetation, stop erosion, remove invasive species, and provide improved wildlife habitat. The trail system, most of which is currently in place, provides access to Hartley Park and occupies approximately 1.5% of the total Hartley Park area. Near the pines, buckthorn is the dominant understory plant, competing for resources with the pines. Buckthorn is found throughout Hartley Park but is a significant threat on approximately 88 acres of the Park. Figure 4 in the EAW shows the prevalence of buckthorn within the Park. The City of Duluth has an active program using volunteers and contractors to control buckthorn and other invasive vegetation in Hartley Park.

For all of the six "measures of habitat reduction" discussed above, the answer is that the proposed project does not decrease habitat area in the Park, and some of the proposed activities will increase the overall habitat value of the Park.

5. Public Comment – Russ Conrow – 9/22/15 at Public Hearing

Comment: The EAW doesn't address the situation where a logger cuts more than allowed in the contract.

Response: The City will mark trees to be cut prior to awarding the contract. Provisions of the forest management contract will include, per letter from Lindsay Dean, Manager of Parks and Recreation (see Exhibit C) proof of a Certificate of Good Standing with the Master Logger Certification Program, requirement by the logger to utilize Best Management Practices as put forth in the MN Forest Resource Council's Forest Management Guidelines, and oversight that will include daily supervision and reporting by a Certified Forester.

6. Public Comment – Russ Conrow – 9/22/15 at Public Hearing

Comment: What about animals living in dead trees?

Response: The standing dead red pines will be removed to prevent the spread of bark beetles to protect the remaining healthy trees in the stands. The forest management contract will create small openings in the aspen stands to promote diversity of wildlife habitat. Except for the pine stand thinning, the intent is not to remove standing dead trees (snags) unless there is a threat to the health of the remaining trees. The removal of dead pines in part of 10 - 12 acres of forest is a small part of the total forest area in Hartley Park. Adequate dead tree habitat will remain for wildlife benefits.

7. Public Comment – Russ Conrow – 9/22/15 at Public Hearing

Comment: The cumulative impacts section does not address the gap in the Duluth Traverse EAW shown at Hartley Park. This should be considered because it involves the same landowner with a similar project within 3 years.

Response: The City prepared an EAW for the City-wide Duluth Traverse Project in 2013. The Duluth Traverse did not discuss the "gap" in Hartley Park, because the Hartley Park Master Plan was not yet completed and the City was not sure how the Traverse would connect in Hartley Park. The Hartley Park Master Plan Phase 1 Implementation EAW stated that the multi-use trails in Hartley Park will connect with the Duluth Traverse at the south and northeast sides of the Park. This is consistent with all trail and park master plans prepared by the City. The Duluth Traverse trail connections at either end of Hartley Park represent a very small area and are not considered significant.

8. Public Comment – Linda Ross-Sellner – 9/22/15 at Public Hearing

Comment: Hartley Park is in an area classified "Preservation" on the Comprehensive Plan Future Land Use Map, which is a high natural resource value area restricted to low intensity uses with limited parking, and is covered by the "Sensitive Lands Overlay" to protect the natural functions of the land.

Response: The EAW discusses Land Use in Section 9, on Pages 15-17 of the document. The 2006 City of Duluth Comprehensive Plan Future Land Use Map lists Hartley Park as "Preservation" with "Sensitive Lands Overlay." The classification as "Preservation" recognizes the natural resources and scenic value of the Park. It also suggests that low-intensity use, such as trails and other recreational land uses, are appropriate as well as provide access to, and protection of, viewsheds. The "Sensitive Lands Overlay" classification further recognizes the natural resource value of the Park and suggests conservation design

and natural resource performance standards. The proposed trail improvements, forestry management, and parking improvements align with the Comprehensive Plan "Preservation" and "Sensitive Lands Overlay" future land use.

Preservation is often equated to a complete "hands-off" resource management strategy in parks or open space; however, the cost of doing nothing is often forgotten or left out of the discussion. There are many recent examples around the country, including Yellowstone National Park, where suppressing forest fires for decades resulted in the loss of valuable habitat, property, and even in some cases human lives when forest fires swept through areas with high levels of brush and unhealthy forests.

The forest management activities proposed in Hartley are intended to increase the woodland forest diversity and wildlife habitat. The forest thinning would help preserve the pine element in the forest of which the trees are presently crowded and under stress with pine bark beetles present in the stands. If nothing is done to thin the stands, these trees could be lost to the insects. There are already standing dead pine trees present in the Park. Prompt action is required to protect their health.

According to the Duluth City Planning Department:

- Trails are not specifically listed in the definition of parks, playgrounds or forest preserves; they are considered a passive recreation use and therefore allowed in RR-1 zones.
- Forest Management activities are exempt from tree replacement requirements (UDC Sec. 50-25.9B) of the UDC when approved by the City Forester. This plan has been approved by the City Forester and reviewed with the Duluth Tree Commission.
- Parking lots are also considered a permitted use in RR-1 when associated with a park.

9. Public Comment – Linda Ross-Sellner – 9/22/15 at Public Hearing

Comment: The proposed activities will require a shoreland permit.

Response: Agree. The project may also require other permits listed in Section 8 on page 14 of the EAW document. The City will obtain the necessary permits prior to commencing any work within the Park.

10. Public Comment – Linda Ross-Sellner – 9/22/15 at Public Hearing

Comment: The proposed activities will increase impervious surface, impact wetlands and require stormwater ponds.

Response: New impervious surfaces are the result of the proposed additional parking areas. The additional parking will result in the loss of approximately 1/10 acre of wetland. Efforts have been made to first avoid wetland impact, then minimize impacts to wetlands. There will be unavoidable impacts to wetlands for the expansion of the main parking lot at Hartley Nature Center due to its proximity of both Tischer Creek and existing wetlands. Only the no-build alternative will avoid wetland impacts at this parking lot. Wetland impacts due to the proposed turn around and parking area at the end of North Road have also been avoided and minimized to the greatest extent possible by locating much of the new pavement along the existing road. All wetland impacts will require compensatory mitigation, as required by the Wetland Conservation Act. Proposed parking within a shoreland area will require a

shoreland permit and a construction stormwater permit as stated in the EAW. The construction plans will include best management practices (BMPs) and must meet the requirements of the City's storm water ordinances and all permits to offset the additional impervious surface. This may include ponds, infiltration or filtration areas.

11. Public Comment – Linda Ross-Sellner – 9/22/15 at Public Hearing

Comment: Tischer Creek is an "impaired water."

Response: Tischer Creek and East Tischer are not listed on MPCA's impaired waters map or on the MPCA's 303 list. The following MPCA website http://pca-gis02.pca.state.mn.us/CSW/index.html lists impaired waters. Tischer Creek is not on the list.

12. Public Comment – Linda Ross-Sellner – 9/22/15 at Public Hearing

Comment: The City should address buckthorn in the Park.

Response: The removal of Buckthorn and other invasive species is one of the projects reviewed by the EAW. Section 6 on Page 5 describes the present program to remove and control buckthorn and other invasive species within the Park.

13. Public Comment – Mike Seyfer – 9/22/15

Comment: I am one of several people who believe the best interests of a sustainable Hartley Park are best served by continuing past the EAW process and performing a more thorough Environmental Impact Study to better study the overall impact of thinning trees and the full master plan on all the wildlife that exists in the park.

Response: As stated in the EAW, selective thinning is a standard forestry management practice designed to create openings in the forest canopy, which enhances wildlife and woodland diversity. Thinning helps create better spacing, and reduces competition which improves individual tree and overall forest health. Selective thinning encourages diverse natural plant regeneration, optimum growth, health and canopy layering, which enhances both wildlife and woodland diversity. The thinning component of the project will reduce mortality to pine bark beetles.

The EAW addresses only the proposed projects in Phase 1, not the full Master Plan recommendations. The definition of a "Project" under MN Environmental Rules 4410.0200 is "a governmental action, the results of which would cause physical manipulation of the environment, directly or indirectly." The determination of whether a project requires an environmental review shall be made by reference to the physical activity to be undertaken and not to the governmental process of approving the project. There are no plans or funds at this time to undertake other items address in the Hartley Park Master Plan.

14. Public Comment – Barbara Stark and Christine Penney (Duluth Tree Commission) – 9/27/15
    Opinion submitted to the Duluth News Tribune and as comment on the EAW

Comment: The Duluth Tree Commission has studied the proposed thinning of the red pine plantations in the park and agrees that it is the right action at this time. Selective thinning is a standard forestry management practice designed to create openings in the forest canopy, which enhances wildlife and

woodland diversity. Thinning helps create better spacing, and reduces competition which improves individual tree and overall forest health. Selective thinning encourages diverse natural plant regeneration, optimum growth and health and canopy layering, which enhances both wildlife and woodland diversity. This thinning project will reduce mortality to pine bark beetles. With the future health of Hartley Park in mind, the director and staff of Hartley Nature Center are in full agreement with these actions as is the City of Duluth Tree Commission.

Response: Comment noted.

15. Public Comment – David C. Rutford – 9/28/15

Comment: I have been informed that this thinning project may not be done according to the description in the EAW or under the supervision of a certified forester or done with the aim of selective thinning. I am greatly concerned about exactly how the thinning is to be accomplished. I strongly urge that consideration be given to going on to the next stage of the planning process by preparation of an EIS.

Response: In Section 6 on pages 4-6 the EAW describes the results of past thinning operations, how the proposed thinning operations will take place and the reasons why this activity cannot wait. As stated in the EAW, a professional forester will oversee the contract implementation. The City Forester has reviewed the proposed thinning of the pine stand and wildlife openings in the aspen forest.

16. Public Comment – Jim Sharrow – 9/29/15

Comment: Paraphrasing Mr. Sharrow's comments.

- The EAW estimates 50 vehicles per day. Many days we see over 100 vehicles per day.
- The EAW lists spaces as growing to 11. The plan on page 64 calls for 6, but should be able to fit 8.
- The storm drain at the end of the park road should be closed as it drains directly to the West Branch of Tischer Creek.
- Park officials need to have an ongoing campaign to educate bikers about safety when meeting pedestrians on the multi –use trails.

Response: The parking layout shown on page 64 of the EAW does show room for a maximum of nine parking spaces; the final number will be based on final design and can vary slightly due to alternate side parking. The EAW incorrectly states that the parking at this location will increase from 8 to 11 spaces, when it should be listed as "increasing to 8 to 11 total spaces;" and it is duly noted that the overall parking spaces added by the project is 44 to 46 new spaces.

Stormwater drainage will be managed in this project implementation. The goal is to take any runoff from the new parking area and send it into the City storm system toward Woodhaven Lane. The City will not be directly discharging it into the trout stream and may remove the existing outlet that is draining directly into the West Branch of Tischer Creek.

The City has been working in partnership with COGGS to install signage in the park to educate park trail users so as to reduce bike-pedestrian conflicts. This includes educational signage about the rules of the

trail and who yields to whom. In the master plan it states that the Duluth Traverse Trail will split into two trails in Hartley. Following Old Hartley road it will be labeled as the Easiest "White Circle" route for lower speed beginner bicyclists. The higher speed more experienced riders will be routed along the Root Canal Trail, designated as a More Difficult "Blue Square."

17. Public Comment – James A. Olson – 9/30/15

Comment: (Paraphrasing) As a supporter of Gender Matters educating the children about the outdoors, the proposed development of bike trails through Hartley Field will drastically change the natural habitat of this Duluth Gem. It is my hope, that the City and other individuals involved in changing the Nature Center into a recreational area will take the time to have an EIS to see the effects of this development.

Response: The City has created trails within the Park since the 1970's. Wildlife habitat and wildlife is described in the EAW in Section 13 and Appendix D. Also, other studies on the effect of trails on wildlife are cited on page 27 of the EAW document. These studies show that the proposed trail improvements will not have a significant adverse effect on wildlife or their habitat. The EAW depicts the locations of the existing trails, the trail segments that were poorly located and are proposed to be closed, and the proposed locations of the trail segments to be constructed using the standards in Appendix B, which will improve and protect wildlife habitat from erosion. The trails to be closed will be restored to natural vegetation thereby replacing wildlife habitat.

The proposed multi-use trails do not represent a significant additional area nor cause a significant adverse impact. The proposed improvements will not change the function of the Hartley Nature Center nor impact the programs for the students who visit the Park.

18. Public Comment – Ken Lindberg – 9/30/15

Comment: (Paraphrasing) The City should use horses to assist with the proposed forest thinning project rather than logging equipment because of noise and disruption to the park.

Response: Comment noted.

19. Public Comment – Kerry Juntunen – 9/25/15

Comment: There is point at which one must stop to assess potential damage to such a learning venue. I would strongly urge the committee to require an environmental impact study to be completed rather than the more commonly, and in my opinion, less rigorous environmental assessment worksheet. While we can construct buildings that address academic needs that will last for several years, we can never replace an environment that has been in existence for hundreds of years – one that has the opportunity to touch not only key learning moments but also one's soul.

Response: Hartley Park has been in existence since 1941 when the City of Duluth obtained the Allendale Farm due to tax forfeiture. Per Figure R-1, (1948 Historical Aerial Photo) which is 7 years after the acquisition, a significant portion of the park was not forested but rather fallow farm fields. It has taken 70 or so years for the former farmlands to reforest both through natural processes and by the planting of red pines in many places in the park. The City has created trails within the Park since the 1970's. The

trails created provide access for the students, as well as other Park users, to see and experience wildlife in their habitat within the Park.

Wildlife habitat and wildlife is described in the EAW in Section 13 and Appendix D. Also, other studies on trails affecting wildlife are cited as reference on page 27 of the document which supports the argument that the proposed trail improvements do not have a significant adverse effect on wildlife or their habitat. The EAW depicts the locations of the existing trails, the trail segments that were poorly located and are proposed to be closed, and the proposed locations of the trail segments to be constructed using the standards in Appendix B, which will improve and protect wildlife habitat from erosion. The trails to be closed will be restored to natural vegetation thereby replacing wildlife habitat. The proposed forest management activities will further protect forest health in the pine stands, create wildlife openings, and remove and control buckthorn thereby increasing the diversity of woodland species and wildlife habitat.

20. Public Comment – Edmond Lundstrom – 9/30/15

Comment: Enclosed is a petition of the residents opposing the improvement at the end of our street.

Response: Comment noted.

21. Public Comment – Daniel Mundt – 9/29/15

Comment: (Paraphrasing) The EAW has disregarded the issues of parking, trails, logging, and invasive species other than a very brief kind of approach:

- Nothing has been done with respect to the trails access and utilizing Hartley Nature Center
- The EAW ignores the matter of habitat
- The removal of trees needs more discussion with respect to logging practices
- The Committee should insist on the City preparing an EIS.

Response: The proposed actions provide improved access for all park users, specifically students, and individuals with disabilities who cannot currently access many areas of the park. The proposed parking improvements are the result of an identified need in the Hartley Park Master Plan. The proposed parking provides additional parking at several entrances to the park and at the Nature Center and reduces on-street parking conflicts with adjacent neighborhoods. The environmental impacts of parking and the other improvements are discussed in the EAW and do not present a significant adverse impact on the park. The trails provide access routes for the students that Gender Matters supports as well as, hikers, bikers, skiers, and all visitors to enjoy the park and visit the Hartley Nature Center. As described in the EAW, the forest management actions are being proposed to preserve and protect the park's overall forest health of the pine stands, improve vegetation diversity in wildlife habitat openings in aspen stands and remove and reduce invasive species such as buckthorn, which also affect wildlife habitat. Logging is the activity by which the forest management actions will take place. If no forest management is undertaken, then the overall forest health of the pine stands will continue to deteriorate and the park will continue to be overtaken with invasive species like buckthorn. The EAW addresses throughout the document, and specifically Section 6 on Page 5, describes the present program to remove and control

buckthorn and other invasive species within the park to enhance and restore wildlife habitat with a minimal effect on the environment.

22. Public Comment – Daniel Mundt – 9/29/15

Comment: (Paraphrasing) The only way that the Planning Commission can resolve these matters on a fair and responsible basis is to order an Environmental Impact Statement (EIS).

- The letter by Barbara Stark has contradictory statements in it.
- The soil underneath the various pines has 60 years of pine needles. These are extremely acidic and nothing wants to grow in that soil.
- The "loggers" contract is a major problem and will only be useable if the work of an EIS is applied.
- The only solution is an EIS.

Response: Comments noted. It is apparent that Mr. Mundt disagrees with the findings of the Duluth Tree Commission who have studied the proposed action. The thinning is being proposed to ensure the health of the overall stands for the continued enjoyment of the visitors. The opening of the canopy in the pine plantations will provide sunlight to the forest floor. This will create an opportunity for other plants and different age classes of other species to grow. One can observe this happening in the thinning of the pine stands along Hawk's Ridge recently performed by the City. A monoculture of pine trees offers an enclosed canopy with little wildlife habitat benefit in contrast with a diverse mixed conifer/hardwood forest, which is what the proposed improvements would provide.

Results provided by MN DNR data from 124 releve' plots in pine woodlands indicate that good species diversity can exist when they undergo periodic canopy thinning. MN DNR lists the following conditions and species as being present:

- Ground-layer cover is variable, with Canada mayflower (*Maianthemum canadense*), wild sarsaparilla (*Aralia nudicaulis*), large-leaved aster (*Aster macrophyllus*), bracken (*Pteridium aquilinum*), wood anemone (*Anemone quinquefolia*), dwarf raspberry (I), sweet-scented bedstraw (I) and mountain rice grass (*Oryzopsis asperifolia*) as the most important species.
- Shrub layer is patchy to continuous (25-75% cover). Beaked hazelnut (*Corylus cornuta*) is present on nearly all sites and is usually abundant, with 40% average cover. Juneberries (*Amelanchier* spp.), chokecherry (*Prunus virginiana*), and bush honeysuckle (*Diervilla lonicera*) are present in most sites. Red maple and balsam fir saplings are also common.
- Subcanopy most often is absent or sparse. Paper birch, balsam fir, and red maple are the most frequent subcanopy species.

23. Public Comment – Russ Conrow – 9/30/15

Comment: The EAW does not address the environmental impact of the location and use of bike trails.

Response: The EAW discusses numerous criteria for siting trails through both International Mountain Biking Association (IMBA) standards and Minnesota DNR "Trail Planning, Design & Development Guidelines" that are discussed in Section 6. In this EAW, bike trails are combined with hiking trails in a

multi-use designation to permit both uses. The standards are being used to locate trails to minimize the overall impact of new trails and make the design and maintenance sustainable.

24. Public Comment – Russ Conrow – 9/30/15

Comment: There is no IMBA standard discussed that addresses the preservation of habitat.

Response: IMBA standards were created to minimize environmental impacts of trail design and construction, recognizing that there is a footprint in wildlife habitat during the construction of the trails. Trails are part of the Hartley Park Master Plan by which visitors to the Park view and experience wildlife in their habitat. Hartley Park is not a designated wilderness area. Professional wildlife research studies on trails' effects on wildlife were cited as reference on page 27 of the EAW document which supports the argument that the proposed trail improvements do not have a significant adverse effect on wildlife or their habitat.

MN DNR Guiding Principles for Sustainable Trails (similar to the IMBA Standards) have been used for the design of the new, as well as the replacement of the existing trails, in Hartley Park. Many of the user defined trails have been rebuilt or rerouted since 2006 using IMBA and MN DNR standards, with the remaining user defined trail in Hartley Park to be rebuilt or rerouted as part of this project. The principles applied to Hartley Park trails are as follows:

Guiding Principle #1: Avoid Sensitive Ecological Areas and Critical Habitats
Guiding Principle #2: Develop Trails in Areas Already Influenced by Human Activity
Guiding Principle #3: Provide Buffers to Avoid/Protect Sensitive Ecological and Hydrologic Systems
Guiding Principle #5: Provide Ongoing Stewardship of the Trails and Adjoining Natural Systems
Guiding Principle #4: Use Natural Infiltration and Best Practices for Stormwater Management
Guiding Principle #6: Ensure that Trails Remain Sustainable
Guiding Principle #7: Formally Decommission and Restore Unsustainable Trail Corridors

25. Public Comment – Russ Conrow – 9/30/15

Comment: The EAW cannot describe the impact because it does not have sufficient data on the current use of Hartley. The MNDOT standards recognize improvements on roadways increase traffic which has an impact on the neighborhood. The EAW does not recognize improvements to trails will increase traffic within Hartley which will impact habitat.

Response: There is no available data on the number of people who visit Hartley Park. The traffic analysis in the EAW was provided to make an educated estimation of how many people might visit the park based on traffic counts from local roads. There is a trend around the park that shows that traffic has increased in the area. One would logically concur that visitor use would also increase. Consequently, additional parking is required when visitors increase unless they come on foot or by bicycle.

The City does not survey the park users or the people who visit the Nature Center. However, the City held six public meetings and three open houses to facilitate a dialogue with the public and collect feedback while developing the Hartley Park Master. Objectives in the citywide Parks Master Plan

emphasize management and improvement of access to existing natural resource-oriented parks for outdoor recreation (e.g., hiking, biking, cross country skiing, horseback riding, birding, rock climbing, boating, snowmobiling, etc.). Therefore, it is reasonable that the City would want to anticipate and plan for ways to make the trails sustainable for park visitors as well as to ensure that habitat is restored when unsustainable trails are closed.

Response to Public Comment #4 provides a detailed discussion of potential habitat impacts.

26. Public Comment – Russ Conrow – 9/30/15

Comment: The assessment of timber removal lacks any discussion of actual impacts especially on habitat.

Response: The pine plantations are a monoculture currently threatened by pine bark beetles. It is the City Forester's opinion that if no thinning is completed, then the Park will potentially lose the stands of pine. The thinning is proposed to ensure the health of the overall stands for the continued enjoyment of visitors. The opening of the canopy in the plantations will provide sunlight to the forest floor. This will create an opportunity for other plants and different age classes of other species to grow. A monoculture of pine trees offers little wildlife habitat benefit in contrast with a diverse mixed conifer/hardwood forest, which is what the proposed improvements would provide.

27. Public Comment – Russ Conrow – 9/30/15

Comment: Mr. Conrow cites the Minnesota Generic Environmental Impact Statement for logging. In order to make a determination that there are no significant impacts on this wildlife, the City must know what is there and where they are in Hartley. The Plan and EAW do not recognize this.

Response: Even the Generic EIS does not list each and every habitat and animal potentially affected by the Minnesota DNRs entire forest management program across millions of acres. That would be an insurmountable task. The Hartley EAW states that all proposed construction activity will temporarily disturb the surrounding park wildlife habitat and plant communities. The plant communities and observed wildlife are identified and described in the EAW. The purpose of the proposed improvements includes:

- performing forest management activities (thinning – 10 acres, or 1.5% of the Park) in pine stands to maintain the overall forest health of the park;
- creating forest openings in aspen stands (ten plots totaling 5 acres, or 0.8% of the Park) to increase the habitat and plant diversity to benefit wildlife and;
- controlling and removing invasive vegetation species such as buckthorn that overtakes the native vegetation and wildlife habitat. Buckthorn proposals incorporate 88 acres, or approximately 13.8% of the Park.

28. Public Comment – Russ Conrow – 9/30/15

Comment: There is no acknowledgement of the impact the process will have on Hartley, such as running heavy equipment, creating roads and removing debris.

Response: This comment is not entirely accurate. The EAW provides an overview such that the reader can surmise the overall impacts of 16 acres of forest management activities. The process will utilize existing roads to minimize environmental impacts and to restore disturbed areas. The EAW states that truck access to remove thinned vegetation will occur from the existing Old Hartley Road via the Nature Center Entrance to avoid disturbance to the neighborhood streets. The timber will be cut and hauled to specified landing areas using equipment with low pressure tires or tracks to minimize soil disturbance via Old Hartley Road, the Tunnel Trail and the old Soap Box Derby Road. Following removal of the wood, these temporary access routes will be closed and restored back to native vegetation or trail surface. Typical seed mixes are found at http://www.bwsr.state.mn.us/native_vegetation/. Stumps will be cut to a height of 3 inches or less. All forest management activities will occur in accordance with permit requirements and Minnesota DNR BMPs for erosion and stabilization will be implemented to protect the Park and its environment. The project will comply with setback requirements for trout streams.

29. Public Comment – Russ Conrow – 9/30/15

Comment: (Paraphrasing) The City has already solicited bids for the forest thinning raising concerns about the EAW sufficiency and the integrity of the environmental review process.

Response: No contracts have been awarded to perform the thinning work, trail work or parking improvements. There is still environmental permitting to pursue before work can be initiated. No work will be started on any of the proposed improvements until the environmental review process is complete.

30. Public Comment – Russ Conrow – 9/30/15

Comment: The City may argue that the law only prohibits government action before closure of the environmental review process when the environmental review is mandatory and here the City conducted the EAW at their own discretion. Gender Matters petitioned the City to conduct a review of the Entire Master Plan. The City responded with an EAW for the "First Phase." The EAW mixes phases of the Master Plan frequently.

Response: When the City decided to undertake proposed actions of the Hartley Master Plan, there was a limited budget to accomplish everything listed in the Master Plan. Therefore, the City decided to select the items that could potentially be accomplished with the available budget within "Phase 1" of the Master Plan's implementation. There are items in the Master Plan that may never materialize because there may not be available funding. The definition of a "Project" under MN Environmental Rules 4410.0200 is "a governmental action, the results of which would cause physical manipulation of the environment, directly or indirectly." The determination of whether a project requires an environmental review shall be made by reference to the physical activity to be undertaken and not to the governmental process of approving the project. There are no plans or funds at this time to undertake other items address in the Hartley Park Master Plan. An EAW cannot analyze the potential environmental effect of a project that has not been designed, even though the master plan might envision future actions, not all of the master plan can yet be considered a "Project". Therefore, this EAW will not address those issues which are beyond the Phase 1 scope of this project. The City should not have to undertake an environmental review of projects or actions that may never be implemented.

31. Public Comment – Russ Conrow – 9/30/15

Comment: The proposed logging and trail building in Hartley are phased actions with the proposed changes in the water resources in Hartley.

Response: It is not known when and if the Hartley water resources items identified in the Master Plan will go forward. There is no budget and no detailed plans for this and, therefore, no project at this time. Should a project go forward for other items in the Master Plan, then the City will undertake the appropriate environmental review and permitting at that time.

32. Public Comment – Russ Conrow – 9/30/15

Comment: This EAW, which is intended to be a concise assessment of the potential for environmental impacts, does not, and cannot address all of these issues. ... An Environmental Impact Statement (EIS) should be prepared before any logging or trail building begins in Hartley.

Response: It is not known when and if the Hartley Park water resources items identified in the Master Plan will go forward. There is no budget for those items and therefore no project at this time. The City should not have to undertake an environmental review of projects or actions that may never be implemented. The definition of a "Project" under MN Environmental Rules 4410.0200 is "a governmental action, the results of which would cause physical manipulation of the environment, directly or indirectly." The determination of whether a project requires an environmental review shall be made by reference to the physical activity to be undertaken and not to the governmental process of approving the project. There are no plans or funds at this time to undertake other items identified in the master plan.

33. Public Comment – Lisa Joyal, MN DNR Endangered Species Review Coordinator – 9/1/15

Comment: Please note that the following rare features may be adversely affected by the proposed project:

- Northern Rich Mesic Hardwood Forest/ Northern Wet Meadow/Carr
  Given the ecological significance of the area, disturbance should be minimized to the extent feasible within the MBS [Minnesota Biological Survey] sites and care should be taken to avoid introducing or spreading invasive species. Actions to minimize disturbance may include:
  - Avoiding swales and sensitive rock outcrops,
  - bridging of streams and wetlands,
  - minimizing construction vehicle disturbance,
  - avoiding parking equipment, stockpiling supplies or placing spoil in sensitive areas,
  - implementing measures during construction to prevent the introduction and spread of non-native invasives,
  - installing erosion and sediment control measures during construction;
  - including erodible soil measures in the trail maintenance plan,
  - revegetation with appropriate native species,
  - using weed-free mulches, topsoil and seed mixes.

- Blandings Turtle (*Emydoidea blandingii*)
  The DNR recommends that the Blandings Turtle fact sheet be given to all contractors working in the area. The DNR also recommends that erosion control mesh used will be environmentally friendly.

- The northern long-eared bat (*Myotis septentrionalis*)
  If you believe that your project may adversely affect ("take") the northern long-eared bat, you should determine whether the "take" is exempt under the interim 4(d) rule or whether you need a federal permit. Please note that the NHIS does not contain any known occurrences of the northern long-eared bat roosts of hibernacula within an approximate one-mile radius of the proposed project.

Response: Although the DNR states that the Northern Rich Mesic Hardwood Forest and Northern Wet Meadow/Carr are rare communities in Minnesota, they are not statutorily protected. The State's Endangered and Threatened Species Statue provides DNR the regulatory authority only to prohibit the taking of species listed as endangered or threatened. Species of Special Concern, rare natural communities and SBS [Sites of Biodiversity Significance] areas aren't protected under the Statute. That being said, the proposed project already incorporates the DNR's suggestions in the ways listed below.

Since one of the purposes of the project is to facilitate public enjoyment of nature, the project proponents have protection of natural communities as an important component of the trail design. The trail design has incorporated the DNR recommendations, as feasible, bearing in mind that another purpose of the project is providing better access to the natural elements of Hartley Park. The project will employ measures to reduce construction and maintenance activities in sensitive areas, including:

- Avoiding swales and sensitive rock outcrops,
- bridging of streams and wetlands,
- minimizing construction vehicle disturbance,
- avoiding parking equipment, stockpiling supplies or placing spoil in sensitive areas,
- implementing measures during construction to prevent the introduction and spread of non-native invasives,
- installing erosion and sediment control measures during construction;
- including erodible soil measures in the trail maintenance plan,
- revegetation with appropriate native species,
- using weed-free mulches, topsoil and seed mixes.

In preparing the EAW the City reviewed the entire park area to facilitate potential avoidance of rare natural communities, to the extent that changes in the proposed alignment are feasible and meet the purpose and intent of the proposed trail system.

A Blandings Turtle fact sheet will be given to all contractors working in the area. Environmentally-friendly erosion control mesh will be specified in erosion control specifications.

The proposed forest management activities are considered exempt under the interim 4(d) rule. Additionally, the DNR has determined in its letter that there are no known hibernacula or nesting trees

for the Northern Long-Eared Bat within one mile of the proposed project. For those activities that will require a Corps of Engineers Section 404 permit, the northern long-eared bat will be reviewed during the permitting process.

34. Public Comment – Kevin Kain, Environmental Review Unit MPCA – 9/30/2015

Comment: The MPCA has reviewed the EAW and have no comments at this time. Please provide the notice of decision on the need for an EIS.

Response: Comment noted.

ENVIRONMENTAL ISSUES SUMMARY

Based upon the information contained in the EAW and provided in written comments received and in response to those comments, the City of Duluth has considered the following the most significant environmental issues identified for the Hartley Park Phase 1 Implementation Project:

1. Project Summary

Implementation of the 2014 Hartley Park Master Plan Phase 1 improvement projects include: forest management of red pine (selective thinning of 10 acres) and wildlife openings (5 acres) in aspen stands, invasive vegetation management (primarily buckthorn removal), new trail construction to repair and realign existing trails (a net increase of 2.6 miles of multi-use trails), and parking improvements at three park entrance locations and the main Hartley Nature Center entrance.

All new trails will be located on upland areas, avoid seeps and wet areas, cross all wetlands and streams with bridges or boardwalk, stabilize slopes immediately after final grade is established, and cleared brush will be lopped and scattered in upland areas.

The proposed project would be initiated when all permits and approvals are received.

The extent of each of the project components is shown in the table R-1 below.

Table R-1. Magnitude of Project Components

Project Component	Approximate Length or Area of thinning[1]	Percent of the Park Area
Implement thinning in four, ten acre red pine stands	10 – 12 acres	1.5-2%
Create ten, ½ acre openings in aspen stands	5 acres	0.8%
Manage invasive vegetation (buckthorn etc.)	88 acres	13.8%
Construct Hiking/Multi-Use Trails – Net increase	1.6 miles / 0.8 acres	0.1%
Reconfigure ADA compliant trail	0.3 miles / 0.2 acres	>0.1%
Revise ski trail segments – Net decrease	-0.1 miles / 0.1 acres	>0.1%
Revision of multi-use trail segments – Net increase	1.9 miles / 0.9 acres	>0.2%
Create Hartley Road Parking Area	>0.1 acres	>0.1%
Create North Road Parking Area	>0.1 acres	>0.1%
Create Fairmont Street Parking Area	>0.1 acres	>0.1%
Revise Hartley Nature Center Parking	approximately 0.9 acres	>0.2%

[1] Each pine stand is approximately 10 acres in size. Thinning will only occur on 1/4 to 1/3 of each stand of pine.

2. Land Cover Changes

Approximately 7.1 total acres (1.1% of the total park area) will be disturbed for construction of the proposed project – primarily for:

- Aspen stand improvements (approximately 5 acres from forest to shrub/grass);
- Trail construction (approximately 1.6 acres wooded forest to trails); and
- New parking (approximately 0.4 acres of forest and 0.1 acre of wetlands to impervious surface).

Additionally, approximately 10 to 12 acres of red pine will be thinned for stand improvements; however, this area will remain forested after project implementation. The approximate 1.6 acres (0.3% of the total forest area) of permanent forest cover type conversion primarily represents the clearing of understory vegetation to establish a trail corridor suitable to the corresponding recreational use. Cover Types for Project components in acres is shown in the Table R-2 for pre- and post-project implementation.

Table R-2. Cover Types for Project Components (acres)

Cover Types	Before	After
Wetlands	92.9	92.8
Deep water/streams	18.0	18.0
Wooded Forest	430.0	423.0
Developed	33.0	33.0
Brush/grassland	58.0	63.0
Cropland	0.0	0.0
Lawn/landscaping	0.2	0.2
Impervious surface	0.8	1.3
Stormwater Pond	0.0	0.0
Other (Trails)	7.1	8.7
Total	640.0	640.0

3. Impacts to Surface Water, Wetlands and Stormwater

The proposed project does not require any new stream crossings. The proposed project will have trails crossing Tischer Creek and the West Branch of Tischer Creek using existing bridges to minimize wetland and stream impacts. Bridges and boardwalks will also be replaced and/or expanded along the Old Hartley Road and also the trail from HNC to the north side of the dam at Hartley Pond. The proposed boardwalk designs will avoid and minimize wetland impacts to the extent practicable during their construction and use. Additionally, the trail surface of both the Old Hartley Road and the trail from HNC to Hartley Pond will also be reshaped and resurfaced to prevent water from running down the trails to address erosion issues into the adjacent wetlands and streams. No alterations to Hartley Pond, the structural dam on Tischer Creek, or the West Branch of Tischer Creek are planned as part of this proposed project.

Proposed project designs will avoid and minimize wetland impacts to the extent practicable through the orientation and layout of the proposed trails and parking lot expansions. Hiking and biking trails in wetlands will be crossed by elevated boardwalks approximately 2 feet to 4 feet wide to span the wetland on piers. No permits are required for elevated boardwalks on piers. No excavation or fill is proposed to construct these structures over streams or wetlands. The proposed vegetation management improvements will occur in upland areas and will not adversely affect surface waters or wetlands. The proposed parking improvements will impact approximately 8,700 square feet or 0.20 acres of shallow marsh/scrub shrub wetlands (7,600 square feet at the Hartley Road main entrance and 1,100 square feet at the North Road west entrance).

Storm water drainage will be managed in this project implementation. The goal is to take any runoff from the new parking area and send it into the City storm system toward Woodhaven Lane. The City will not be directly discharging it into the trout stream and may remove the existing outlet that is draining directly into the West Branch of Tischer Creek.

4. Impacts to Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Habitat)

All proposed construction activity will temporarily disturb the surrounding Park wildlife habitat and plant communities. The purpose of the proposed improvements including: performing forest management activities (thinning – 10 acres, or 1.5% of the Park) in pine stands to maintain the overall forest health of the park; creating forest openings in aspen stands (ten plots totaling 5 acres, or 0.8% of the Park) to increase the habitat and plant diversity to benefit wildlife and; controlling and removing invasive vegetation species such as buckthorn that overtakes the native vegetation and wildlife habitat. Buckthorn proposals incorporate 88 acres, or approximately 13.8% of the Park. All of these management activities will lead to long-term improvements in habitat quality.

In preparing the EAW the City reviewed the entire park area to facilitate potential avoidance of rare natural communities, to the extent that changes in the proposed alignment are feasible and meet the purpose and intent of the proposed trail system. The DNR has determined in its review letter that there are no known hibernacula or nesting trees for the Northern Long-Eared Bat within one mile of the proposed project.

5. Additional Parking

The proposed parking improvements will increase but better define the neighboring on-street parking use. At the main entrance to Hartley Nature Center, current parking is provided by one, often overfull, parking lot and on-street parking at neighborhood access areas. The proposed revised parking areas would designate spaces within the parking lot and optimize management of the parking space. The expansion of Hartley Nature Center parking lot proposes 40 additional spaces to maximize space. Additional features will include a stormwater infiltration area ay the Hartley Nature Center parking lot. Construction of the parking spaces will likely temporarily disrupt visitor access and may temporarily divert parking to nearby neighboring streets. The recommendations for Hartley Road/North Road and Fairmont Street include widening existing public right-of way enabling more space for safe on-street parking and adding a turnaround space. Improved drainage at the parking locations will include

constructing storm water control and treatment per City storm water ordinance and preparation of a construction SWPPP.

COMPARISON OF POTENTIAL IMPACTS WITH EVALUATION CRITERIA UNDER MN RULES:

In deciding whether a project has the potential for significant environmental effects and whether an Environmental Impact Statement (EIS) is needed, the RGU (in this case, the Duluth City Planning Commission) must compare the impacts that may be reasonably expected to occur from the project with the four criteria by which potential impacts must be evaluated (Minn. Rules, Part 4410.1700, Subp. 7.A through 7.D)

A. *Type, extent, and reversibility of environmental impacts:*
Based upon information provided in the EAW and the Responses to Comments, including the comments and responses received by MN-DNR and MN-PCA, the City of Duluth concludes that the potential environmental effects of the project will be limited in extent, temporary, or reversible.

None of the project's components trigger any mandatory environmental review categories under MN Rules 4410 and as such would not require environmental review without a discretionary (petition) decision.

B. *Cumulative potential effects. The RGU shall consider the following factors: whether the cumulative potential effect is significant; whether the contribution from the project is significant when viewed in connection with other contributions to the cumulative potential effect; the degree to which the project complies with approved mitigation measures specifically designed to address the cumulative potential effect; and the efforts of the proposer to minimize the contributions from the project:*

This project is not dependent on any other projects. There are no known anticipated future projects at this time on which the project is dependent.

The EAW does not address the Hartley Park Master Plan's recommendations to restore Tischer Creek and preserve Hartley Pond. Based on available funding, this EAW addresses only those master plan elements that are proposed for projects at this time. The definition of a "Project" under MN Environmental Rules 4410.0200 is "a governmental action, the results of which would cause physical manipulation of the environment, directly or indirectly." The determination of whether a project requires an environmental review shall be made by reference to the physical activity to be undertaken and not to the governmental process of approving the project. There are no plans or funds at this time to undertake other items identified in the master plan.

For each of the environmental effects listed in the EAW and Response to Comments, the Hartley Park Phase 1 Improvements would contribute minor increases in cumulative potential effects on the project area relative to other contributors. There are no related projects affecting the

proposed project area at this time, which combined with the proposed project would result in significant cumulative impacts.

C. *The extent to which environmental effects are subject to mitigation by ongoing public regulatory authority. The RGU may rely only on mitigation measures that are specific and that can be reasonably expected to effectively mitigate the identified environmental impacts of the project:*

Mitigation of any impacts from the project will be achieved through design and inclusion of best management practices (BMPs), including best forestry management practices, or regulations currently in place, including permit approvals, enforcement of regulations or other programs as listed here:

City of Duluth	
Shoreland Permit	**Shoreland permits from the City for vegetation loss within 300' of Tischer Creek and tributaries in order to restrict vegetation loss to the minimum necessary to complete the project and to govern mitigation measures used to attenuate the vegetation loss.**
Wetland Conservation Act (WCA)	**WCA permits from City for wetland impacts at Hartley Nature Center and the end of North Rd. due to parking lot expansion.**
Erosion Control Permit, Fill Permit and Stormwater General Construction Permit	**City Storm Water Construction Permits, SWPPP, erosion control permits to control and treat storm water at four parking lots.**
Contract for pine and aspen thinning	**Contract provisions will include proof of Certificate of Good Standing with Master Logger Certification Program, utilization of Best Management Practices as put forth in the MN Forest Resources Council's Forest Management Guidelines, and oversight that will include daily supervision and reporting by a Certified Forester**
MN State Historical Preservation Office (SHPO)	**Notification only**
Minnesota Pollution Control Agency	
Stormwater General Construction Permit	Storm Water Construction Permits, SWPPP, erosion control permits to control and treat storm water due to parking lot creation at 4 parking lots.
Minnesota DNR	
Work in Public Waters Permit	**Permits for trail crossings of streams and wetland boardwalk crossings.**
U.S. Army Corps of Engineers (USACE)	
Section 404 Permit	Permits for wetland impacts at Hartley Nature Center and the end of North Rd. due to parking lot expansions.
St. Louis County Public Works Department	
Right of Way Permit	

D. *The extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer including other EIS's:*

No other environmental effects are anticipated. Environmental effects related to trail design, construction and management, forestry management, stormwater management, and invasive species control can be anticipated and controlled as the results of the following studies:

MN Department of Natural Resources. 2007. *Trail Planning, Design and Development Guidelines*. MN Department of Natural Resources, St. Paul, MN.

Minnesota Pollution Control Agency. 2005. State of Minnesota Stormwater Manual. Minnesota Pollution Control Agency, St. Paul, MN.

Minnesota Pollution Control Agency. 2013. Minnesota NPDES/SDS Construction Stormwater Permit. Permit Number: MN R 100001, issued on August 1, 2013. St. Paul, MN.

MN Department of Natural Resources. 2015. Minnesota Silvicultural Standard Practices. MN Department of Natural Resources, St. Paul, MN. Accessed at: http://www.dnr.state.mn.us/forestry/ecs_silv/silvics.html

Minnesota Invasive Species Advisory Council. 2009. Minnesota Sate Management Plan for Invasive Species. State of Minnesota, St. Paul, MN

Minnesota Forest Resources Council. 2005. Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers and Resource Managers. Minnesota Forest Resources Council, St. Paul, MN.

Jaakko Poyry Consulting, Inc. 1994. Final Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management in Minnesota. Prepared for Minnesota Environmental Quality Board, St. Paul, MN

DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

Minnesota Rules 4410.0300 Subp. 3. Purpose states (in part)

> *Environmental documents shall not be used to justify a decision, nor shall indications of adverse environmental effects necessarily require that a project be disapproved. Environmental documents shall be used as guides in issuing, amending, and denying permits and carrying out other responsibilities of governmental units to avoid or minimize adverse environmental effects and to restore and enhance environmental quality.*

Minnesota Rules 4410.0300 Subp. 4. Objectives further sets forth:

> *The process created by parts 4410.0200 to 4410.6500 is designed to:*

A. *provide usable information to the project proposer, governmental decision makers and the public concerning the primary environmental effects of a proposed project;*

B. *provide the public with systematic access to decision makers, which will help to maintain public awareness of environmental concerns and encourage accountability in public and private decision making;*

C. *delegate authority and responsibility for environmental review to the governmental unit most closely involved in the project;*

D. *reduce delay and uncertainty in the environmental review process; and*

E. *eliminate duplication.*

Based on the Environmental Assessment Worksheet and related documentation for this Project, the Duluth City Planning Commission, as the Responsible Governmental Unit (RGU) for this environmental review, makes the following conclusions:

1. The Environmental Assessment Worksheet and related documentation for Hartley Park Phase 1 Implementation of Master Plan were prepared in compliance with the procedures of the Minnesota Environmental Policy Act and Minnesota Rules, Parts 4410.1000 to 4410.1700.

2. The record demonstrates that **[choose one of the following]**:

   Option A. Implementation of this Project does not have the potential for significant environmental effects. Therefore, the Duluth City Planning Commission makes a Negative Declaration and does not require the preparation of an environmental impact statement (EIS) for this Project.

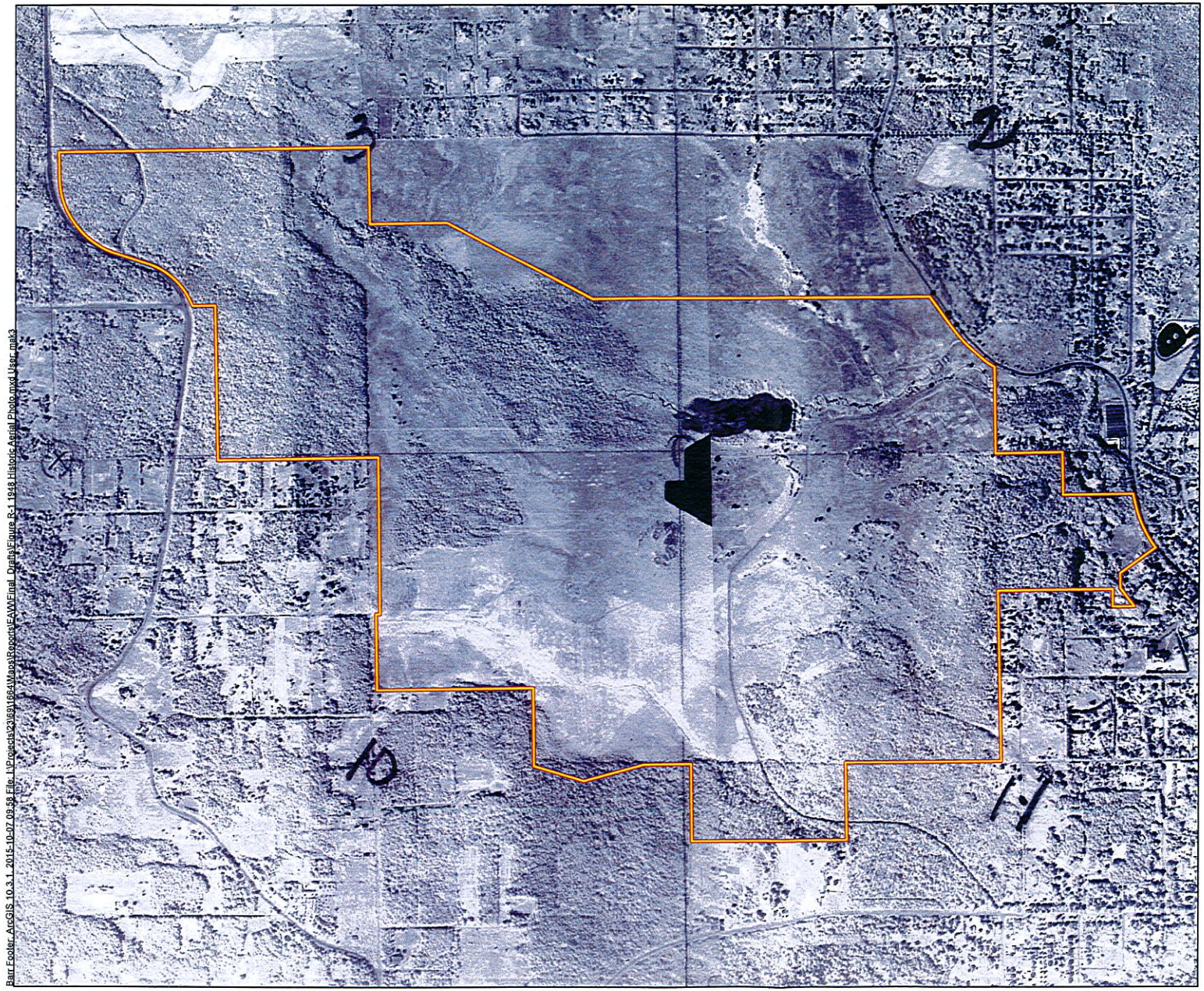
   Option B. Implementation of this project has the potential for significant environmental effects. Therefore, the Duluth City Planning Commission makes a Positive Declaration and requires the preparation of an Environmental Impact Statement (EIS) for this project.

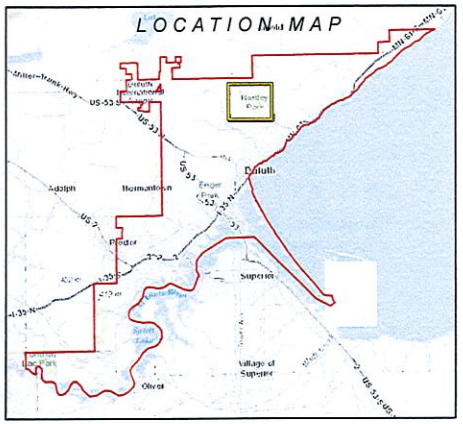
Attached Exhibits:

A. Figure R-1: 1948 Historical Aerial Photo of Hartley Park
B. Public Comments
C. Letter from Lindsay Dean, Manager, Parks and Recreation

EXHIBIT A

Figure R-1: 1948 Historical Aerial Photo of Hartley Park





Hartley Park Boundary

Georeferenced 1948 Aerial Photo Obtained from John R. Borchert Map Library. Photo Date: August 21, 1948; Arrowhead Aerial Surveys, Hibbing Minnesota

N

0 800 1,600

Feet

1 Inch = 800 Feet

Figure R-1

1948 HISTORIC AERIAL PHOTO

Hartley Park EAW

City of Duluth, Minnesota

BARR

Barr Footer ArcGIS 10.3.1, 2015-10-07 09:58 File: N:\Projects\23\8\11684\Maps\Reports\EAW\Final_Drafts\Figure R-1 1948 Historic Aerial Photo.mxd User: mat3

EXHIBIT B

Public Comments

MNDNR

Minnesota Department of Natural Resources

Division of Ecological and Water Resources, Box 25
500 Lafayette Road
St. Paul, Minnesota 55155-4025
Phone: 651-259-5109 E-mail: lisa.joyal@state.mn.us

September 1, 2015 **Correspondence # ERDB 20160056**

Mr. Tom Tri
Barr Engineering Company
325 South Lake Avenue, Suite 700
Duluth, MN 55802

RE: Natural Heritage Review of the proposed Hartley Park – Phase 1 Implementation of Master Plan; T50N R14W Sections 2, 3, 10, & 11; St. Louis County

Dear Mr. Tri,

As requested, the Minnesota Natural Heritage Information System (NHIS) has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, see the enclosed database reports; please visit the Rare Species Guide at http://www.dnr.state.mn.us/rsg/index.html for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following **rare features *may* be adversely affected** by the proposed project:

- The proposed trails are within an area that the Minnesota Biological Survey (MBS) has identified as a Site of Moderate Biodiversity Significance centered around Hartley Park (GIS shapefiles of MBS Sites of Biodiversity Significance and DNR Native Plant Communities can be downloaded for free from the MN Geospatial Commons website under the Biota Category at https://gisdata.mn.gov/). Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Sites ranked as Moderate contain occurrences of rare species and/or moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery. This particular Site is divided into three subsites. The western portion contains a good quality Northern Rich Mesic Hardwood Forest, a rare native plant community that is vulnerable to extirpation within Minnesota. Most of the proposed trails in T50N R14W Section 3 are within this subsite. The southern portion also contains good quality examples of Northern Rich Mesic Hardwood Forest as well as good quality examples of Northern Mesic Hardwood Forest and Northern Wet Meadow/Carr. The central portion of the Site did not meet the threshold for statewide significance, but has conservation value as a corridor and buffer between the other two subsites.

  Given the ecological significance of this area, disturbance should be minimized to the extent feasible within the MBS Sites and care should be taken to avoid introducing or spreading invasive species. Actions to minimize disturbance may include, but are not limited to, the following recommendations:

  - As much as possible, operate within already-disturbed areas;
  - Do not route trails through wet swales or depressions, or sensitive rock outcrop areas;

- Bridge all stream and wetland crossings;
- Minimize vehicular disturbance in the area (allow only vehicles/equipment necessary for construction activities);
- Do not park equipment or stockpile supplies in the area;
- Do not place spoil within MBS Sites or other sensitive areas;
- Inspect and clean all equipment prior to bringing it to the site to prevent the introduction and spread of invasive species;
- Use effective erosion prevention and sediment control measures;
- Trail maintenance plans should address erodible soils, especially in areas of steep topography;
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible; and
- Use only weed-free mulches, topsoils, and seed mixes.

- Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, have been reported from the vicinity of the proposed project and may be encountered on site. For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. Please refer to the first list of recommendations for your project. In addition, if erosion control mesh will be used, the DNR recommends that the mesh be limited to wildlife-friendly materials (see enclosed fact sheet). If greater protection for turtles is desired, the second list of additional recommendations can also be implemented.

  The attached flyer should be given to all contractors working in the area. If Blanding's turtles are found on the site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harm's way, otherwise they should be left undisturbed.

- The northern long-eared bat (*Myotis septentrionalis*), a state-listed species of special concern, is found throughout Minnesota. During the winter this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in cavities, or in crevices of both live and dead trees. Activities that may impact this species include, but are not limited to, wind farm operation, any disturbance to hibernacula, and destruction/degradation of habitat (including tree removal).

  Effective May 4, 2015, the U.S. Fish and Wildlife Service (USFWS) listed the northern long-eared bat as threatened under the Endangered Species Act (ESA) and implemented an interim 4(d) rule. The ESA prohibits take of this species without a permit unless the take is exempt under the interim 4(d) rule. If you believe that your project may adversely affect ("take") the northern long-eared bat, you should determine whether the "take" is exempt under the interim 4(d) rule or whether you need a Federal permit. To make this determination, please refer to the USFWS Key to the Interim 4(d) Rule available at http://www.fws.gov/midwest/endangered/mammals/nleb/Interim4dRuleKeyNLEB.html. Please note that the NHIS does not contain any known occurrences of northern long-eared bat roosts or hibernacula within an approximate one-mile radius of the proposed project.

- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance.

page 2 of 3

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. **If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.**

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. To determine whether there are other natural resource concerns associated with the proposed project, please contact your DNR Regional Environmental Assessment Ecologist (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Lisa Joyal

Lisa Joyal
Endangered Species Review Coordinator

enc. Blanding's Turtle Fact Sheet and Flyer
Wildlife Friendly Erosion Control

Links: MBS Sites of Biodiversity Significance
http://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html
DNR Native Plant Communities
http://www.dnr.state.mn.us/npc/index.html

cc: Rian Reed

page 3 of 3

RECEIVED
SEP 22 2015

Tuesday, September 22, 2015

Dear Mr. Hamre,

In reference to today's hearing of public comments on the Environmental Assessment Worksheet for Hartley Park Mini-Master Plan Phase 1, I submit this letter as oral comment. I request that it become part of the record of public comment.

Hartley Park continues to be one of Duluth's finest natural treasures. Its forest, ponds and fields are host to a unique confluence of wildlife within our city limits. At its side, Hartley Nature Center operates to bring children of all ages closer to these wonders. We should all be so fortunate to spend time in the park and in the nature center.

For those that feel the same, I would ask you to take notice of near-term actions of the park's master plan. Very soon, the forest will be thinned in a presumably managed capacity. From a certain point of view, this is a good thing. But the question is whether the plan is being implemented in the most circumspect manner possible.

I am one of several people who believe the best interests of a sustainable Hartley Park are best served by continuing past the Environmental Assessment Worksheet process, and performing a more thorough Environmental Impact Study, to better study the overall impact of thinning trees, and the full master plan on all the wildlife that exists in the park.

Determining whether the EAW is a sufficient enough measure will be done at the Planning Commission, which will hear public comment on the EAW on Tuesday, September 22nd. I encourage everyone who values Hartley Park to think about how far we should go to ensure that its development is in the best interest of us, today, and our children in the future.

Taking the next step of performing an EIS is certainly a move in the right direction.

Sincerely,

Mike Seyfer
Partner, President & CEO
HTK Marketing Communications

RECEIVED
SEP 22 2015

Comments for Planning Commission Special Meeting
September 22, 2015
Daniel H. Mundt, Director Gender Matters

We are sharing this information as a part of the record at your Special Meeting on September 22, 2015, as follows:

I, Daniel H, Mundt, am the Director for Gender Matters and I am very familiar with Hartley Nature Center and what has occurred here. We have now been involved with Hartley Nature Center for 5 years. Our organization, Gender Matters, is a 501(c)(3) tax-exempt Non-Profit Minnesota corporation.

Gender Matters started over 6 years ago with 3 seminars. The first seminar was put on by Dr. Leonard Sax, who had been educated at Harvard with a Ph.D. in Psychology and a M.D. in Pediatrics. Leonard Sax worked carefully with the teachers on how they could teach boys and girls on the same subject in the same classroom because of the things that would turn the children on for educational purposes. Kathy Stevens, Director of the Gurian Institute, put on the second seminar. Kathy Stevens was a teacher's teacher and she was able to demonstrate by what a child would do early on as to what would turn the children on for educational purposes. We then had a third seminar with a number of different speakers telling how people got involved with nature or the outdoors, including involvement with the Commissioner of the DNR of Minnesota.

We have worked on development and programming for over 6 years. I have put in hundreds of hour and others have put in many hours with no compensation for any time spent.

We started with a 3-year pilot period with our Gender Matters program. We reviewed where we were, where we were going, and what our results had been. All of the schools involved then agreed to renew the efforts of Gender Matters program for another 5 years. We also have had written agreements with the Hartley Nature Center operation, including this year.

We now represent with written contract the Hermantown School District, St. James Catholic School, St. John's Catholic School, and St. Michael's Catholic School.

We are also representing 915 people who have signed a petition stating: "We are opposed to the proposals of the City of Duluth Parks and Recreation Department related to Hartley Nature Center". This would result in Hartley Nature Center going through a whole variety of steps that would decrease the value of Hartley Nature Center to the many children whom we also represent in the schools, to the schools themselves, and to society in general.

Hartley Nature Center is a one-of-a-kind, unique facility in the entire world. Our program also has not been previously tried or replicated any place in the world.

We have been successful in keeping the program and enlarging the program as we have gone along and have seen the need for additional efforts and materials.

Our whole philosophy has been to introduce the children to the outdoors and to the classroom activities and intertwine those so that they build on each other.

Gender Matters
Major Supporters and Benefactors and Their Contribution

- Barnes & Noble – Ann Hoak – Assistance in obtaining libraries for children and libraries for teachers in each classroom at discount prices with direction and help from Mary Jo Otteson; distribution of library books and materials
- Beacon Bank – Great assistance and support by Tim Meininger and Heather Harri with investments, checking accounts, savings accounts, and CDs, processing of checks, etc.
- Duluth Superior Area Community Foundation – Holly Sampson, Director – Financial Support – Support of Director, Board, and Grants Committee from very beginning and various Grant Directors
- Esterbrooks Accounting Firm – Terry Scott, CPA, handles all account and tax services including advice and comments on many materials, parts of program, tax returns, etc. at no charge
- Gurian Institute – Kathy Stevens, Executive Director (deceased) and Associate Dakota Hoyt – Educational Support – program development, advice, and consultation
- Hartley Nature Center – Worked with Dan Mundt on what might be done to coordinate efforts with Gender Matters and Hartley Nature Center; Tom O'Rourke, Director and Other Hartley Staff – Educational Support with 3 visits to Hartley Nature Center (fall, winter, spring) and visits by Hartley Staff to all of the classrooms
- Hermantown MENARD'S – Brad Carey – Advice and Supplies of Classroom Materials for children and teachers – special discounts and much time spent in selection and obtaining of items used
- Holiday Inn & Suites – Lisa Augustine, advice and counsel, participation, meeting rooms, arrangements, supplies, and overall support and involvement – "always ready" to help with any matter
- Jeffers Foundation – Paul Oberg – Counsel, advice, and discussions on problems and approach with children and outdoors; supplying of a variety of materials at no cost; knowledgeable and supportive
- Minnesota DNR – Mark Holsten, Former Commissioner; Kathleen Weflen, Editor MN Conservation Volunteer; David Lent, Publications MN Conservation Volunteer – all helpful and cooperative
- Mundt & Associates – Dan Mundt – Legal, Planning, and Administration
- Northland Foundation – Erik Torch and Lynn Haglin – Financial Support and understanding program and what they could do
- St. Luke's – Ron Franzen – Overall Interest and Educational Support
- Stewart Taylor – Jim Olson – Printing and participation in design of brochures, journals, and a variety of other materials, Planning, and Communications – totally committed
- Super One Food Stores – Jim Miner, Benefactor (deceased); Theresa Miner Lorentz and, Pat Miner, Planning and Administration for both Gender Matters and Advocate for Children's Education LLC and Jim Miner Early Intervention Referral Program special coordinator to reach children when problems in school first arise; Bruce Anderson (house counsel), Reviewing, advising, and drafting
- Westmoreland Flint – Jessica Stauber – Public Relations, Planning, and Advice

13. Project Learning Tree Seminar and books for teachers arranged and paid for by Gender Matters
14. Children visits to Hartley – fall, winter, spring – Admission paid for by Gender Matters
15. Bussing to Hartley for spring visits paid for by Gender Matters
16. Hartley staff visits to schools paid for by Gender Matters

Furnished 2013-2014 to Kindergarten, 1st Grade, and 2nd Grade Classrooms/Teachers (26 classrooms)

1. Library for 2nd Grade Children for each classroom paid for by Gender Matters
2. Library for 2nd Grade Teachers for each classroom paid for by Gender Matters
3. Backpacks with same contents as Hartley Nature Center for each classroom paid for by Gender Matters
4. Original Journals for each child
   a. Large 3 sided Pencils in separate pouch in journal
   b. 3M tape as needed to repair pencil holders if they tear
5. Ecotime guides for outdoor activities provided by Jeffers Foundation
6. Working Calendars from Jeffers Foundation
7. Go Outdoors cards for home use with parents provided by Jeffers Foundation
8. Gender Matters purchased Minnesota Conservation Volunteer magazines for teacher reference and outdoor activity ideas and some issues for children to take home
9. Tool Kits for each 2nd grade classroom containing 8" Anvil Pruner, 7 oz Curved Claw Hammer, 5" pointing trowel, 7 1/2" mini pry bar, 7" crvd Jaw locking Pliers, 3 pc gen. Purp. Pliers, 20-in-1 Multi-tool, Folding Utility Knife, and 6-in-1 screwdriver all in a Black Canvas tool roll with Gender Matters printed on it
10. Pads for each child that will not wick moisture with Velcro strap rolls and extra Velcro rolls for each school
11. Ed and Sil Pembleton from Jeffers Foundation conducting seminar for teachers on how to use Ecotime guides for outdoor activities
12. Hartley orientation session for teachers in August paid for by Gender Matters
13. Project Learning Tree Seminar and books for teachers arranged and paid for by Gender Matters
14. Children visits to Hartley – fall, winter, spring – Admission paid for by Gender Matters
15. Bussing to Hartley for spring visits paid for by Gender Matters
16. Hartley staff visits to schools paid for by Gender Matters

Furnished 2014-2015 to Kindergarten, 1st Grade, and 2nd Grade Classrooms/Teachers (26 classrooms)

1. Pads for Kindergarten and new students
2. Original Journals for each child
3. Large 3 sided Pencils for each child

Furnished 2015-2016 to Kindergarten, 1st Grade, and 2nd Grade Classrooms/Teachers (26 classrooms)

1. Pads for Kindergarten and new students
2. Original Journals for each child
3. Large 3 sided Pencils for each child

RECEIVED
SEP 28 2015

1915 Waverly Avenue
Duluth, MN 55803

September 24, 2015

Planning Division, City of Duluth
411 West First Street, Room 208, City Hall
Duluth. MN 55802-1197

Attn: Mr. Keith Hamre, Director of Planning and Construction Services

Re Hartley Nature Center Environmental Assessment Worksheet

Dear Mr. Hamre:

I wish to comment on the matter of the Environmental Assessment Worksheet (EAW) for Hartley Nature Center.

Personal Background: I graduated from the University of Minnesota with a degree in Civil Engineering. I was registered in the States of Minnesota and Michigan as a professional engineer. I have been employed by St. Louis County, Ruble and Associates, and more recently as an officer at the Duluth Company of RREM, Inc. for 28 years. I am now retired.

I was, formerly, a regular user of the Hartley Park area. Starting in the early 1960's, I took my children up there, both summer and winter. Then in 1967, I started a regular program of jogging to improve and maintain my physical condition. Old Hartley Road was a primary location for my jogging. I continued the jogging for about ten years. Later, when hiking became a more usual form of exercise, I became acquainted in detail with the trails and wooded areas lying generally east of the rock knob and east of Old Hartley Road. As my joints aged and I started biking, I added circuits that included the upper reach of the West Branch of Tischer Creek and the pine forest west of the rock knob.

As a Rotarian, I designed, supervised, and participated in the construction both of the bleachers and the original dock on the south side of the Hartley Pond. I consider that I speak, now, with a reasonable acquaintance with the trails and natural settings of a significant part of Hartley Park.

* * * *

I have had opportunity to read the EAW prepared for the Hartley Park Nature Center. I hereby submit my comments.

Thinning of the pine forest: At first I was opposed to the proposed thinning. I have both hiked and biked in among the pines. It is a magical area to hike or ride through. Then as I considered the slides shown at the meeting at Marshall School, more than a year ago, I decided careful thinning of the trees would improve the long-term survival of this type of forest growth, even as the EAW argues that the pines which have remained after thinning, immediately behind the Nature Center, exhibit more robust growth than those in the original stands. The pine forest is not natural, in the sense that those trees were planted, at least in part, by the boy scouts. But the forest is a delightful foil to the more natural regrowth of other parts of Hartley Field. To quote the EAW, "the work (thinning) will consider overall spacing, form, and health of the surrounding trees when selecting trees to remove or leave." The EAW goes on to argue that the thinning will "enhance...spacing, reducing competition for sunlight, water, and soil nutrients within the stand." The thinning "will...provide additional plant layering...important

to...enhance wildlife habitat by increasing plant diversity and providing food and nesting cover in essential diverse forest layers."

The EAW identifies areas of Aspen to be opened up with one-half acre cleared areas to enhance, again, a diversity of plant type.

Truck access is identified as occurring from Old Hartley Road via the Nature Center entrance. "The timber will be...hauled to specified landing areas using equipment with low pressure tires or tracks to minimize soil disturbance."

But I have been informed that this thinning project may not be done according to this overall description or under the supervision of a certified forester or done with the aim of select thinning, like implied both at the meeting at Marshall School and in the EAW. I am greatly concerned about exactly how the "thinning" is to be accomplished. I strongly urge that consideration be given to going on to the next stage of the planning process by preparation of an Environment Impact Worksheet (EIS.)

Alteration of segments of the multi-use and ski trails: The EAW shows in detail in Appendix B the standards for trail development for various kinds of uses. What it does not show, in a meaningful way, is exactly where these various types of improvements are to be applied in Hartley Park.

The topography of Hartley Park is greatly varied and is extended over a broad area. In order to provide a meaningful appraisal of the proposed trail modifications, applying the standards shown in Appendix B, the detail shown in the Appendix B needs to be applied to the trail system in Hartley by preparation of an EIS to show, specifically, where these changes are planned and can, thus, be shown to the reader in useful detail.

Parking: The proposed parking arrangement appears to be fairly clear. I have no comments to make about that proposal.

* * * *

My position argues that the planning indicated in the EAW is inadequate as a project planning document and needs to be followed by preparation of an EIS to layout in much greater detail the steps which will constitute this first project.

Sincerely yours,

David C. Rutford

CC: Ms. Heather Rand, Mr. Mark Beeman, Mr. Timothy Meyer, Mr. Garner Moffat, Mr. Terry Guggenbuehl

Ms. Zandra Zwiebel, Ms. Janet Kennedy, Mr. Michael Schraepfer, Mr. Luke Sydow

GENDER MATTERS
A 501(c)(3) MINNESOTA NON-PROFIT CORPORATION
2001 WAVERLY AVENUE
DULUTH, MN 55803
(218) 724-7345

~ Building SELF-ESTEEM, SELF-CONFIDENCE, SELF-ASSURANCE, and SELF-ACCEPTANCE ~

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SEP 30 2015

DIRECTORS

THERESA LORENTZ, PRINCIPAL FINANCIAL OFFICER, MINER'S INC

PATRICK MINER, STORE SUPERVISOR, MINER'S INC

DANIEL H. MUNDT (EXEC COMM) BBA (INDUSTRIAL RELATIONS) MN MA (PSYCHOLOGY) MN, J.D MN ATTORNEY-COUNSELOR 60+ YRS

JIM OLSON (EXEC COMM) STEWART TAYLOR PRINTING OWNER 30+ YRS

PROGRAM FACILITATOR

JENNY WIESE, CURRICULUM AND TESTING HERMANTOWN SCHOOL DISTRICT

SCHOOL ADMINISTRATORS

KERRY JUNTUNEN, SUPERINTENDENT HERMANTOWN SCHOOL DISTRICT

JULIANNE BLAZEVIC, PRINCIPAL ST. JAMES SCHOOL

PEGGY FREDERICKSON, PRINCIPAL ST.. JOHN'S SCHOOL

BILL VAN LOH, PRINCIPAL ST. MICHAEL'S SCHOOL

ADVISORY
DICK FISCHER RETIRED

DAVID HAMMER SCHOLARSHIP OFFICER DULUTH SUPERIOR AREA COMMUNITY FOUNDATION

BETTY KOSKI K&1 TEACHER, CLOQUET SCHOOL DISTRICT 32 YRS

ELLIE MARTIN, RETIRED COUNSELOR DULUTH DENFELD HIGH SCHOOL

TIM MEININGER, RETIRED PRESIDENT, BEACON BANK DULUTH

RYAN MILES, OFFICER BEACON BANK DULUTH

DICK PALMER, FORMER STATE SENATOR OWNER & EDITOR BUDGETEER

DIANE SCOTT PRESCHOOL DIRECTOR 23 YRS

TERRY SCOTT CPA, DULUTH

JESSICA STAUBER EXECUTIVE, ST. LUKE'S

JEFFREY SULZBACH TOMAHAWK BOY SCOUT CAMP DIR 10 YRS EXEC. NORTHERN STAR COUNCIL DIRECTOR SCOUTING HAWIIAN ISLANDS

September 29, 2015

To: Planning Commission

RE: Hartley Nature Center EAW

On behalf of Gender Matters, a 501(c)(3) Non-Profit Minnesota Corporation and its participants, participating children, schools, as well as those actively involved with Gender Matters, we write this letter recommending to the Committee that you establish an Environmental Impact Statement (EIS) for Hartley Nature Center at this time.

The reasons for this recommendation are as follows:

1. The matters that are under consideration are very important to a large number of people and certainly to Duluth itself.

2. The Environmental Assessment Worksheet (EAW) that is currently being used, is inadequate to get the information necessary for a proper decision to be made as to how to proceed with the Hartley Nature Center matters.

3. There are a significant number of issues that have been disregarded totally and the four that have been listed (Parking, Trails, Logging, and Invasive Species) have not been addressed, other than in a very brief kind of approach.

4. The advantage of the EIS is that it will require an in depth study and involvement of the issues that are actually raised at the present time by the idea of changing the nature and actions of Hartley Nature Center.

Just a few examples:

a. There has been nothing done in any manner with respect to the trails or accessing and utilizing Hartley Nature Center. There is a major issue as to whether or not the use of bicycles or walking (hiking) is most detrimental. The problem with this whole issue is that this is a very significant issue with many parts to it, all of which have been ignored in the EAW to date. It is only through an EIS that the Committee or the public will get the information that is necessary to make an intelligent decision as to materials, the utilization, the effect of various activities with respect to the trails, and how people are using them.

b. Another area that is totally ignored in the EAW is the matter of habitat. Habitat has importance because it is the habitat and the desirability for creatures and how it is handled and protected that makes a difference as to what creatures, if any, will be existent at Hartley Nature Center after a move is made with respect to some of the areas that are being discussed. Habitat has a number of characteristics that have to be answered. Not only is habitat not even referred to, but also none of those characteristics for evaluating habitat are not even raised anyplace in the EAW.

c. The whole matter of removal of trees is one that needs significant work and effort. Under the present status, loggers have to bid on the wood to be taken and then if they receive the bid, are able to do whatever they want to do in terms of the product because they own the product and have the right to do what they want to do to process the wood in their way and with whatever effects there are with qualifications that are confusing and contradictory.

d. There are many other examples that lead one to make it imperative that the Committee insist on having an EIS done so you can actually evaluate what is being proposed in an intelligent, thorough manner.

We are prepared to furnish to the Committee, at their request, a detailed listing of the areas that are involved and the areas that should be addressed to arrive at an intelligent basis for making the determination.

We appreciate the responsibility of the Committee and what its activities are. We hope that this information will put us in the position that the Committee will instruct the City to actually institute and go

through an EIS on Hartley Nature Center so that the various areas will be covered completely and the correct decisions made that cannot be made at this time or with only an EAW because it does not get to the heart of the matter with just a statement of what the issue is and then leaving it alone.

Thank you for the opportunity to share this information.

Our information is intended to be a part of the record.

Thanking you for your attention and assuring you of our interest and willingness to cooperate in getting an EIS in place so that the work can be done to get the kind of information that will allow intelligent decisions to be made, I remain

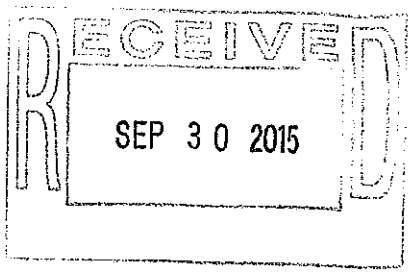
Respectfully

Dan Mundt

Dan Mundt, Director for Gender Matters

DHM/kkb
ReviewCommittee
PlanningCommission.l01

September 29, 2015



To: Planning Commission
c/o Keith Hamre, Director of Planning and Construction Services
City Hall
411 W. 1st Street, Room 208
Duluth, MN 55802

RE: EAW for Hartley

Dear Planning Commission Members,

I have read the letter from Barbara Stark on behalf of the Duluth Tree Commission in the Sunday, September 27, 2015 edition of the *Duluth News Tribune*.

My response is based on my 60 years of law practice, with 45 of them representing all phases of the timber industry in 5 states, including harvesting and planting timber.

The only way the Planning Commission can resolve these matters on a fair and responsible basis is to order an Environmental Impact Statement (EIS).

1. The letter by Barbara Stark makes the problems sound simple. They are exactly the opposite. The letter by Barbara Stark also has contradictory statements in it.
2. The soil underneath the various pines has 60 years of pine needles. These are extremely acidic. Nothing wants to grow in that soil. Any seedling will be fighting a losing battle for light, nurturing, water, weeds, brush, soil to grow in, and debris from logging.
3. The "Loggers" contract as proposed is a major problem in many parts. The ideas contradict each other. I am willing to write a detailed evaluation of the logging contract and appear before you with whomever you want.
4. The plan in the contract is not thinning. The contract will be clean and usable only if the work of an EIS is applied.
5. Much of what the letter and the contract propose is very detrimental to the habitat of Hartley.
6. Putting it clearly and simply, the letter and the proposed contract are:
    a. contradictory within themselves; and
    b. contradictory with each other.

    The only solution is an EIS.

We urge you to perform your responsibility as the Planning Commission and order a complete EIS.

With thanks for your positive consideration, I remain

Respectfully

Daniel H. Mundt

Daniel H. Mundt, Attorney at Law, Practiced in
Minnesota, Wisconsin, Michigan, Illinois, and Indiana
2001 Waverly Avenue, Duluth, MN 55807
(218) 724-7345

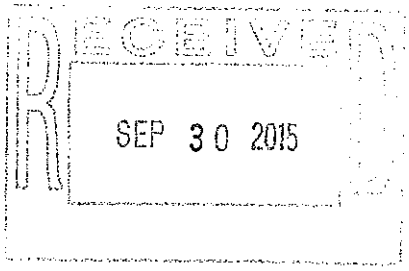
Hermantown Community Schools are currently being revamped and built new to provide learning spaces that encourage academic work that must be carried out in a 21st century environment. Block, mortar, steel, and massive precast concrete panels are quickly becoming a skeleton that will house our students in the very near future. While we can do our best to mimic the structural opportunities that await our graduates, there are some environs that cannot be. One of those spaces is the Hartley Nature Center.

Hermantown's kindergarten – 2nd grade students have been taking part in a program entitled "Gender Matters." While the explanation of the program could take up numerous pages, a key component of the program lies within the forested arms one of this region's jewels. There are those who would rather see this facility turned into a recreational park rather than a naturalist center.

I recently took some time to tour the grounds. I found myself in a sanctuary of trees and water; joggers and hikers. There were students from a local dance academy that had chosen a place of solitude for their end-of-the-summer field trip when they could have chosen any one of a number of more bustling arenas. The view from the crest of an ancient stone outcropping allowed one to witness a forest comprised of nearly every tree species in the northland.

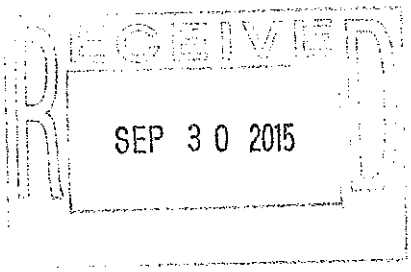
There is a point at which one must stop to assess potential damage to such a learning venue. I would strongly urge the committee to require an environmental impact study to be completed rather than the more commonly, and in my opinion, less rigorous environmental assessment worksheet. While we can construct buildings to address academic needs that will last for several years, we can never replace an environment that has been in existence for hundreds of years - one that has the opportunity to touch not only key learning moments but also one's soul.

■ Kerry Juntunen, Superintendent
Hermantown Community Schools



The Hartley Nature Center has offered a variety of public and school environmental education programs available year round. To date, over 50 schools and over 45,000 students have participated in these classes.
Gender Matters is a 501(C)(3) non-profit that has successfully changed the way children of the Duluth area can learn outside the four walls of a classroom. We have leveled the playing fields for both boys and girls by using nature (specifically Hartley Nature Center) without using tax dollars. I have been involved with Gender Matters since its inception and Hartley Field has been their classroom.
The most recent development of bike trails through the Hartley Field will drastically change the natural habitat of this Duluth gem. Any further development and/or changes to the grounds will also change the existing habitat.
It is my hope, that the City and other individuals involved in changing the Nature Center into a recreational area, will take the time to have an EIS (Environmental Impact Statement) to see the effects of this development.
I am in favor of making Duluth a destination for bikers and recreational visitors, but not at the expense of ruining a beautiful, one of a kind Nature Center that all Duluthian's enjoy.
Please take the time to evaluate the changes BEFORE we make the changes!
Thank you for your time in this matter,

James A. Olson
Owner of Stewart-Taylor Printing, a company that has
145 years of Printing and Community involvement for Duluth, Minnesota



RECEIVED
SEP 30 2015

September 30, 2015

Planning Commission
City of Duluth
411 West First Street, Room 208
Duluth, MN 55802

Re: Environmental Assessment Worksheet of Hartley Park Master Plan First Phase

Dear Commissioners:

The Planning Commission, as Duluth's Responsible Government Unit (RGU), is obligated to examine the facts, consider the criteria and draw its own conclusions about the significance of potential environmental effects when reviewing an Environmental Assessment Worksheet (EAW). This EAW does not provide the Planning Commission sufficient facts to conclude that implementation of the Hartley Master will not have adverse effects on the environment of Hartley. Therefore an Environmental Impact Statement is necessary to protect the natural environment of Hartley.

Gender Matters is a non-profit, organized to improve every child's classroom experience. A major objective is to get children immersed in nature through outdoor experiential learning. We needed a place where the children could explore and investigate plants and creatures in their natural environment. The school yard is not that place, nor is Wheeler Field or even Chester Park. The only place in Duluth that can possibly provide the educational setting for children to interact with a natural environment is Hartley. That natural environment of Hartley is described in Section 2-152 of the Duluth Legislative Code, but is not protected by the City's Environmental Assessment of the Hartley Master Plan.

The City conducted a cursory process to approve a Master Plan for Hartley. The City had successfully pursued several grants for projects and needed a public plan to utilize the funds. The Parks Department through a consultant developed a Master Plan for Hartley, with an emphasis on recreation. For several years now the group, Cyclist of Gitchee Gumee Shores (COGGS) has enjoyed a close relationship with the City of Duluth, while expanding bike trails in the City. When the City developed the Master Plan for Hartley's future, its Project Coordinator was Jim Shoberg, who also appeared to be the Trail Coordinator for COGGS. Citizen input was very limited at the public meetings. When the Plan was presented to the City Council the presenters told the Council they did not know the impacts of their Plan on Hartley. So in April 2015 Gender Matters petitioned the City of Duluth to conduct an Environmental Assessment for the entire Hartley Park Master Plan.

The City hired Barr Engineering to conduct an EAW on only three portions of the Master Plan; Trails, Silvaculture and Parking. The purpose of any EAW Assessment is to disclose environmental impacts of a project to make a determination if an Environmental Impact Statement is required. The question the EAW does not ask or answer is whether the people of Duluth want Hartley to be a recreation park or

remain a nature park. Is it a bike track or animal habitat? Bike trails in recreation parks do not have the same impact they do in a nature park.

The EAW does not address the environmental impact of the location and use of bike trails. The Hartley Master Plan and EAW state there are existing trails in Hartley. Some of these trails are not sustainable because they are too wet or cannot hold trail material. The Master Plan and EAW recommend removal of the unsustainable trails and replace them with trails built to conform to International Mountain Bike Association (IMBA) standards.

There is no IMBA standard discussed in the EAW that addresses preservation of habitat. There is much discussion of soil and surface and slope, but not one sentence about creatures that may be impacted by the realignment of trails. The Master Plan and the EAW emphasize there are existing trails in Hartley. However most of these trails, especially the unsustainable trails which the Plan recommends realignment, are defined by COGGS in their materials as "user defined". (Enclosure 1). This means the trails were not developed to minimize the impacts on the environment. Riders simply rode where they wanted and eventually wore them into trails. Now the Master Plan recommends, and the EAW supports, replacement of these unplanned trails with no consideration of the impact on animal habitat.

The EAW states there is no significant impact from these trails as it makes the conclusory statement that the environmental impacts of biking are no different than the impacts of hiking. It cites several studies to support this statement. These studies are old. Much like after the construction of snowmobile trails in the 1960's, the equipment and riding styles have changed. The cited studies, the Master Plan and the EAW do not recognize these changes and discuss the changes in riding volume, styles and equipment. There do not appear to be any recent scholarly studies that support the EAW's position regarding biking. (Enclosure 2). Even a review of the trails in Hartley contradicts this statement in that they are "user defined". By definition unregulated riders have created unregulated trails, which the Plan uses to justify further trail construction. There is nothing in the Plan or EAW that considers past or prevents further "user definition".

The EAW cannot describe the impact of the Plan because it does not have sufficient data on the current use of Hartley. There is no survey of bike trail use in the Park. While the EAW discusses the standards and impacts of vehicle traffic around the park, it does not discuss the standards and impact of increased bike traffic within the park. The MNDOT standards recognize improvements on roadways increase traffic which has an impact on the neighborhood. The EAW does not recognize improvements to trails will increase traffic within Hartley, which will impact habitat.

In addition, the assessment of the proposed timber removal lacks any discussion of actual impacts, especially on habitat. The logging is intended to remove a large number of trees so that the remaining trees will be bigger and healthier and more aesthetically pleasing. The assessment of the logging is based upon a standard for timber production, not a nature park. There is no mention of what will happen to the animals when Duluth removes their cover or takes away the food source a fallen tree

provides to the creatures. The children will not see the natural progressions of a woodlot. They will see picturesque, but sterile, stand of pines, without the unsightly undergrowth that sustains life.

In the Minnesota Generic Environmental Impact Statement for logging, there is recognition that timber removal impacts forest dependent wildlife. This EAW does not recognize the removal of timber in Hartley will impact the forest dependent wildlife. Part of the reason it does not recognize this is that there is not sufficient data on the forest dependent wildlife. In order to make a determination there are no significant impacts on this wildlife, the City must know what is there and where they are in Hartley. The Plan and EAW do not recognize this.

Furthermore there is no acknowledgment of the impact the process of logging will have on Hartley, such as running heavy equipment, creating roads and removing debris. The Planning Commission was told when the EAW was presented, that the City did not know which trees would be cut at that time, so it could not comment on the possible roads or landings that would be created through the logging process. But the Commission was reassured and the EAW states the relevant rules and regulations will be followed throughout the logging process.

The City has already solicited bids for the logging, which raises several concerns regarding this EAW. (Enclosure 3). First, the bid specifications should cause concern about the sufficiency of the EAW. In this "thinning" process the City is merely selling the timber to the logger. The logger will determine what trees will be taken in accordance with the City's general direction for a third or a quarter of the trees. However, because of such an imprecise bid, loggers frequently harvest more than the prescribed amount. This issue is not raised by this EAW. It may not be significant in other areas, but in a nature park the environmental impact of removal of a significant amount of timber will have significant environmental impact, which this EAW does not recognize or address.

The City's timber sale should also raise concerns about the sufficiency of the EAW because it is evidence of lack of integrity in the environmental review process. When an EAW is being conducted, no final governmental decision may be made to grant a permit, approve or begin a project until environmental review is completed. In the past the courts have stopped St. Louis County from taking measures to restore a wetland because it might be used for wetland credits on the Polymet project and the Polymet EIS process had not been completed. Here before the public comment period was closed, the City of Duluth, solicited bids to log in Hartley. In fact, the timber sale publication states that the bids were already opened on September 17, 2015 and the sale granted. Apparently this EAW process is a mere formality and public comments will not deter the City's process.

The City may argue the law only prohibits government action before closure of the environmental review process, when the environmental review is mandatory and here the City conducted the EAW at their own discretion. Gender Matters petitioned the City to conduct a review of the entire Hartley Master Plan. The City responded with an EAW for the "First Phase". The Second Phase of the Master Plan would include the restoration of one mile of Tischer Creek which will require a mandatory EAW. But this EAW mixes the two phases frequently. The Plan describes a "thinning" process of logging that

will remove 595 cords of Red Pine, 140 Jack Pine, 100 cords of Spruce and 165 cords of Aspen/Birch. The Plan also divides this process into phases. The First Phase of the Master Plan will remove the white and red pine. Other species will be removed in the Second Phase. The EAW, which is limited to the "Hartley Park Master Plan First Phase", does not seem to distinguish between the phases. Nor do the bid specifications published by the City distinguish between the Phases.

This is similar to the EAW for the Traverse Trail. That EAW was to focus on "Phase One". But in a review of that EAW it is difficult to determine what the City is defining as "Phase One" of the Traverse Trail project, except when it discusses possible endangered species, when it specifically excludes an area of the trail from that EAW, because it is in another phase of the project. In the same way the Hartley EAW sloshes between "Phases" regarding several issues, such as logging and trails, until it comes close to the issue of the City's Master Plan for water resources in Hartley, which it specifically excludes as part of Phase Two.

But when the Planning Commission reviews this EAW, it needs to consider the cumulative impacts of these phased or related projects. Phased projects are those that are completed by the same entity, in the same area and connected in time. The proposed actions in Hartley are a phased portion of the Traverse Trail. The proposed logging and trail building in Hartley are phased actions with the proposed changes in the water resources of Hartley. All of these actions, taken together will have a significant impact on the wildlife of Hartley.

This EAW, which is intended to be a concise assessment of the potential for environmental impacts, does not, and cannot address all of these issues. A more comprehensive Environmental Impact Statement should be prepared before any logging or trail building begins in Hartley. There will be "Significant Environmental Impact" if the Hartley Master Plan is allowed to proceed as proposed. The construction of new trails, logging and parking will eliminate habitat that is irreversible. The cumulative effects of implementation of the entire Master Plan and Traverse Trail by elimination of water resources and introduction of significantly more users into the already stressed resources will have an impact on the environment of Hartley Park. And there is no other agency or Responsible Government Unit, who will be monitoring or regulating the use of Hartley that the City of Duluth can rely on as a buffer for their decisions to log and expand the trail the system in Hartley. It is clear the EAW cannot provide the Planning Commission with sufficient facts for you to say there will be no significant environmental impacts of implementing the Hartley Park Master Plan. An Environmental Impact Statement must be prepared on the Hartley Park Master Plan.

Sincerely,

Russ Conrow
Attorney
Gender Matters

(http://wp.co
page_id=16

NEXT EVENT IN: (HTTP://WP.COGGS.COM/?TH_EVENTS=MONDAY-NIGHT-FATBIKE-RIDE-3)

(http://wp.coggs.com/?th_events=monday-night-fatbike-ride-3)

00	22	31	23
DAYS	HR	MIN	SEC

(HTTP://WP.COGGS.COM/)

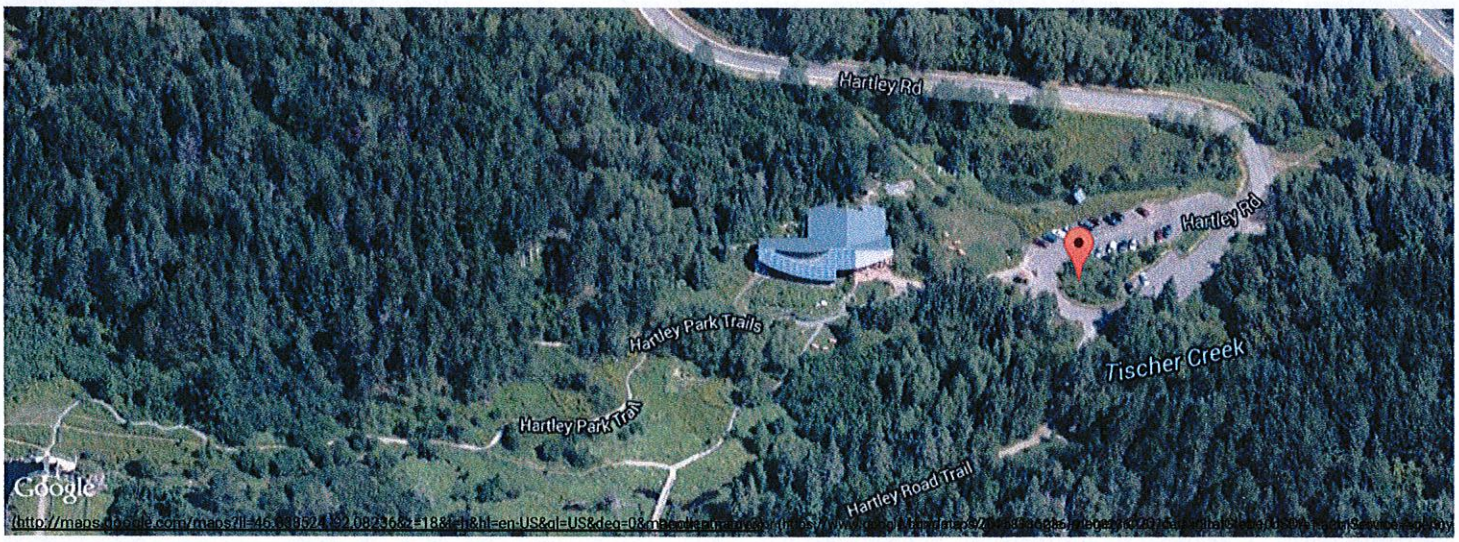
HOME (HTTP://WP.COGGS.COM/) TRAILS (HTTP://WP.COGGS.COM/?PAGE_ID=1676)

EVENTS (HTTP://WP.COGGS.COM/?PAGE_ID=1651) GEAR (HTTP://WP.COGGS.COM/?PAGE_ID=2544)

FORUM (HTTP://CYCLING.UPNORTHMN.NET/) NEWS (HTTP://WP.COGGS.COM/?PAGE_ID=11)

ABOUT (HTTP://WP.COGGS.COM/?PAGE_ID=2036) DONATE (HTTP://WP.COGGS.COM/?PAGE_ID=1446)

HARTLEY PARK

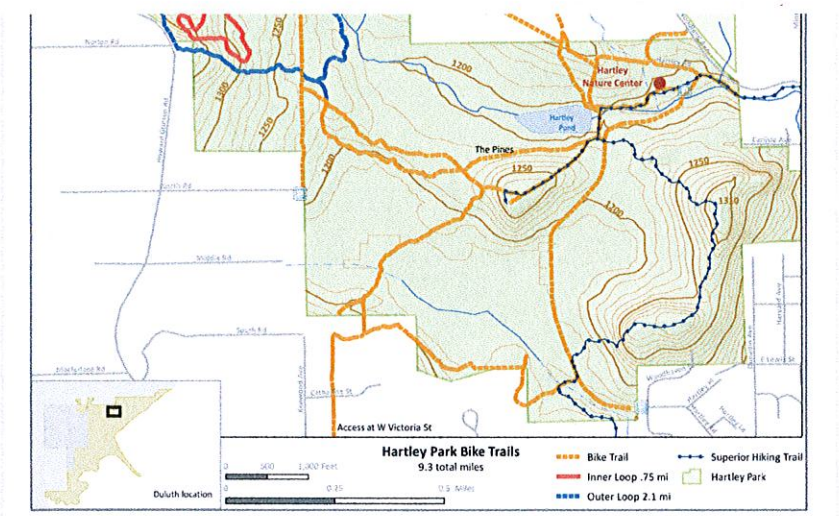


Trail Conditions

The Hartley trails are in fantastic winter condition, it almost doesn't get any better than this-get out and enjoy !! Fat bike not needed..
2015/01/12
(http://twitter.com/#!/coggshartleytc/status/554742701963636736)

Hartley trails have nicely packed snow on all trails... Excellent conditions throughout !!
2015/01/12
(http://twitter.com/#!/coggshartleytc/status/554632867389911040)

Hartley trails have packed snow over ice.. Some areas of exposed ice but overall in good condition; guardrail is quite nice !
2015/01/11
(http://twitter.com/#!/coggshartleytc/status/554322119216361472)



Skill Level: Intermediate

Trail Length: 9 miles

Story: Hartley Park is co-managed by Hartley Nature Center and the City of Duluth. It has 5K of cross country ski trails (which are off limits to bikes) on the east side of the park, the Superior Hiking Trail through the middle, and user-defined, multi-use trails open to mountain bikes on the western side. As you can see from the map below, Hartley has a fairly complicated network of trails and it is very easy to get lost on these trails. Once you get away from Hartley Nature Center there is little in the way of maps. Your best bet is to join a group ride with locals like the Ski Hut Monday night ride, Continental Ski and Bike beginner Wednesday night rides or just plan on spending your first time wandering around to find your way.

COGGS has played the role of consistent helper to maintaining the trails at Hartley and has no official control over maintenance. Most of the trails at Hartley are "user defined", which basically means trail users have blazed trail over the past several decades and eventually some worn in trails were established. The problem with this is that because water management was never a part of the design or trail construction process, Hartley is perpetually wet in many areas, particularly around the Western Swamp. Because of this scenario, much of the existing trail in Hartley would benefit from reroutes. COGGS, along with the City of Duluth, has done each of the past few National Trails Day celebrations at the park to help reroute some persistently wet areas. In 2010 much progress was made in our relationship with the Hartley Nature Center and the City of Duluth, allowing COGGS to be able to take a more integral role in maintenance of the trails at Hartley. Hartley hosted our 2010 IMBA Trail Care Crew visit and several key wet areas have been rerouted around in the past year. In 2012, COGGS won a City of Duluth Parks Commission grant for $3,000 which was used to hire a skilled trail builder, Shawn Miller, to work on three large reroutes on the Guardrail loop. This project was hugely successful and have greatly improved the quality of trail use in Hartley. In 2013, COGGS again won a Parks Commission grant, this time worth $5,000, to fund trail improvements in Hartley, Lester and Piedmont.

The Ride: Hartley is a beautiful park with some great hardwood forests, an open grassland marsh and a large rock bluff. Some trails are fairly rocky and rooty, which lead to some technical challenges, but are not overly difficult. Many of the new reroutes are quite smooth and have nice flow to the design. There are several punchy climbs with enough rocks and roots to make choosing the right line important, but there aren't any lung busters, just rolling hills.

Location: 3001 Woodland Ave, Duluth MN

Directions: From Interstate 35 take 21st Ave E up the hill. Take a Right on Woodland Ave and travel two miles to the entrance for Hartley Nature Center, which will be on our left. An alternate entrance with limited parking is at the end of Hartley Rd, which can be found off Arrowhead Rd.

Facebook
(https://www.facebook.com/pages/Hartley-Nature-Center/124153077618244)

Hartley trails all have a solid layer of ice covered by packed and blown snow. Root canal and pines are icy, Guardrail loop-very nice !
2015/01/03
(http://twitter.com/#!/coggshartleytc/status/551506446148710400)

Very icy on most trails, guardrail has the least amount of ice. Fat tires w/o studs work but any tire with studs will rip it !
2014/12/28
(http://twitter.com/#!/coggshartleytc/status/549318312820494336)

(http://Facebook.com/coggstwinports)

Flickr
(http://flickr.com/photos/coggsduluth)

Instagram
(http://instagram.com/coggstwinports)

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(http://t.co/UCYpiMxGQH)
2014/12/07
(http://twitter.com/#!/coggstwinports/status/541742619211366400)

RT @BikeDuluth
(http://twitter.com/BikeDuluth):
@coggstwinports
(http://twitter.com/coggstwinports)
Annual Membership Meeting
next Sun (Dec. 7). Social hour
starts at 5pm, meeting at 6pm,
and at 7pm - we fea…
2014/12/06
(http://twitter.com/#!/coggstwinports/status/541081611098681344)

Parking Lot This is the annual A...
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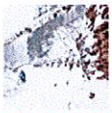
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Review

Comparing hiking, mountain biking and horse riding impacts on vegetation and soils in Australia and the United States of America

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Mountain biking

ABSTRACT

Hiking, horse riding and mountain biking are popular in protected areas in Australia and the United States of America. To help inform the often contentious deliberations about use of protected areas for these three types of activities, we review recreation ecology research in both countries. Many impacts on vegetation, soils and trails are similar for the three activities, although there can be differences in severity. Impacts include damage to existing trails, soil erosion, compaction and nutrification, changes in hydrology, trail widening, exposure of roots, rocks and bedrock. There can be damage to plants including reduction in vegetation height and biomass, changes in species composition, creation of informal trails and the spread of weeds and plant pathogens. Due to differences in evolutionary history, impacts on soil and vegetation can be greater in Australia than in the USA. There are specific social and biophysical impacts of horses such as those associated with manure and urine, grazing and the construction and use of tethering yards and fences. Mountain bike specific impacts include soil and vegetation damage from skidding and the construction of unauthorised trails, jumps, bridges and other trail technical features. There are gaps in the current research that should be filled by additional research: (1) on horse and mountain bike impacts to complement those on hiking. The methods used need to reflect patterns of actual usage and be suitable for robust statistical analysis; (2) that directly compares types and severity of impacts among activities; and (3) on the potential for each activity to contribute to the spread of weeds and plant pathogens. Additional research will assist managers and users of protected areas in understanding the relative impacts of these activities, and better ways to manage them. It may not quell the debates among users, managers and conservationists, but it will help put it on a more scientific footing.

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1. Introduction

Australia and the United States of America (USA) are large countries of similar size (7 617 930 km^2 and 9 161 923 km^2, respectively) with communities that generally have the motivation and opportunity to conserve natural areas and engage in a range of recreational activities within them. Both countries have similar traditions in the establishment and management of protected areas. They have set aside large areas of public land for protecting natural resources (10.4%, 831 420 km^2 of Australia and 15.7%, 1 466 880 km^2 of the US) (Lockwood et al., 2006). Nature-based tourism and recreation is promoted as a legitimate and desirable use of many of these protected areas. However, as visitor use activities have a range of negative environmental impacts it is a constant challenge to protect natural resources while providing sustainable recreational opportunities (Cole 1987a, 2004a; Lockwood et al., 2006).

The USA has strong conservation and research traditions and scientists have been studying the biophysical impacts of recreation on the natural environment (recreation ecology) for close to a century. As early as the 1920s the impacts of human trampling on natural vegetation and soils were first investigated (Meinecke, 1928). In the 1970s a substantial body of recreation ecology literature began to accumulate paralleling a dramatic increase in visitation to protected areas (Hammitt and Cole, 1998; Liddle, 1997). The majority of researchers in the USA are currently working on developing impact indicators and feasible procedures to support monitoring programs as an essential component of visitor management efforts. Some of these indicators are related to

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conditions of formal trails and the extent of informal trails. A substantial portion of the recreation ecology literature has been generated by scientists in government agencies such as the US Forest Service, National Park Service and US Geological Survey (Cole, 2003).

In contrast to the USA, recreation ecology in Australia has lagged behind with fewer people, most of whom are in academia, undertaking research over a shorter timeframe and with less funding (Buckley, 2005). As a result there is around five times as many publications on the impacts of hiking, horses and off-road vehicles in North America (most in the USA) than there are in Australia and New Zealand (Buckley, 2005). Consequently, Australian managers and researchers often have to look to research from the USA as a substitute for Australian research. This can be misleading as recreation impacts on Australian ecosystems can be more severe than in the USA.

Differences in the evolution of soils, flora and fauna in Australia make Australian ecosystems more sensitive to some recreational impacts than those in the USA. Australian vegetation evolved in the absence of larger mammals, particularly hard hoofed herbivores such as sheep, goats, cattle and horses (Newsome et al., 2002). As a result many of Australia's ecosystems have lower resistance to trampling than ecosystems in other continents where hard hoofed animals are native. With the introduction of large grazing mammals in Australia by humans in the last 200 plus years, areas of native forest, woodland and grassland have been replaced by introduced pasture grasses that are more resilient to grazing, trampling, and eutrophication (Liddle, 1997; Newsome et al., 2002). Due to a long period of weathering Australian soils are often low in nutrients, particularly nitrogen and phosphorous (Hamblin, 2001; McKenzie et al., 2004; Thomson and Leishman, 2004). Therefore addition of these nutrients to soils from manure and urine alters some ecosystems, often favouring exotic plants over natives. Australia has had a long period of geographic isolation resulting in high levels of endemism in the biota (Williams et al., 2001). As a result, the introduction of plants, pathogens and feral animals from overseas, has dramatically affected most natural ecosystems. Indeed, invasive species are recognised as nationally threatening process for native biodiversity in Australia (Australian Government, 2009). Many weed invasions in Australian protected areas are a direct consequence of vegetation and soil disturbance and soil nutrient enrichment (Hobbs and Atkins, 1998). Similarly, tourism use of protected areas is a major factor in the spread of introduced pathogens such as the root-rotting fungus *Phytophthora cinnamomi* (Specht and Specht, 1999; Newsome, 2003; Buckley et al., 2004; Worboys and Gadek, 2004; Turton, 2005). This fungus is harmful to a wide range of native plants and is listed as a key threatening process by the Australian Government (Environment Australia, 2001).

Hiking, horse riding and mountain biking are common activities in Australian and USA protected areas. They occur on dedicated trails (hiking trails, bridle trails or specific mountain bike trails), on multi-use trails and/or off trail in backcountry/wilderness areas (Watson et al., 1993; Liddle, 1997; Goeft and Alder, 2001; Newsome et al., 2002, 2008; White et al., 2006). The appropriateness of conducting these activities in some locations is contentious because of their potential to degrade trails, natural vegetation and soils and disturb wildlife (Watson et al., 1993; Liddle, 1997; Marion and Wimpey, 2007; Newsome et al., 2008; White et al., 2006). While horse riding and mountain biking are often perceived as high impact activities, there is increasing pressure from user groups for increased access, particularly in reserves close to urban areas (Landsberg et al., 2001, Newsome et al., 2008; Newsome and Davies, in press; White et al., 2006; Webber, 2007).

Recreation ecology research has traditionally focused on understanding the range of environmental impacts from recreation. More recently researchers in both the USA and Australia have attempted to quantify the relative severity of impacts from specific activities (Cole, 2004a, b). The findings, and in some cases, methods used for this research have been questioned by the different user groups and conservation organisations (Landsberg et al., 2001; White et al., 2006; Webber, 2007; Newsome et al., 2008). Given this situation it is important to evaluate what is, and is not known, about the impacts of hiking, horse riding and mountain biking in protected areas. This includes what types of impacts have been found, their severity, if there are activity specific impacts, what indicators can be used to assess impacts, what methods are being utilised, analysis of methodological limitations to existing research, and what directions and methods should future research take to address the needs of users and of managers who are making decisions about recreational use in protected areas of Australia and the US. A comparative review of research in these two countries can shed light on other protected area systems in the world with respect to similar impact issues.

In order to conduct this review, we consulted all major recreation ecology references, a series of electronic databases and the authors own reference libraries to compile a comprehensive collection of empirical studies conducted in the USA and Australia that have found soil and vegetation impacts from hiking, horseback riding and mountain biking. A research method dataset was constructed by extracting relevant information from each reference.

2. Hiking impacts

Recreation ecology research in the USA and in Australia had been dominated by studies of hiking and camping impacts on vegetation and soil (Liddle, 1997; Buckley, 2005). The literature in the USA has been reviewed by Cole (1987a, 2004a) and Leung and Marion (2000) and in Australia by Liddle (1997) and Pickering and her colleagues (Pickering and Hill, 2007a, b; Hill and Pickering, 2009a, b, c). At least 33 studies in the USA have documented a range of impacts from hiking on soils and vegetation (Table 1). A major focus of the USA literature has been impacts of hiking on existing formal and informal trails. Out of 33 studies in the USA examining hiking impacts, 14 looked at soil erosion on trails, and 11 looked at the width of trails (Table 1).

We identified 26 studies from Australia that have examined impacts on vegetation and soils from hiking with most research either in mountain regions (Whinam et al., 1994; Whinam and Chilcott, 1999, 2003; Bridle and Kirkpatrick, 2003, 2005; Dixon et al., 2004; Bridle et al., 2006; Mende and Newsome, 2006; Pickering and Growcock, in press) or the subtropics (Sun and Liddle, 1993a, b; Hill and Pickering, 2009a) (Table 1). The Australian research also includes work on and off trail, but there appears to be a greater focus on the association between hiking and weeds than in the USA which will be discussed in more detail later.

Impacts of hiking found in Australia and the USA include soil compaction and loss, reduced soil moisture, loss of organic litter, loss of ground cover vegetation, loss of native plant species, introduction of weeds and pathogens, and change in vegetation composition (e.g. Leung and Marion, 2000; Randall and Newsome, in press) (Table 1). The relative impacts from different levels of hiking use, and use under different environmental conditions such as vegetation type, slope, soil type, season and weather conditions have also been examined in both countries (Cole and Bayfield, 1993; Cole, 1995a, b; Leung and Marion, 1996; Hill and Pickering, 2009a, b, c; Pickering and Growcock, in press).

A standardized experimental protocol for assessing trampling impacts on vegetation (Cole and Bayfield, 1993) has been used to

Table 1
Number of studies documenting specific impacts of hiking, mountain bike riding and horse riding conducted in Australia and the USA.

	Hiking		Mountain bike riding		Horse riding	
	Australia	USA	Australia	USA	Australia	USA
Trail degradation						
Soil erosion	7	11	3	4	2	7
Soil compaction	1	3	2	1		2
Change to trail width	5	10	1	3	2	2
Change to trail verge vegetation	7	2	2	1	1	
Increased muddiness	1	5				
Exposed roots/rocks	2	2	1			
Informal/social/constructed trails	3	3	2			
Mountain bike specific damage			2			
Horse specific damage					1	2
Degradation of natural vegetation and soils (e.g. off trail use)						
Change in organic litter	4	1				1
Soil erosion	4	6		1	2	2
Increase in bare soil	9	7		1	1	2
Soil compaction	1	4				1
Soil nutrients	3	1			1	
Soil microbial communities		1				
Change in plant species	5	4		1	1	
Change in native vegetation	8	11		1	2	2
Weeds	5					
Fungal pathogens	1	3		1		
Seed transported by	3				3	4

Details of impacts and each study provided in Appendix 1.

compare the effect of different intensities of hiking including in Australia and the USA (Hill and Pickering, 2009a). Hiking resistance indices: the number of passes by a hiker required to reduce vegetation cover by 50% (Liddle, 1997), have been documented for 55 vegetation types internationally (Hill and Pickering, 2009a). In the USA, hiking resistance indices are available for 28 vegetation types, ranging from 20 passes in a subalpine forest understory dominated by erect fern (Cole, 1995a) to 1000 passes in subalpine grasslands (Weaver and Dale, 1978). In Australia, hiking resistance indices have been documented for 10 vegetation types and range from 12 passes in *Eucalyptus* subtropical understory (Liddle, 1997) to 1475 passes in a far less resistant subtropical understory in the same region (Liddle, 1997; Hill and Pickering, 2009a). Across all the studies some general patterns are apparent, with hiking resistance declining from subtropical to alpine ~ temperate ~ subalpine ~ arctic to montane and sand-dune grasslands to forest understorey and finally with heaths and herbfields the least resistant to hiking. Within each growth form and location there was still considerable variation in resistance indices, hence site specific research may still be required particularly for sites of high conservation value (Hill and Pickering, 2009a).

Much of the research on hiking impacts in the USA and in Australia has focused on easily observable soil and vegetation change with little research on indirect and cumulative effects. One important indirect impact of hiking that has cumulative effects is the spread of weeds. Once established in a protected area, environmental weeds can continue to spread even if there is no further tourism usage – that is they are a self-sustaining impact (Buckley, 2003; Pickering, in press). Trails act as corridors for dispersing exotic species into relatively pristine areas due to the altered environment on the trail and trail verge. This effect may be exacerbated by the type and amount of use. Hiking trail verges support a wide range of weed species, some of which have the capacity to spread into adjacent natural vegetation (Leung and Marion, 2000; Potito and Beatty, 2005; Pickering and Hill, 2007a, b). As part of a larger study on weeds in protected areas, the potential for clothing on hikers to act as vectors for seed has recently been reviewed (Pickering and Mount, in press). Socks and shoes were found to collect large amounts of seed, particularly when hikers walked on road and trail verges (Mount and Pickering, 2009). There seems to be limited research on this topic with only ten published studies on this topic (Mount and Pickering, 2009). Three of the studies were conducted in Australia (Wace, 1977; Whinam et al., 2005; Mount and Pickering, 2009), with the only US study conducted in Hawaii (Higashino et al., 1983). Based on the published research seed from 179 species of plants have been collected from clothing and equipment of which 43 are considered serious environmental weeds internationally (Mount and Pickering, 2009).

Human waste from hikers has biophysical and social impacts. For example, faeces and urine contain nitrogen and phosphorous at concentrations that can effect plant growth, particularly in sites with nutrient poor soils as occurs in many parts of Australia (Bridle and Kirkpatrick, 2003; Bridle et al., 2006). Research in Australia examining environmental and human impacts of human waste around hiking huts in temperate Tasmania, found that: (1) many people did not follow minimum impact codes and deposited faecal material close to huts; (2) there were peaks in nitrogen and phosphorous close to huts indicating that human waste was affecting soil nutrient levels; (3) the only changes in plant growth with increased nutrients around huts and in experimental urine addition, were increased growth in some native plants; (4) the rate of breakdown of toilet paper, tampons and faecal material varied among locations, with material still visible 1 year after deposition in some sites; and (5) there are human health and social issues with the presence of human waste from hikers, including reduced visual amenity and increased human pathogens occurring in local water bodies (Bridle and Kirkpatrick, 2003, 2005; Bridle et al., 2006).

Hiking can spread plant as well as human pathogens, particularly species of the highly invasive water molds (*Phytophthora*). In Australia *Phytophthora cinnamomi* is a major threat to native plants including many rare and threatened taxa (Newsome, 2003; Environment Australia, 2001). In the USA, *Phytophthora ramorum* is a highly invasive plant pathogen that causes sudden oak death in a range of tree species in California and Oregon (Cushman and Meentemeyer, 2008).

There is a clear association between hiking use of a region and the spread of *Phytophthora* in Australia and the USA (Newsome, 2003; Cushman and Meentemeyer, 2008). In Australia, *Phytophthora cinnamomi* is found on hiking trails in Western Australia (Newsome, 2003), Tasmania (Schahinger et al., 2003), New South Wales (Daniel et al., 2006), Victoria (Weste et al., 2002; Boon et al., 2008) and Queensland (Worboys and Gadek, 2004; Turton, 2005) where it often spreads into native vegetation. In the USA, *Phytophthora ramorum* is associated with hiking trails, and is more common in regions with higher visitation (Cushman and Meentemeyer, 2008). Hikers and vehicles have also been associated with spread of other *Phytophthora* species in the USA such as *Phytophthora lateralis* that causes root rot on Port Orford Ceder (Jules et al., 2002).

More direct evidence of hikers transmitting plant pathogens has been obtained. In the USA, samples of *Phytophthora ramorum* were obtained from around 40% of shoes of children hiking a 2.4 km trail in a protected area in California (Davidson et al., 2005). Studies have also found that *Phytophthora ramorum* is carried on the hikers shoes entering and leaving a protected area in California, with the distance the person walked on the trail increasing the chance of the pathogen being transported (Cushman et al., 2007). They also found that the pathogen was only viable for a relatively short time in soil on shoes (around 24 h if dry, 72 h if moist), indicating that hiking is likely to result in short term and/or localized dispersal. In southwest Western Australian ecosystems, however, once the

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pathogen *Phytophthora cinnamomi* is established it has the capacity to spread and become a serious ecological problem. The survival and spread of *Phytophthora cinnamomi* in southwest Western Australia is favoured by warm seasonally moist soil conditions (DWG, 2009). The pathogen is able to survive within plant root material under dry soil conditions. When conditions are favourable it can spread between plants by root-to-root contact (DWG, 2009). With around 2800 species of plant in southwest Western Australia susceptible to infection (Shearer et al., 2004) *Phytophthora cinnamomi* constitutes a major biodiversity and visitor use problem in protected areas.

3. Horse riding impacts

There are fewer studies on the biophysical impacts of horse riding than there on hiking (Table 1). We were able to find 12 papers on horse riding impacts in the USA and six in Australia (Table 1). Many types of impacts from horses are similar to those from hiking particularly soil compaction and erosion, loss of organic litter, loss of ground cover vegetation, loss of species, trail erosion and widening and potentially the spread of weeds and pathogens into natural vegetation (Table 1). What can differ is the severity of impacts. For example, the greater weight of horses can result in more damage to vegetation and soils than people hiking (Weaver and Dale, 1978; Liddle, 1997) while grazing by horses can result in more damage to grasses and other palatable species (Newsome et al., 2004, 2008; Cater et al., 2008).

Two types of impacts that are likely to be much greater from horse riding than the other activities are nutrification of soils and waterways from horse manure and the spread of weeds. In addition to the impacts due to human waste (Bridle and Kirkpatrick, 2003, 2005; Bridle et al., 2006) that would be associated with all three activities, horses themselves produce large amounts of waste. Horses manure (faeces and urine) contain nitrogen, phosphorous and various heavy metals (Edwards et al., 1999; Westendorf, 2009). In stables, farms, paddocks and natural areas, the management of horse waste is an important environmental issue particularly where it may contaminate waterways (Edwards et al., 1999; Westendorf, 2009). The amount of dung produced by an adult horse (400–600 kg body weight) per day is of the order of 17–26 kg, while for urine it is around 5–7 l per day (Mastsui et al., 2003). The addition of nutrients in horse manure is more likely to be an issue where soils are low in nutrients, particularly phosphorus such as many Australian soils (Newsome et al., 2004, 2008; Cater et al., 2008). Horse manure can introduce around 1 g of phosphorous and 2.5 g of nitrogen per horse per day (Westendorf, 2009). Along trails and tracks it can lead to local nutrient hotspots. In tethering areas or other places where horse densities are higher the amounts of nutrients added can start to affect local vegetation favouring species adapted to higher nutrients (Mouissie et al., 2005; Westendorf, 2009). It can also increase the risk of runoff into local water ways affecting riverbank and aquatic biota (Edwards et al., 1999; Westendorf, 2009).

In addition to any seed transported by horse riders, saddles, floats and vehicles, horses have the potential to spread seed via their coats, hoofs and most of all in dung. Horses can eat seed that have been found to be viable from dung for up to 10 days post ingestion (St John-Sweeting and Morris, 1991). As some of the seed they eat comes from species that can be invasive in protected areas, horses may be bringing new species into protected areas. Internationally there are at least 11 studies examining seed in horse manure of which four were in the USA (Campbell and Gibson, 2001; Wells and Lauenroth, 2007; Gower, 2008; Quinn et al., 2008), and three in Australia (St John-Sweeting and Morris, 1991; Whiman et al., 1994; Weaver and Adams, 1996). Based on all 11 studies, seed from 216 species is known to be viable after passing through the digestive tracks of horses, 45 of which are serious intentional environmental weeds (Pickering and Mount, in press). What is not currently less clear is if these species germinate *in situ*, become established and spread in protected areas. There do not appear to be any Australian or USA field studies confirming that weed species germinate *in situ* from horse manure along trails in protected areas (Table 1). Nonetheless, the environmental weed *Ehrharta calycina* has been observed by one of the authors (Newsome) germinating from dung deposited by horses on walk trails traversing weed free natural vegetation in John Forrest National Park, Western Australia.

Studies in Europe have confirmed that such seed can germinate from horse dung in a range of environments (Mouissie et al., 2005; Törn et al., 2009). A field study in subalpine Tasmania found that weed seed did not germinate from manure along trails, but did germinate from horse dung in field plots where soil and vegetation were disturbed (Whinam and Comfort, 1996). In contrast, weeds did not germinate from manure or hoof debris samples along trails in the eastern USA (Gower, 2008). The potential for horses to disperse weed seed and facilitate weed establishment and spread along trails and subsequently into natural vegetation in protected areas clearly needs further research.

We have not been able to find any studies that directly tested horse's hooves as dispersal mechanisms for plant pathogens such as *Phytophthora* in Australia or the USA. However, horse riding is considered to be an important risk factor for many protected areas as the pathogens have been transported on the tires of vehicles, and on human shoes (Newsome et al., 2002, 2008). Therefore, the spread of the pathogens may result from horse riding as an activity in protected areas even if horses themselves are not the primary vector.

4. Mountain biking impacts

Mountain biking is an increasingly popular activity in both relatively remote areas and urban-proximate conservation reserves and parks (Goeft and Alder, 2001; Schaefers, 2006; White et al., 2006; Marion and Wimpey, 2007; Davies and Newsome, 2009; Newsome and Davies, in press). Mountain biking is not homogenous. There are different riding styles including cross country, down hill, free and dirt jumping (Felton, 2004; Schaefers 2006; Webber, 2007; Newsome and Davies, in press). Although individuals may participate in several styles of mountain biking, what equipment they use, where they go, what facilities they expect and the likely impacts of their use can differ (Felton, 2004; Schaefers, 2006; Webber, 2007; Newsome and Davies, in press). Like hiking and horse riding, mountain biking can occur on multi-use, single use, informal trails or even on sites with no existing trails. Differences in the level of modification of the tracks and in riding styles are likely to affect the severity and types of impacts (Felton, 2004; Webber, 2007; Newsome and Davies, in press).

There is very little published research on biophysical impacts of mountain biking, as was highlighted recently in a review by Marion and Wimpey (2007). Research in Australia by one of the authors (Newsome) adds to this sparse literature. As a result, we were able to identify six studies in the USA and four studies in Australia that have examined the biophysical impacts of mountain biking (Table 1). We have included a Canadian paper (Thurston and Reader, 2001), as it is relevant to the likely impacts in the temperature regions of the US.

Studies in the USA have primarily focused on soil erosion and degrading trail conditions from mountain biking activities. One of the earliest studies on mountain biking impacts was conducted in a national forest in Montana (Wilson and Seney, 1994).

By employing a quasi-experimental design with 66 by 66 cm sample plots and low level simulated rainfall events, the researchers found that mountain biking generated less sediments from trails than horses and hikers. These results are somewhat supported by a recent study in southwestern USA (White et al., 2006) as mountain bike trails were found to be similar to hiking and multi-use trails with respect to trail impact indicators such as width, incision and cross sectional area indicative of soil loss. In the north-central state of Wisconsin, Bjorkman (1998) conducted a two-part study on the impacts of mountain bike trails. First he compared a surface-treated bike trail with an untreated bike trail by measuring sediment yield after natural rainfall events over 2 months. He found that the treated trail had only 1% of the amount of erosion that occurred on the untreated trail. The second part of Bjorkman's (1998) study involved examining biophysical changes on newly opened mountain bike trails in a state forest over five seasons. The results indicate that soil and vegetative changes on trail treads occurred rapidly initially and then tapered off, exemplifying the curvilinear use-impact relationship found in past research (Hammitt and Cole, 1998). The amount of soil erosion, as measured by cross section area and centerline depth, was not significant over the study period (Bjorkman, 1998). Slope was identified as the most important factor in influencing the changes in trail condition while the level of use did not play a significant role.

Recent work by Davies and Newsome (2009) and Newsome and Davies (in press) in Western Australia, in contrast, found a range of specific social and biophysical impacts arising from mountain biking. These include trail impacts such as erosion from skidding, linear rut development, user conflict and the addition of unauthorized constructed features to existing trail networks. In addition, a number of off trail impacts were identified including the creation of informal trails, creation of constructed features (technical trail features) along with reduced amenity. There is potentially a significant cost associated with this when management has to respond to such impacts. Furthermore, multiple linear rut incision, the systematic addition of technical trail features and informal trail development with amended trail surfaces are mountain bike specific impacts (Davies and Newsome, 2009; Newsome and Davies, in press).

The extent and severity of mountain biking impacts appears to be connected with different riding styles. Impacts are likely to be greater when riding is faster, less controlled, occurs on steeper slopes and in wetter conditions. In Western Australia impacts from different styles of bike riding were compared on trails (Goeft and Alder, 2001). Trail erosion and widening, soil compaction and vegetation damage on a recreational bike trail and a racing trail were recorded over 1 year in the wet and the dry season. Impacts were confined to the trail centre with few impacts to trailside vegetation, which is consistent with a past USA study (Bjorkman, 1998). Although the racing trail was wider after an event there was no widening over the longer term. The authors concluded that even though bike riders prefer downhill runs, steep slopes, curves and water stations (features related to higher impacts), mountain biking is sustainable so long as that trails are appropriately designed, located, and managed. The problem with such a conclusion, however, is that mountain biking often occurs on multiple use trails and in areas not designed for biking (Newsome and Davis, in press).

In contrast to the findings of Goeft and Alder (2001) Newsome and Davies (in press) identified mountain bike related impacts to be a significant management problem both on and off trails. Impacts included the deliberate modification of existing trail networks and the creation of informal trails. A global positioning systems (GPS) mapping tool was used to survey the location of trails used for mountain biking and constructed technical features. The area impacted by bikes was quantified and in just one small area bikers had created an informal trail network 2.54 km in length and cleared 2540 m^2 of forest in the development of informal trails. These impacts relate to particular riding styles and especially the thrill seeking adventure components of downhill riding, free riding and dirt jumping. Although this method was found to be useful for assessing mountain bike specific impacts and especially the impacts of informal trail development by mountain bikers it is not suitable for comparing the relative impacts of different use types on multi-use trails.

Damage to vegetation and soils from mountain biking are likely to favour weeds, as occurs with hiking and horse riding, however, there appear to be no studies documenting weeds on tracks used for mountain biking. Similarly, no studies examining mountain bikes as seed vectors have been found in extensive searches of the scientific literature (Pickering and Mount, in press). Clearly bikes have the potential to act as vectors for the transport of weed seed as studies on vehicles as vectors indicate that seed from over 505 species can be transported over long distances by vehicles (Pickering and Mount, in press).

Mountain bike tires have been found to carry *Phytophthora* spores in the USA (Cushman et al., 2007). It is likely the mountain bike riding is also a vector for root rot in Australia, although we have not found any studies that have directly examined mountain bikes in Australia. In the case of accessing natural areas over long distances, especially if it involves an overnight stay, mountain bike riders, like horse riders and hikers are likely to also deposit human waste which may have a range of biophysical impacts on the environment, but we have found no studies directly assessing this impact of riders. Moreover, there is the potential for the compounding problem of informal campsite development in some situations.

5. Comparative studies on relative impacts of hiking, horse riding and mountain biking

Researchers, protected area managers and some user groups agree on the need for more experimental research on the relative impacts of hiking, horse riding and mountain biking on trails, natural vegetation and soils (Cole and Spildie, 1998; Marion and Wimpey, 2007; Newsome et al., 2008; Newsome and Davies, in press, Webber, 2007). Impacts that have been experimentally compared to date are those that are common to all three activities; vegetation loss, species richness, soil exposure and trail degradation (erosion and widening) (Table 2). Several USA studies report that even low levels of horse use results in more severe impacts to soils, vegetation and trails than from hikers or other users (Table 2). Differences were due to the greater weight per unit area of a horse and rider compared to a person. For example, the pressure per unit area of a horse and rider can be ten times greater than for a person walking (around 4380 g cm^2 for a horse compared to 416 g cm^2 for a person in walking boots) (Liddle, 1997). Four studies have compared horse traffic impacts with hiker impacts; two in natural vegetation (Weaver and Dale, 1978; Cole and Spildie, 1998) and two on existing trails (Wilson and Seney, 1994; DeLuca et al., 1998). There appear to be no experimental comparative studies of horse and hiker impacts in Australia.

There are few studies on the relative impacts of mountain biking versus hiking in these two countries. Just three studies were found, two from North America and one from Australia (Table 2). Under the conditions tested, researchers found no evidence that mountain bike impacts to soils, vegetation and trails were significantly greater than impacts from hikers. Methodological issues, however, may limit the inferences that can be made from some of the results.

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Table 2
Details of comparative studies of hiking (H), mountain bike riding (MR) and horse riding (HR) environmental impacts conducted in protected areas.

Source	H	MB	HR	Methods	Other uses tested	Location	Soil and vegetation impact indicators
DeLuca et al. (1998)	*		*	Exp. trampling on trails	Llamas	Lubrecht Experimental Forest, Montana, USA	Sediment yield, soil bulk density, soil roughness
Wilson and Seney (1994)	*	*	*	Exp. trampling on trails	Motor cycles, off-road vehicles	Gallatin National Forest, Montana, USA	Soil erosion (water runoff and sediment yield after simulated rainfall)
Chiu and Kriwoken (2003)	*	*		Exp. trampling on trails		Wellington Park, Tasmania, Australia	Soil erosion (change in trail surface elevation)
Weaver and Dale (1978)	*		*	Exp. trampling, natural veg.	Motor cycles	Rocky Mountains, USA	Bare width and depth of trampling lane, Bare ground (%)
Cole and Spildie (1998)	*		*	Exp. trampling, natural veg.	Llama	Lolo National Forest, Montana, USA	Relative cover mineral soil, vegetation, Relative veg. height
Thurston and Reader (2001)	*	*		Exp. trampling, natural veg.		Boyne Valley Provincial Park, Ontario, Canada	Relative bare mineral soil, relative cover (plant stem density), species richness
Olive and Marion (2009)	*	*	*	Field survey of trails (ps)	ATV	Big South Fork National River and Recreation Area, Kentucky/ Tennessee, USA	Cross sectional area of soil loss (subsample), trail width, depth
Törn et al. (2009)	*		*	Field survey of trails (ps)	Skiing	Oulanka National Park and Ruka Ski Resort Finland	Trail width, depth (centre, edges), Veg. cover (%) shrubs, forb and graminoids, bryophytes (%), presence of species
White et al. (2006)		*		Field survey of trails (ps)		Five ecological regions in Southwest USA	Trail width and depth (maximum),
Summer (1980, 1986)	*		*	Field survey of trails (ps)		Rocky Mountain National Park, Colorado, USA	Trail width, depth

Exp. = experimental, veg. = vegetation, ps = point sampling.

Only one study compared all three activities. Under quasi-experimental conditions erosion from hikers, horses, motors cycles, and off-road bikes on trails were compared on trails in Montana (Wilson and Seney, 1994). One hundred passes of each use type were applied to 108 trail sample plots, simulated low level rainfall was applied and sediment and water runoff collected and used as the correlate for trail erosion. Only horses caused significantly more sediment yield than control sites, under both wet and dry conditions. The authors concluded that mountain bikes caused no more erosional damage to trails than hikers. There are a number of methodological problems with this experiment. Prior to the experiments there were statistically significant differences in sediment yield behaviour between the hiker and off-road bicycles trails. As a result there was less sediment available for detachment and entrapment on hiker plots than on those for bikers. Also the simulated rainfall used was only equivalent to one third of natural rainstorms, and hence may not have had enough kinetic energy to properly test for differences in erosion among the three activities.

Experimental hiking and mountain biking were compared in natural understory vegetation in Ontario, Canada (Thurston and Reader, 2001). No significant differences were found in three indicators; vegetation cover, exposed mineral soil and species richness. The experiment provided little opportunity for breaking, accelerating or turning, however, and hence may only reflect 'optimal' riding behaviour.

Experimental hiking and biking were compared on an abandoned fire road in Tasmania, Australia (Chiu and Kriwoken, 2003). No significant differences were found in erosion from low impact bike use (bike riding without skidding on flat parts of the trail and on corners) and hiking. Again the results may only be relevant to situations in which trails are already hardened by previous use, and where riding behaviour is optimal.

Non-experimental track surveys have been used to assess the condition of trails predominantly used for hiking, horse riding and mountain biking. Surveys of this type have the underlying assumption that there is causal relationship between predominant use and track condition. Differences in condition among trails, however, may be the result of differences in the location of the trails (soil type, slope, vegetation type, etc.) and on maintenance regime rather than the predominant use. For example, trail width and erosion were recorded at transects systematically located along 126 km of trails in a recreation reserve in Kentucky and Tennessee (Marion and Olive, 2006; Olive and Marion, 2009). Trails were used predominantly for hiking (42 km), horse riding (44.2 km), mountain biking (3 km) or ATVs (all terrain vehicles). A bike trail was reported as having the least erosion, while horse and ATV use were associated with greater soil loss than either hiking or mountain biking. However, use of the bike trail was deemed to be low to moderate and furthermore the bike track was considered to be a specialised trail in terms of the design, soil type, trail position and grade. This track also received regular maintenance from a local bike club. Thus, the result may not apply to other biking trails that are less well maintenance and/or experience heavier use.

An extensive survey of trail conditions in the southwest US reported the average width and depth (erosion) of 262 km of trails primarily used by bikers (White et al., 2006). These data were compared with trail erosion and width data reported in Marion and Leung's (2001) study of hiking trails in the Great Smoky Mountains National Park. Although it was concluded that trails used for mountain biking in the southwest US had similar width and depth to trails receiving little or no mountain biking these are not statistically valid comparisons as data were not collected in a way that would allow such a comparison to be made.

6. Key gaps and future research directions

Based on existing research it is already possible to make some generalisations on hiking impacts. Further information on resistance and resilience of vegetation communities to trampling impacts of hikers will still be required in many instances, particularly for sites of high conservation value, and/or to assist in policy

formation, when the use of a site for hiking is particularly controversial (Hill and Pickering, 2009b). The increasing popularity of adventure activities such a cross country hiking, rogaining and competitive sporting events such as cross country running, mean that there is still more to learn.

Research on horse riding and mountain biking is still limited compared to hiking contributing to the divisive nature of the debate about among user groups, managers and conservationists. One of the most obvious research needs is quantitative research experimentally testing the relative susceptibility of various environments to horse riding and mountain biking similar to that already available for hiking. This includes studies using standardised experimental methods such as those developed by Cole and Bayfield (1993) to assess trampling impacts. Similarly, two and three way comparative studies among hiking, horse riding and mountain biking are needed including using the standardised experimental methods. Quantitative experimental comparative studies can directly test the relative impact of different activities at given levels of use in specific sites. Data from such studies provide more reliable information and are particularly important in sites of high conservation value, of low resistance and resilience to disturbance, and where uses is particularly controversial. Another issue that can be addressed both experimentally and using surveys is assessing impacts relating to the distance travelled by horse riders and mountain bikers compared with other users and how this might extend trail erosion into areas not often assessed.

The majority of research in Australia and the US has shown that horse riding has the potential to cause degradation even at low levels of use (Tables 1 and 2). Impacts associated with group events including endurance, musters and cross country competitions also need to be examined. In addition to the research described above examining impacts in common to different activities, further research is required on horse riding specific impacts. These include research on impacts from grazing and nutrificiation due to horse manure, particularly in environments with low nutrient soils.

There is even less research on mountain biking than on horse riding. Research on mountain biking needs to address some of the methodological issues raised with past studies. For example, the riding styles of bikers in experimental studies needs to be more realistic. Studies comparing different styles of mountain biking will help identify what aspects of riders behaviour contribute to impacts. Skidding and breaking are more likely to result to soil detachment, the formation of ruts and V shaped grooves down the centre line of the trail or multiple tyre ruts especially in wet trail segments than riding straight on a flat surface. It is likely that some styles of riding may only be appropriate in highly modified designated sites in some parks and may not be appropriate at all in other parks. Mountain bike specific impacts have rarely been assessed including the construction and use of trail technical features such as unauthorized jumps, bridges and ramps as well as the creation of informal trails. Another fruitful avenue of research is to evaluate the effectiveness of alternative design or erosion control measures to reduce impacts on mountain bike trails (Bjorkman, 1998).

Research into the attitudes and motivations of mountain bikers and the role of interpretation and communication between bikers and park managers is required to parallel that for hikers and horse riders (Bjorkman, 1998). Successful examples of collaboration between mountain bikers and protected area managers in the design, construction, maintenance and use of mountain bike specific trails highlight how collaborative approaches have worked well in some instances (CALM, 2007; Webber, 2007; Naturebase, 2007; USDI, 2002).

Methods to monitor mountain bike and horse riding specific trails could be modified from those currently used for hiking trails (Pickering, 2008; Hill and Pickering, 2009b, c). For these single use trails, impacts can be related back to the users, and even quantified compared to levels of use. An issue that is likely to remain challenging is how to assess the relative impact of different user groups on multi-use trails (Pickering, 2008). Activity specific impacts may be apparent, but not impacts that are common to different activities, even if their severity may vary among user groups.

Further research into the potential of mountain bikes, horses and people to act as vectors for weed seeds and to cause environmental disturbance that favours weeds is required. Despite the considerable literature documenting the presence of weeds on roads and trails in protected areas (e.g. Tyser and Worley, 1992; Potito and Beatty, 2005; Pickering and Hill, 2007a, b; Mallen-Cooper and Pickering, 2008), there is a lack of experimental studies assessing the direct and indirect role of hikers, horse riders and mountain bikers in their introduction and spread. The presence of viable seed from a large numbers of invasive species in the dung of horses suggests that they are an important vector.

More research on impacts from human waste on the environment as well as those on human health and the social amenity of sites is also required for all three actives (Bridle and Kirkpatrick, 2003, 2005; Bridle et al., 2006). The methods used in the Australian studies of hikers could be replicated for the other two activities, and used in other locations in Australia and in the USA.

The limited activity specific research on mountain bikes, hikers and horse riders as dispersal agents for pathogens other than in human and horse faecal material is a major gap in the literature. Some research on mountain bikers and hikers in the USA indicates that they are dispersal agents (Cushman et al., 2007), and further work is needed to better quantify the risks associated with these activities in Australia and the USA. This could involve directly sampling for *Phytophthora*, or using surrogates such as fluorescent powders, to determine relative risk and potential dispersal distances.

7. Conclusions

Biophysical impacts from hiking are better researched than from horse riding and mountain biking. There are impacts in common to all three activities, although differences in the severity of the impact, with horse riding appearing to have greater impacts per user than hiking. For mountain biking it is hard to assess relative impacts as there is little research, particularly using quantitative experimental methods and more realistic riding styles. There are activity specific impacts that can damage the environment, but again further research is required. We hope that this review helps managers, researchers, users and conservation organisations by highlighting what is known, even if a significant finding is, that there is still much more we need to find out.

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Appendix 1

Details of studies that have documented specific impacts of hiking, horse riding, mountain biking on natural vegetation soils and trails in Australia and the US. * Study actually undertaken in Canada

	Hiking		Mountain bike riding		Horse riding	
	Australia	USA	Australia	USA	Australia	USA
Trail degradation						
Soil erosion	Calais and Kirkpatrick (1986)	Cole (1983, 1991)	Chui and Kriwoken (2003)	Bjorkman (1998)	Gillieson et al. (1987)	Deluca et al. (1998)
– Sediment yield and runoff	Chui and Kriwoken (2003)	Cole and Monz (2002)	Day and Turton (2000)	Marion and Olive (2006)	Whinam and Comfort (1996)	Marion and Olive (2006)
– Cross sectional area	Dixon et al. (2004)	Deluca et al. (1998)	Goeft and Alder (2001)	White et al. (2006)		Olive and Marion (2009)
– Track surface profile	McDougall and Wright (2004)	Jewell and Hammitt (2000)		Wilson and Seney (1994)		Weaver et al. (1979)
– Maximum trail depth	Mende and Newsome (2006)	Leung and Marion (1999a,b)				Wilson and Seney (1994)
– Lineal extent and location of excessive erosion	Scott and Kirkpatrick (1994)	Marion and Olive (2006)				Summer (1980, 1986)
– Categorical rating of erosion	Whinam and Chilcott (1999, 2003)	Marion and Leung (2001) Olive and Marion (2009) Summer (1980, 1986) Weaver et al. (1979) Wilson and Seney (1994)				
Soil compaction	Dixon et al. (2004)	Deluca et al. (1998)	Day and Turton (2000)	Bjorkman (1998)		Deluca et al. (1998)
– Bulk density		Summer (1980)	Goeft and Alder (2001)			Weaver et al. (1979)
– Reduced water infiltration rate		Weaver et al. (1979)				
Trail width	Calais and Kirkpatrick (1986)	Cole (1983, 1991)	Goeft and Alder (2001)	Bjorkman (1998)	Gillieson et al. (1987)	Marion and Olive (2006)
– Maximum width of trail (bare of vegetation)	Dixon et al. (2004)	Cole and Monz (2002)		Marion and Olive (2006)	Whinam and Comfort (1996)	Summer (1980)
– Maximum width of trail (bare plus impacted trailside vegetation)	McDougall and Wright (2004)	Leung and Marion (1999a,b)		White et al. (2006)		
– Categorical trail rating	Mende and Newsome (2006) Scott and Kirkpatrick (1994)	Marion (2007) Marion and Leung (2001) Marion and Olive (2006) Summer (1980) Weaver et al. (1979) Wilson and Seney (1994)				
Trail verge vegetation	Dixon et al. (2004)	Weaver et al. (1979)	Day and Turton (2000)	Bjorkman (1998)	Whinam and Comfort (1996)	
– Native cover, height and diversity	Hill and Pickering (2006)	Tyser and Worley (1992)	Goeft and Alder (2001)			
– Weed cover and diversity	McDougall and Wright (2004)	Zabinski et al. (2000)				
– Introduction of pathogens	Johnston and Pickering (2001)					
– Soil seed bank composition	Scott and Kirkpatrick (1994) Mallen-Cooper 1990 Mallen-Cooper and Pickering (2008)					
Muddiness	Mende and Newsome (2006)	Cole (1983, 1991)				
– Presence of excessive muddiness on trail		Leung and Marion (1999a)				
– Lineal extent and location of excessive muddiness		Marion (2007) Marion and Olive (2006)				

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Appendix 1 (*continued*)

	Hiking		Mountain bike riding		Horse riding	
	Australia	USA	Australia	USA	Australia	USA
Exposed roots/rocks	Dixon et al. (2004)	Leung and Marion (1999a)	Day and Turton (2000)			
– Lineal extent and location of exposed roots on trail	Mende and Newsome (2006)	Marion and Olive (2006)				
Informal/social/constructed trails	Dixon et al. (2004)	Cole (1983, 1991)	Day and Turton (2000)			
– Area of	Mende and Newsome (2006)	Leung and Marion (1999a)	Newsome and Davies (in press)			
– Location of	Hockings and Twyford (1997)	Marion and Olive (2006)				
– Number of						
– Number and location of switchbacks						
Mountain bike specific damage on trails			Newsome and Davies (in press)			
– Trail technical features (jumps, bridges, switchbacks etc						
Horse specific damage on trails					Phillips and Newsome (2002)	Campbell and Gibson (2001)
– Vegetation cropping						Gower (2008)
– Tree trunk damage						
– Horse manure						
Degradation of natural vegetation and soil						
Organic litter	Liddle and Thyer, (1986)	Hartley (2000)				Hammitt and Cole (1998)
– Cover	Talbot et al. (2003) Whinam and Chilcott (1999, 2003)					
Soil erosion	Liddle and Thyer (1986)	Cole (1987b, 1995ab)		Bjorkman (1998)	Phillips and Newsome (2002)	Cole and Spildie (1998)
– Topography	McDougall and Wright (2004)	Cole and Bayfield (1993)			Whinam et al. (1994)	Weaver and Dale (1978)
– Sediment runoff	Whinam and Chilcott (1999, 2003)	Cole and Monz (2002)				
– Depth of experimental plot		Hartley (2000)				
– Width of experimental plot		Weaver and Dale (1978)				
Bare soil	Pickering and Growcock (in press)	Cole (1987b; 1995ab)		Thurston and Reader (2001)*	Whinam et al. (1994)	Weaver and Dale (1978)
– Relative bare area	Hill and Pickering (2008)	Cole and Bayfield (1993)				Cole and Spildie (1998)
– % bare area	Hockings and Twyford (1997)	Cole and Spildie (1998)				
	Liddle and Thyer (1986)	Hartley (2000)				
	McDougall and Wright (2004)	Monz (2002)				
	Sun and Liddle (1993ab)	Monz et al. (2000)				
	Talbot et al. (2003)	Weaver and Dale (1978)				
	Whinam and Chilcott (1999, 2003)					
– Soil compaction	Talbot et al. (2003)	Hartley (2000)				
– Bulk density		Monz (2002)				Weaver and Dale (1978)
– Reduced water infiltration		Monz et al. (2000) Weaver and Dale (1978)				
Soil nutrients	Bridle and Kirkpatrick (2003, 2005)	Monz (2002)			Phillips and Newsome (2002)	
– Nutrient addition	Bridle et al. (2006)					
Soil microbial communities		Zabinski and Gannon (1997)				
Species	Pickering and Growcock (in press)	Hartley (2000)		Thurston and Reader (2001)*	Phillips and Newsome (2002)	
– Number of species	Hill and Pickering (2008)	Thurston and Reader (2001)				

(*continued on next page*)

Appendix 1 (*continued*)

	Hiking		Mountain bike riding		Horse riding	
	Australia	USA	Australia	USA	Australia	USA
– Soil seed bank	McDougall and Wright (2004) Sun and Liddle (1993ab) Pickering and Hill (2007)	Willard et al. (2007) Zabinski et al. (2000)				
Vegetation	Hill and Pickering (2008)	Cole (1987b; 1995a)		Thurston and Reader (2001)*	Whinam et al. (1994)	Weaver and Dale (1978)
– Relative cover	Hockings and Twyford (1997)	Cole and Bayfield (1993)			Phillips and Newsome (2001)	Cole and Spildie (1998)
– Relative height	Pickering and Growcock (in press)	Cole and Spildie (1998)				
– Plant stem density	McDougall and Wright (2004)	Hartley (2000)				
– Area impacted	Sun and Liddle (1993a,b)	Monz (2002)				
– Biomass	Ross (2006) Talbot et al. (2003) Whinam and Chilcott (1999, 2003)	Monz et al. (2000) Ross (2006) Thurston and Reader (2001) Weaver and Dale (1978) Willard et al. (2007)				
Weeds	Hill and Pickering (2008)					
– Number of species	Pickering and Growcock (in press)					
– Relative cover	McDougall and Wright (2004) Sun and Liddle (1993a,b)					
Fungal pathogens	Newsome 2003	Cushman and Meentemeyer (2008) Davidson et al. (2005) Cushman et al. (2007)		Cushman et al. (2007)		
Weed seed collection/germination						
Seed collected from	Wace (1977)				Weaver and Adams (1996)	Campbell and Gibson (2001)
– Horse dung	Whinam et al. (2005)				Whinam et al. (1994)	Gower (2008)
– Horse coats, hooves	Mount and Pickering (2009)				St John-Sweeting and Morris (1991)	Wells and Lauenroth (2007)
– Peoples clothing						Quinn et al. (2008)

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CITY OF DULUTH
INVITATION TO BID
Timber Harvesting

BID NUMBER: 15-05AF **BID OPENING: SEPTEMBER 17, 2015 AT 2:00 PM**

PROJECT DESCRIPTION: TIMBER HARVEST AT HARTLEY PARK

All bids must be complete, signed, and transmitted in a sealed envelope plainly marked with the bid number, subject matter, and opening date. The City of Duluth reserves the right to split the award where there is a substantial savings to the City, to waive informalities and to reject any and all bids. Bidder must state in their proposal if bid price is based on acceptance of the total order. Do not include sales tax in the unit price. Price may not be the only consideration for bid award. Bids must be firm for a minimum of 60 days. Bids must be received in Purchasing before 2:00 PM local time on the bid opening date specified on the Invitation for Bids. The City Purchasing Agent or her designee will conduct a public bid opening in Room 100 immediately following receipt of the bids.

The City of Duluth is accepting bids for timber located in designated areas within the Hartley Park boundaries located in Sections 2, 3, 10, & 11, T50N, R14W, City of Duluth Township, St. Louis County, MN. Areas to be harvested include (also see the Harvesting map): four (4) pine stands approximately (~) 10 ac each removing ~1/4 of the thickest stand to ~1/3 of the other stands and designated areas in the Aspen type yet to be determined (TBD) and in the vicinity of the pine stands harvesting ~8-14 scattered, semi-circular, ~½ acre patches for natural enhancement and future restoration projects. Currently these harvest areas are not marked and we will work with the successful bidder on the specific harvesting details. Residual harvesting slash will need to be chipped or mulched and removed from the harvest and landing sites. Scattered residual slash may be left untreated on site with direction from the Seller's Agent.

This sale can be harvested in the summer or fall under stable and dry soil conditions. Tischer Creek is a designated trout stream and may require a permit to cross (for more information regarding stream crossing options, contact kirstin.stutzman@state.mn.us). Harvesting cannot begin until November 15, 2015 and all timber must be cut and removed by March 30, 2017; there are no timber sale contract extensions available due to the nature of this project. A sample of the proposed Timber Sale Contract and Harvesting Specifications & Map are attached. Jan Bernu, doing business as Two By Forestry, is serving as a consultant and Seller's Agent. The City, guided by the Seller's Agent, will monitor the harvesting guidelines for this sale. Proof of MN Logger Education Program (MLEP) Master Logger certification is required. Due to the nature and location of this project, communication with the Public will be crucial and will be required at all steps of the Timber Sale.

Please read the draft contract carefully. Any objections or requested changes must be noted by submitting a red-lined copy with your bid. Please submit any questions regarding this project via e-mail to purchasing@duluthmn.gov. Responses will be provided to all interested bidders as an addendum to this solicitation. The selected contractor will be issued a contract (draft attached). Notice to Proceed will be issued once the agreement is fully executed. The following documents are included in this solicitation:

1. INVITATION TO BID
2. GENERAL SALE INFORMATION
3. BID FORM
4. ADDITIONAL REQUIRED INFORMATION

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5. DRAFT CONTRACT

6. GENERAL HARVESTING SPECIFICATIONS & MAP

7. AFFIDAVIT OF NON-COLLUSION

HARTLEY PARK GENERAL SALE INFORMATION (also see Harvesting Specifications & Map)
Approximate (~) Sale Acres: 45; ~ 40 acres of pine (red and jack) with spruce & ~5 acres of mixed hardwoods (mainly aspen with miscellaneous species)

All timber must be cut & removed by March 30, 2017; there are no timber sale contract extensions available due to the nature of this project.

***Time of Year*:** summer or fall harvest must be on dry, stable soil conditions or frozen and may commence from November 15, 2015 through March 30 of 2016. During late summer and fall, especially during drought conditions, DNR-Forestry bark beetle guidelines will apply as needed and determined by the Seller's agent.

***Total Volume Estimate* (not guaranteed):** ~1,000 cords (cd); Red Pine – 595 cd; Jack Pine – 149 cd; Spruce – 100 cd; Aspen - 145 cd; Paper Birch - 20 cd; Miscellaneous Chips; potential timber products may include firewood, pulpwood, sawbolts/logs, telephone poles, and chips.

***Timber will be sold on appraised volume (SOAV)*:** No additional scaling of timber or harvested wood will be required. Processing and utilization of the harvested wood products is left to the Buyer's/Purchaser's discretion.

Harvest Areas & Species include the following:
Four (4) ~10 acre stands of pine (red and jack) with spruce; first thinnings removing ~1/4 to 1/3 of each stand as designated; the site objectives are to enhance tree growth and stand/forest health and also to decrease the risk of pine bark beetle infestations resulting from overcrowded and stressed pine trees.

~Eight (8) to fourteen (14) scattered semi-circular areas of mixed hardwoods (mainly aspen) in the Aspen type; located in the vicinity of the pine stands as designated; ~½ acre patches; the site objectives are to naturally regenerate a diversity of species in these areas in order to enhance forest health and wildlife habitat and woodland diversity and also to create areas for the restorative planting of suitable native species. As possible, existing white pine, yellow birch, sugar maple, and oak will be reserved although some trees may be cut as needed for access or to meet site objectives. The harvest areas are not currently marked and the Seller and Seller's Agent will work with the successful Buyer/Purchaser on the specific stand thinning and harvesting details.

Timber Sale Boundaries are the Red Pine (RP) stands and as designated in the Aspen (A) type. Designated property lines represent actual surveyed property lines.

Access, Skid Trails & Landing Area(s): access road(s) and recreational trails used during the harvest must be left in existing condition upon completion of this harvest unless otherwise designated by the Seller. See attached map for Seller's preferred routes and landing areas, specific locations to be determined prior to onset of work.

***Slash*:** Buyer/Purchaser will be required to remove as much residual harvesting slash from the harvesting and landing areas as possible. Scattered residual slash may be left untreated on site with direction from the Seller's Agent. Slash will need to be chipped or mulched and hauled off site unless otherwise designated by the Seller's Agent.

Stumps: Cut stumps as low as operationally possible; a ≤3" stump height is preferred, especially along active recreational trail routes.

Tischer Creek: A designated trout stream flowing through the property, may require a permit depending

on the type of crossing that is necessary – contact DNR-Waters for information kirstin.stutzman@state.mn.us.

Safety: Due to the high volume of public use of this park, the Buyer/Purchaser will work with Seller to determine best method(s) to ensure public safety in the active harvest area(s). Seller will work closely with the successful Buyer/Purchaser to create and implement a coordinated safety and communication plan.

15-05AF CITY OF DULUTH TIMBER HARVESTING BID FORM

TOTAL AMOUNT BID for an estimated 1000 cords of various tree species and wood products

$_____

NOTE: All timber is sold on appraised volume (SOAV). No additional scaling of timber or harvested wood will be required. Processing and utilization of the harvested wood products will be left to the Buyer's/Purchaser's discretion. Seller requests a good faith attempt at finding a buyer for marketable products other than chips only.

The acreages, timber volumes and timber products indicated in this contract or other appraisal or cruise documents of the Seller are estimates. The Seller gives no warranty or guarantee respecting the quantity, quality, or volume of marked or otherwise designated timber or forest products on the sale area. All timber species and products designated for cutting within the harvest areas shall be removed according to the specifications.

BIDS MUST BE SIGNED BY AN OFFICIAL AUTHORIZED TO BIND THE COMPANY TO THE BID PROVISIONS:

Signature _____

Date _____

Name/Title_____

Company Name_____

Address _____

Phone _____

Email_____

ADDITIONAL INFORMATION REQUIRED FOR BID

Price may not be the only consideration for award. The following information must be submitted with your bid. Failure to include this information will result in your bid being rejected:

Two references – one from a public agency and one from a private landowner:
Public Agency Reference include name, title, address, phone #

_____

_____

Private Landowner Reference include name, address, phone #; location of the harvest

_____

_____

Two easily road-accessible, viewable private land work sites, preferably within a 45 mile distance from the City of Duluth. One site must be a Logger Select pine stand; one site must be a Row Thinning of a pine stand.

Legal Description and Directions to Site 1 – public or private

_____

_____

_____

Legal Description and Directions to Site 2 – public or private

_____

_____

_____

Provide the number of years of professional logging experience in thinning pine stands _____

Provide the number of years of professional logging experience in selectively thinning pine stands using an "operator select" method _____

Provide a map with your proposed preferred and any alternative access routes, skid trails and landing areas.

If you are a procurement forester or wood broker, list logger(s) who will harvest this sale.

_____

Provide the number of years under the MN Master Logger Certification program (MMLC) _____
Provide your MMLC # _____

DRAFT CONTRACT

TERMS AND CONDITIONS

FOR AND IN CONSIDERATION of the following terms and conditions the Seller and the Purchaser mutually agree:

1. DEFINITIONS

"*Purchaser*" shall mean the corporation, company, partnership, firm, or individual named and designated as a party to this Contract for the performance of the work.
"*Seller*" shall mean City of Duluth.
"*Seller's Agent*" shall mean Two by Forestry.
"*Amendment*" shall mean the process to change or modify the Contract in anyway.
"*Addendum*" shall mean the process of something that is added or is to be added to the Contract.
"*Timber*" shall mean trees that will produce forest products of value whether standing or down, and including but not limited to logs, posts, poles, bolts, pulpwood, cordwood, lumber and decorative material.
"*Cord*" shall be defined as 128 cubic feet of wood, air, and bark with careful piling. "*Scribner Decimal C Log Scale*" shall mean the scale measurement for saw timber.
"*Sold On Appraised Volume Estimate (SOAV)*" shall mean or referred to as a lump sum sale in which the Seller may sell timber based on appraisal without scaling.
"*Informal Sales*" shall mean a small amount of timber not exceeding $3,000 in appraised value, and not sold for less than full appraised value at a private sale.
"*The work*" shall mean the equipment, supplies, materials, labor and services to be furnished under the contract and the carrying out of all obligations imposed by the contract documents.
"*State Approved Consumer*" is determined by Minnesota Department of Natural Resources (MN DNR).
The words "*approved*", "*reasonable*", "*suitable*", "*acceptable*", "*proper*", "*satisfactory*", or words of like effect and significance, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the Seller.
Whenever in this contract document the expression "*it is understood and agreed*" or an expression of like significance is used, such expression shall mean the mutual understanding and agreement of the parties executing the Contract Agreement.

2. GOVERNING LAWS

This contract shall be governed by and interpreted according to the laws of the State of Minnesota. The Purchaser shall at all times comply with all applicable laws and regulations in effect during the contract period.

3. SCOPE AND INTENT OF CONTRACT DOCUMENTS

Should anything necessary for a clear understanding of the work be omitted from the Contract Documents, or should the requirements appear to be in conflict, the Purchaser shall secure written instructions from the Seller before proceeding with the work affected thereby.

4. COMMENCEMENT OF CONTRACT

Cutting and removal of timber in conformance with this Contract may commence and continue only after the signing of this Contract by both parties, a down payment is made in the amount of 25% of the bid price, and the required certificate of insurance is submitted to Seller. A Notice to Proceed will be issued.

5. TERMINATION

If Purchaser terminates with or without cause, upon written notice, the Purchaser shall cease all

operations on and immediately leave, and not return to, the Seller's property unless otherwise approved by the Seller. If Seller terminates without cause, any payment for which timber is not harvested or removed will be returned to the Purchaser.

6. PAYMENTS
50% of the bid price is due at the signing of this Contract; the balance will be in full prior to any timber harvesting.

All payments will be made out to the Seller and all payments/checks and any other information pertaining to said sale will be sent to:

City of Duluth
Treasurer's Office – Room 105
411 West 1 St
Duluth, MN 55802

Failure to complete the requirements of this Contract within the time allotted will result in the Buyer's/Purchaser's forfeiture of all payments and the contract.

7. REMEDIES
If timber or other forest products not specifically sold in this Contract or designated by the Seller for cutting are cut, unreasonably damaged or removed by the Purchaser, the Seller may pursue any and all remedies for the unlawful cutting, unreasonable damage or removal of property without consent, including the seeking of criminal or civil charges for theft, timber theft or criminal damage to property, in addition to any Contract remedies for breach. If Purchaser fails to pay or perform any obligations under the Contract, any other contracts between these parties will be denied until all pending obligations are satisfied.

8. PRODUCTS TO BE REMOVED
Title to timber and any forest products sold under this Contract shall remain with the Seller until full or block payment for timber is received. All cut products, buildings, and equipment not removed from the sale tract within 90 days after Contract expiration or at the end of the storage period granted by the Seller shall become property of the Seller.

9. SCALING PROCEDURE: This project has an alternative for scaling. The species and products involved are sold-on-appraised-volume (SOAV). All species and timber products involved in this contract are SOAV. No additional scaling of timber or harvested wood will be required. Processing and utilization of the harvested wood products is left to the Buyer's/Purchaser's discretion.

10. IDENTIFICATION OF TIMBER
All loads of timber in transit shall be identified with City of Duluth file number **"15-05AF "**. The hauler, as an agent of Purchaser, shall accurately identify the load (use of dark paint, ink or crayon to mark each side of the load at least (4) inches in height) as such at consumer scaling points and in response to any inquiries by public officials. Failure to comply with this provision may result in criminal charges being filed under Minnesota Statute 609.52 (theft) or a monetary penalty as approved by the Seller.

11. HARVEST COMPLETION
The Purchaser agrees to complete all operations by March 30, 2017; there are no Contract extensions available due to the nature of this project.

12. FOREST FIRE PREVENTION OR SITE PROTECTION
The Purchaser agrees to take reasonable precautions to prevent the starting and spreading of fires.

If a fire occurs, the Purchaser agrees to promptly report the fire and cooperate in the control and suppression of the fire.

The Purchaser shall comply with requests regarding forest fire prevention and suppression made by the Seller and takes all reasonable precautions to prevent, suppress and report forest fires. Those requests may include ceasing or modifying operations.

The Purchaser may be responsible for damage and forest fire suppression costs caused by their operation under this Contract.

Logging operations must have a main spill kit available on the landing as well as spill cleanup materials in all pieces of equipment on site. The **Main Landing Spill** kit that must be on site at all times should include:

- Absorbent material and pads;
- Assorted plugs or putty.
- No smoking Sign;
- Duct Tape;
- Water Boom;
- Wooden plugs or putty; and
- Easy access on the site to a shovel, screwdriver and tools, and pail or pails to contain spill contaminated materials.

13. CLEAN UP AND USE OF SALE AREA
The Purchaser shall remove equipment, tools, solid waste and trash remaining on the sale area or Seller's property or adjoining land used in conjunction with the harvest upon completion of performance under this Contract, termination of this Contract by the Purchaser or when requested by the Seller. No residence, dwelling, permanent structure, or improvement may be established or constructed on the sale area or other property of the Seller.

14. HAZARDOUS MATERIALS
The Purchaser agrees to properly use and dispose of all petroleum, synthetic and hazardous products, including but not limited to oil, oil filters, grease cartridges, hydraulic fuel and diesel fuel. Purchaser shall notify the Seller and the MPCA of all releases of reportable spilled quantities of hazardous substances on or in the vicinity of the sale area that are caused by Purchaser's employees, agents, contractors, sub-contractors or its employees or agents, directly or indirectly as a result of Purchaser's operations. Purchaser will take whatever initial action to contain all spills or releases. Removal and clean up will be the responsibility of the Purchaser in accordance with applicable statutes and rules of the State of Minnesota.

15. TITLE AND BOUNDARY LINES
The Seller guarantees title to the timber and to defend it against any and all claims and to have the boundaries marked with paint or other suitable means before any timber is harvested.

16. ACCESS
The Purchaser is responsible for repairs for any and all damages to roads and trails used to access the site. All roads and trails must be returned to their original condition.

17. INDEMNIFICATION

The Purchaser will defend, indemnify and save the City harmless from all costs, charges, damages, and loss of any kind that may grow out of the matters covered by this contract. Said obligation does not include indemnification of the City for claims of liability arising out of the sole negligent or intentional acts or omissions of City but shall include but not be limited to the obligation to defend, indemnify and save harmless the City in all cases where claims of liability against the City arise out of acts or omissions of City which are derivative of the negligence or intentional acts or omissions of Contractor such as, and including but not limited to, the failure to supervise, the failure to warn, the failure to prevent such act or omission by Contractor and any other such source of liability. In addition Purchaser will comply with all local, state and federal laws, rules and regulations applicable to this contract and to the work to be done and things to be supplied hereunder.

18. INSURANCE

A. Purchaser shall provide the following minimum amounts of insurance from insurance companies authorized to do business in the state of Minnesota, which insurance shall indemnify Purchaser and City from all liability described in Paragraph 6 above, subject to provisions below.

(1) Workers' compensation insurance in accordance with the laws of the State of Minnesota.

(2) Public Liability and Automobile Liability Insurance with limits not less than **$1,500,000** Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be in a company approved by the city of Duluth; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.

(3) City of Duluth shall be named as **Additional Insured** under the Public Liability, Excess/Umbrella Liability* and Automobile Liability, or as an alternate, Purchaser may provide Owners-Contractors Protective policy, naming itself and the City of Duluth. Purchaser shall also provide evidence of Statutory Minnesota Workers Compensation Insurance. Purchaser to provide Certificate of Insurance evidencing such coverage with 30-days notice of cancellation, non-renewal or material change provisions included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.

**An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth as an additional insured.*

(4) If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer notify the City without fail not less than 30 days prior to any cancellation, non-renewal or modification of the policy or coverages evidenced by said certificate and shall further provide that failure to give such notice to City will render any such change or changes in said policy or coverages ineffective as against the City.

(5) The use of an "ACORD" form as a certificate of insurance shall be accompanied by two forms – 1) SO Additional Insured Endorsement (CG-2010 pre-2004) and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney's Office.

B. The insurance required herein shall be maintained in full force and effect during the life of this Agreement and shall protect Purchaser, its employees, agents and representatives from claims and damages including but not limited to personal injury and death and any act or failure to act by Contractor, its employees, agents and representatives in the negligent performance of work covered by this Agreement.

C. Certificates showing that Purchaser is carrying the above described insurance in the specified amounts shall be furnished to the City prior to the execution of this Contract and a certificate showing continued maintenance of such insurance shall be on file with the City during the term of this Contract.

D. Purchaser shall be required to provide insurance meeting the requirements of this Section 18 unless

Contractor successfully demonstrates to the satisfaction of the City Attorney, in the exercise of his or her discretion, that such insurance is not reasonably available in the market. If Purchaser demonstrates to the satisfaction of the City Attorney that such insurance is not reasonably available, the City Attorney may approve an alternative form of insurance which is reasonably available in the market which he or she deems to provide the highest level of insurance protection to the City which is reasonably available.

19. GENERAL TERMS AND CONDITIONS

A. The Purchaser is an independent contractor for all purposes including Worker's Compensation and is not an employee or agent of the Seller. The Seller agrees that the undersigned Purchaser, except as otherwise specifically provided herein, shall have the sole control of the method, hours worked, time and manner of any timber cutting to be performed hereunder. The Seller reserves the right to inspect the job site for the purpose of ensuring compliance with the performance specifications established under this Contract. The Seller takes no responsibility for supervision or direction of the performance of any of the harvesting to be performed by the undersigned Purchaser or its employees. The Seller further agrees to exercise no control over the selection and dismissal of the Purchaser's employees.

B. This Contract may not be assigned without written approval from the Seller.

C. The Purchaser must inform the Seller of any subcontractor(s) performing work on this contract before subcontractor(s) begin work and the Purchaser shall be responsible for the performance of all subcontractor(s). Purchaser will ensure that:

- They, their employees and their sub-contractors have all necessary permits, approvals, or certifications required by law to conduct or support the work activities on site;
- Copies of City of Duluth work instructions, the timber sale contract and map(s) are available to employees at the work site at all times;
- Their employees and any sub-contractors working on the site, will be trained on City of Duluth work instructions that apply to their work activities;
- The timber sale contract and map(s) will be reviewed with Purchasers employees and any sub-contractors working on the site prior to commencement of work on the site; and
- Compliance with "Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines".

D. This Contract, as well as reference to parts, exhibits, and attachments, shall constitute the entire agreement. Any amendments or addendums of the Contract shall be in writing, signed and dated by both parties.

E. During the term of the Contract, Purchaser shall bear risk of loss or injury, including liability for loss occurring from natural causes, acts of God, or human acts, including negligence, vandalism, trespass, or theft, for all timber products and species. Purchaser shall be responsible for obtaining insurance or self-insuring against risk of loss for the value of the sale.

F. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) LOGGING REGULATIONS. Conduct of operations on this timber sale is subject to inspection for compliance with the logging operations regulations at 29 CFR 1910.266 by OSHA. This standard is applicable to the entire logging industry wherever logging operations occur. Information is available to assist Purchasers to ensure compliance with the logging operations regulations during conduct of this timber sale from the U.S. Department of Labor, Occupational Safety and Health Administration, OSHA, 525 S. Lake Ave., Ste 300 Duluth, MN 55802, 218-733-7830

SELLER

By:_____
Purchasing Agent

Date:_____

PURCHASER

By:_____
Name

_____
Company

Date:_____

HARTLEY PARK HARVESTING GUIDELINES

Pine/Conifer Stands: Row or Selective Thinning; thin ~1/4 to 1/3 of the red and jack pine and spruce trees in each stand as designated on the Harvest Map; reserve the area adjacent to Woodland Avenue and areas of white pine from harvesting; the site objectives are to enhance tree growth and stand/forest health and also to decrease the risk of pine bark beetle infestations resulting from overcrowded and stressed pine trees.

Aspen Stands: Group Selection-Wildlife Enhancement & Restoration Harvests ; ~eight (8) to fourteen (14) scattered semi-circular ~½ acre patches; harvest an ~80' radius around the painted and flagged center tree (TBD); reserve the center tree and scattered designated trees as possible; harvest all designated merchantable timber and run over un-merchantable stems within each harvest area or as designated by the Seller's Agent; the site objectives site objectives are to naturally regenerate a diversity of species within these areas in order to enhance forest health and wildlife habitat and woodland diversity and also to create areas for restoration plantings of suitable native species.

The harvest areas are not currently marked and we will work with the successful Buyer/Purchaser on the specific stand thinning and harvesting details.

Reserve existing white pine, yellow birch, sugar maple, and oak as operationally possible.

Slash: Remove as much residual harvesting slash from the harvesting and landing areas as possible; scattered residual slash may be left untreated on site. Slash will need to be chipped or mulched and hauled off site unless otherwise designated by the Seller's Agent.

Stumps: Cut stumps as low as possible and leave stumps no higher than the diameter of the harvested tree (diameter is measured at 4½' above the ground/DBH); as operationally possible, a ≤3" stump height is preferred, especially along active trail routes.

Access Roads and Recreational Trails: Roads/trails used during the harvest must be left in existing condition upon completion of this harvest.

Forest Management Guidelines (FMGs): FMGs shall be observed by the Buyer/Purchaser including but not limited to and as directed by city staff and Hartley Nature Center:

Minimize the number of new landings and haul roads to no more than ~1-3% of the harvest area and to no more than ~3-4 total landings preferably each <1 acre in size. Locate landings and roads on stable, upland ground and not in or near wetlands or in filter strips or along the open water bodies.

Minimize the number of skid trails needed and locate, construct and maintain them to minimize site damage. Limit primary skid trails to no more than ~10-15% of the harvest area and secondary trails (1-2 pass trails) to no more than an additional ~20-30% of the harvest area. Avoid equipment operation on slopes steeper than 50% and skid low on or across slopes.

Minimize rutting to no more than ~6" deep and approximately ≤1% of the harvest area; use alternative operating techniques as needed. If excessive rutting (>6" deep and 300' in length) occurs, cease all operations until soil conditions are favorable/ stable and dry or frozen.

Existing streams are designated trout streams. Maintain a 50' no cut buffer along the creek and an additional average 115' (165' total) light selectively cut buffer along the stream. Note: Existing streams are designated trout streams and are protected with a buffer. Designated cultural resources will be

avoided. Other deviations from the BMPs/FMGs are due to Seller's specific management objectives.

If harvesting occurs in the red pine stands during summer and fall, especially during drought conditions, MN DNR-Forestry bark beetle guidelines will apply as needed and determined by the Seller's Agent. Seller requests that Best Management Practices pertaining to movement of invasive terrestrial plants as set out by the MN DNR guidelines is followed.

HARTLEY PARK HARVEST MAP

Pine/Conifer Stands: Row or Selective Thinning; thin ~1/4 to 1/3 of the red and jack pine and spruce trees in each stand as designated on the Harvest Map; reserve the area adjacent to Woodland Avenue and areas of white pine from harvesting; the site objectives are to enhance tree growth and stand/forest health and also to decrease the risk of pine bark beetle infestations resulting from overcrowded and stressed pine trees.

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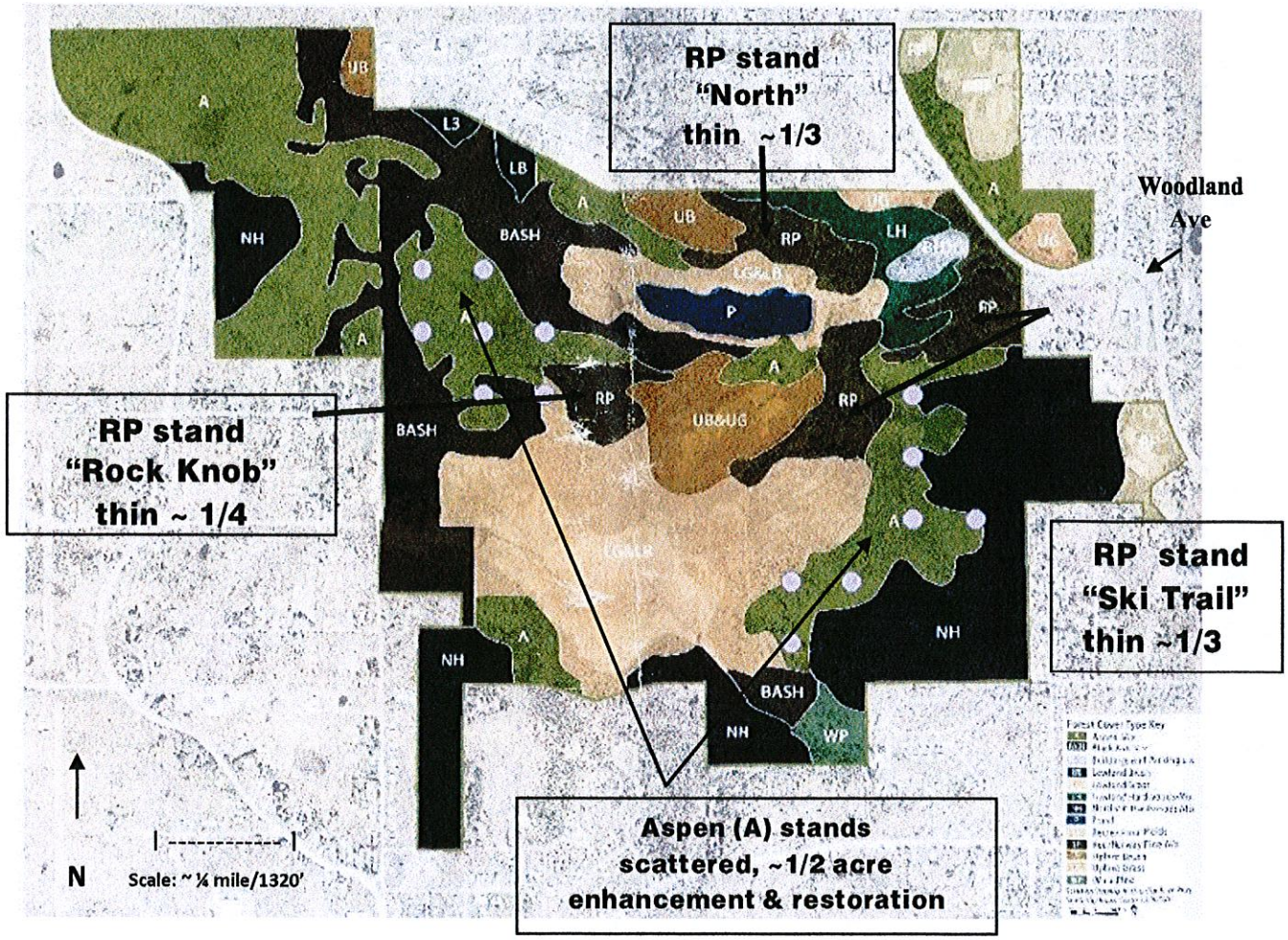
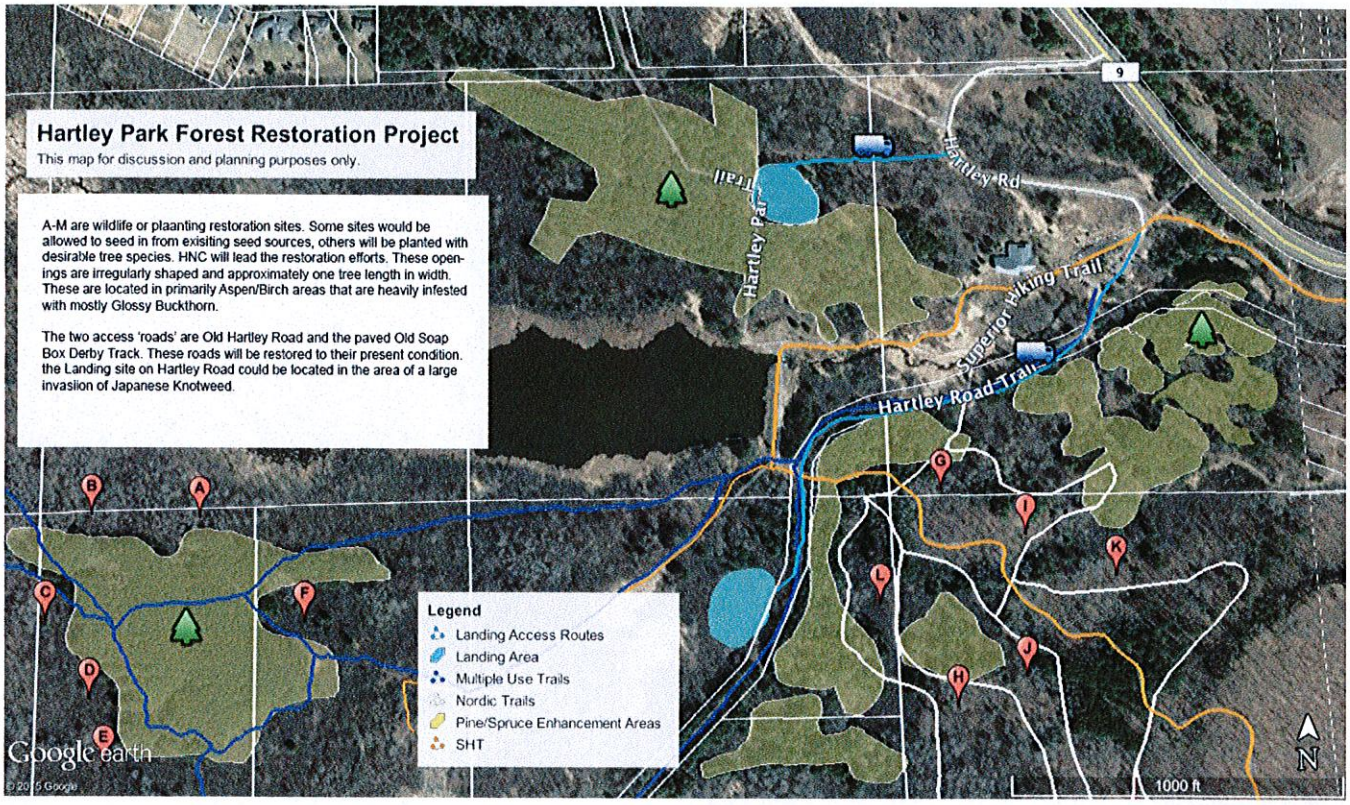
Currently, actual trees and areas to be harvested are not marked; the Seller's Agent will work with the successful bidder on the actual trees and areas that will be harvested.
Note: see the map on the next page for preferred access routes and landing areas



Map is for planning and discussion purposes only. Seller and Seller's Agent will work with successful Buyer/Purchaser to determine exact locations.



AFFIDAVIT AND INFORMATION REQUIRED OF BIDDERS

Affidavit of Non-Collusion:

I hereby swear (or affirm) under penalty of perjury:

1) That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);
2) That the attached bid or bids have been arrived at by the bidder independently and have been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or materials, supplied, equipment or services described in the invitation to bid, designed to limit independent bidding or competition;
3) That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids;
4) That a family relationship between a City of Duluth employee and bidder/proposer are in non-collusion; and
5) That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed:_____

Firm Name:_____

Subscribed and sworn to me before this____ day of _____, _____

NOTARY PUBLIC_____

My commission expires: _____

Bidder's E.I. Number_____
(Number used on employer's quarterly Federal Tax return)

RECEIVED
SEP 30 2015

Kyle Deming

From: Keith Hamre
Sent: Wednesday, September 30, 2015 8:18 AM
To: Kyle Deming
Subject: FW: Comments on EAW for Hartley Park Phase I Master Plann
Attachments: Hartley Park EAW comment letter 9-29-15.docx

From: JAMES SHARROW [mailto:jdsharrow@msn.com]
Sent: Tuesday, September 29, 2015 9:08 PM
To: Keith Hamre
Subject: Comments on EAW for Hartley Park Phase I Master Plann

Following is the text of the attached letter:

September 29, 2015

Keith Hamre
Director of Planning and Construction Services
City of Duluth
411 West First Street, Room 208
Duluth, Minnesota 55802

Telephone: 218-730-5580 Email: khamre@duluthmn.gov

Mr. Hamre,

I wish to comment on the published EAW for the Hartley Park Phase I Master Plan. My wife and I have lived in our home at 2105 Woodhaven Lane, facing the dead end of Hartley Road since 1986. Our home is one of the two homes described in the EAW at the Hartley Road entrance. Contrary to the description of homes affected by traffic to this neighborhood entrance to Hartley Park, there are over 75 homes in our dead end neighborhood that experience the often heavy vehicular traffic of persons visiting the park at this particular entrance. Vehicles park daily outside the Hartley Road/Woodhaven intersection; often numbering at least 14 vehicles in total. The visitors by and large are respectful of the home owners, and my wife and I do not object to future use of our dead end as a parking area. In fact, we argued to keep the road and widen it slightly with the curbs that have now been designed. Please accept these additional comments:

1. The map of the Hartley Road entrance on page 64 of the Plan is the only road and parking arrangement that will find acceptance by the various residents in our neighborhood. I'm sure that several homeowners would rather see no outside vehicular traffic and resultant parking allowed. Some visitors drive recklessly through the neighborhood at all hours of the day and night, though, as I indicated above, most are respectful and understand they are traveling within a dead end neighborhood that

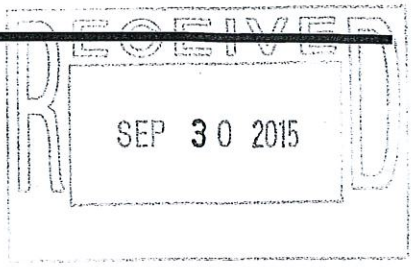
sees no through traffic. The EAW estimates 50 vehicles per day. Many days we see over 100 vehicles, some from states all over the union. Some visitors find the entrance on maps on the internet and believe it is a regular entrance rather than a neighborhood entrance. It is important that this entrance NOT be billed as an entrance for the general public. Maps should direct visitors to the nature center parking area, where there is ample parking and a welcoming visitors' center.

2. The "hammerhead" turnaround will not absorb any parking spots that are currently available because of debris that has been dumped in this area currently. There should be no reduction in parking under the proposed plan, but with the curbs, visitors won't be driving on the adjacent lawns and forming deep ruts as they do today.
3. On pages 4 ,9, 10 and 31, the parking spaces are listed as growing to 11. The plan on page 64 calls for 6 parking spots- but 8 vehicles should continue to be able to fit, with overflow in three directions beyond the intersection as they use currently.
4. The storm drain that is clogged by street sweepings that were dumped at the park end of the road should be closed, as it drains directly into the West Branch of Tischer Creek. The road can be re-sloped to drain toward the intersection or should be sloped to some sort of pond inside the park.
5. I'm happy to see that the current Plan is improving but not paving old Hartley Road inside the park from this entrance. Paving of this section of old Hartley Road would be received negatively.
6. Park officials need to have an ongoing campaign to educate bikers about safety on the multi-use trails. Signs should be posted to give a courtesy message when meeting or passing pedestrians AND to post a reasonable speed limit which unfortunately will seem quite slow to the bikers. Speed needs to be limited. In a recent hour-long walk my wife and I were passed by 19 bikers. 4 of them sped by us- on trail areas that measured only 3 to 4 feet wide at speeds of about 20 miles an hour. They neither slowed nor indicated their approach. This is totally unacceptable behavior on a multiuse trail and must stop. Most of the other bikers did slow down to a speed that would allow diversionary tactics if for some reason we could not have stepped out of their way. The four bikers mentioned would have simply plowed into us if we had not stepped out of their way. What if we were hard of hearing, had limited mobility or compromised eyesight? They act as if we pedestrians are the fixed trees they whiz by rather than humans who may react or move unpredictably. This problem can be corrected with signage and a bit of education. Perhaps docents or trail greeters could greet people at the various entrances on particularly busy days and provide both guidance and a safety message.

Sincerely,

Jim Sharrow
2105 Woodhaven Lane
218-724-6909 h
218-590-1062 c
jdsharrow@msn.com

Kyle Deming



From: Christine Penney <christinepenney@earthlink.net>
Sent: Wednesday, September 30, 2015 12:14 PM
To: Kyle Deming; Judy Gibbs
Subject: Hartley Oo-Ed

Good morning Kyle:
Please include this op-ed in the public record. The letter states the opinion of the Tree Commission concerning the pine plantation thinning at Hartley Park.

Thank you.

Christine Penney
Chair - Duluth Tree Commission
Duluth, Minnesota
218.525.6970 (Preferred)
218.428.6809 (mobile)
"Clutter is the disease of American writing. We are a society strangling in unnecessary words, circular constructions, pompous frills, and meaningless jargon." William Zinsser

Duluth News Tribune

Thinning Hartley's pines will keep forest healthy

By Barbara Stark on Sep 27, 2015 at 12:32 a.m.

A group of Piedmont Elementary 5th graders walk along a path at Hartley Park in September 2014 on their way to the next forestry station. (File / News Tribune)

Hartley Park, one of many beloved and heavily used parks in Duluth, is set to see some changes. A master plan was completed in July 2014 with the help of many public meetings, public input and expert advice. The master plan established a framework for implementing improvements and managing resources over the next five to 10 years.

One item in the master plan calls for selective thinning of several red pine and Norway pine plantations within the park. The city of Duluth Tree Commission has studied this proposed thinning process and agrees that it is the right action at this time.

Selective thinning is a standard forestry-management practice designed to create openings in the overhead canopy, which enhances wildlife habitat and woodland diversity. Thinning helps to create better tree spacing and reduces competition, which improves individual tree and overall forest health. Selective thinning encourages diverse natural plant regeneration, optimum tree growth and health, and canopy layering, which enhances both woodland and wildlife habitat diversity. It reduces tree stress due to competition and, in the pine stands, will reduce the potential for mortality due to pine bark beetles.

The pine plantations in Hartley Park were planted about 60 years ago and have never been thinned. Therefore, the trees today are tall with very thin trunks and only at the very top is there leaf and needle growth. A live crown ratio is a measurement commonly used by foresters to determine tree and overall forest health, and this ratio is considered to be very poor in the Hartley pine plantations. These trees are stressed due to crowding, and stressed trees are more vulnerable to diseases and pest infestations.

The purpose of pine management in Hartley Park is to increase the species and age diversity of the pine plantations in a manner that also contributes to the survival of mature pines and the stand's cathedral-like feeling. It is recommended to thin the pine stands that have not been thinned to date by removing approximately one-fourth to no more than

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Page 2 of 4

one-third of the stand and, if possible, by snaking rows to create a more natural appearance with randomly selected trees from each side of the rows removed to create gaps for planting.

After thinning, a variety of seedlings will be planted in the openings in order to increase forest diversity and sustainability and to protect forest health. Suggested species for planting include white pine, white spruce, paper birch, balsam fir, northern white cedar (in moister areas), and native berry- or nut-producing shrubs. Due to browse pressure from deer, all the newly planted trees will need to be protected.

These stands will be selectively thinned two more times, approximately five to seven years apart, again removing approximately one-third of each stand in each of the thinning sequences.

Tree thinning in Hartley Park will be noticeable. It will require equipment, create noise and cause temporary disruption in certain areas. Yet thinning of these planted trees is long overdue; and if nothing is done, we risk losing all of or at least many more of Hartley's trees.

With the future health of Hartley Park in mind, the director and staff of Hartley Nature Center are in full agreement with these actions, as is the city of Duluth Tree Commission.

Barbara Stark is a member of the city of Duluth Tree Commission and wrote this on behalf of the commission.

Weigh in

The city of Duluth Planning Commission is accepting written comments through Wednesday on the Environmental Assessment Worksheet for the Hartley Park Mini Master Plan. The plan can be found on the city's website at duluthmn.gov. Written comments can be directed to the Planning Commission – Keith Hamre, Duluth City Hall, Room 208, 411 W. First St., Duluth MN 55802.

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Office Space. 4899 Miller Trunk Gordy's 218-428-2525

Duluth News Tribune Sunday, 9/27/2015 p. D7

CITY OF DULUTH TREE COMMISSION'S VIEW

Thinning Hartley's pines will keep forest healthy

Barbara Stark

A group of Piedmont Elementary 5th graders walk along a path at Hartley Park in September 2014 on their way to the next forestry station. File / News Tribune

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The purpose of pine management in Hartley Park is to increase the species and age diversity of the pine plantations in a manner that also contributes to the survival of mature pines and the stand's cathedral-like feeling. It is recommended to thin the pine stands that have not been thinned to date by removing approximately one-fourth to no more than one-third of the stand and, if possible, by snaking rows to create a more natural appearance with randomly selected trees from each side of the rows removed to create gaps for planting.

After thinning, a variety of seedlings will be planted in the openings in order to increase forest diversity and sustainability and to protect forest health. Suggested species for planting include white pine, white spruce, paper birch, balsam fir, northern white cedar (in moister areas), and native berry- or nut-producing shrubs. Due to browse pressure from deer, all the newly planted trees will need to be protected.

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BARBARA STARK *is a member of the city of Duluth Tree Commission and wrote this on behalf of the commission.*

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Page 4 of 4

Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us | Equal Opportunity Employer

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SEP 30 2015

September 30, 2015

Mr. Keith Hamre
411 West First Street – Room 208
Duluth, MN 55802

Re: Hartley Park Phase 1 Improvements Environmental Assessment Worksheet

Dear Mr. Hamre:

Thank you for the opportunity to review and comment on the Environmental Assessment Worksheet (EAW) for the Hartley Park Phase 1 Improvements project (Project) located in Duluth, Minnesota. Minnesota Pollution Control Agency (MPCA) staff has reviewed the EAW and have no comments at this time.

We appreciate the opportunity to review this project. **Please provide the notice of decision on the need for an Environmental Impact Statement.** Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit action(s) by the MPCA. Ultimately, it is the responsibility of the Project proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this EAW, please contact me at 651-757-2482.

Sincerely,

Kevin Kain
Planner Principal
Environmental Review Unit
Resource Management and Assistance Division

KK:bt

cc: Dan Card, MPCA, St. Paul

Keith Hamre
Duluth Planning

COMMENTS FOR THE DULUTH PLANNING COMMISSION and the Environmental worksheet for the Hartley MINI-MASTER PLAN

KEN LINDBERG
TOP HAT CARRIAGE
CANAL PARK - DULUTH
(218) 269-3251
carriageguy@yahoo.com

Dear Mr. Hamre:

PG (1) I read in the Duluth News that the proposed HARTLEY PARK pine thinning project would involve a certain level of noise and disruption at Hartley park. There is a better way. Rather than using industrial machinery which creates such noise and destruction, consider professional horse loggers which are quite available in Minnesota and Wisconsin. Besides nearly silent operation the equines do not compact soil which COMPACTION retards new TREE SEEDLING growth from sprouting. Studies have shown this to be a significant factor in forest regeneration.

(P62) In addition horses do not rip bark off the trees left standing as machinery does. They do precision work in the forest much like a surgeon, rather than a butcher. Horse logging was developed to a fine art by our ancestors, and is carried on by a person you would want to contact for his bid or for his recommendations on who should bid for the work. He is:

RECEIVED
SEP 30 2015

Mr. Tim Carroll
phone (507) 438-2164 of
Cedar River Horse Logging
Lyle, Minnesota

Tim is a past president of the North American Horse and Mule Logging association and personally knows most horse loggers in the U.S.A. Tim has worked in the appalacians, Rocky mountains and extensively in our own Northland.

Pg 3

He has been the subject of numerous documentary films.

He has worked extensively from Ely, MN to the Iowa border and can call up any number of qualified professionals. I was once approched by Jim Larson a county timber cruiser who may be involved in this project, as I own draft horses and have done some logging, but I will defer to Tim Carroll as his experience far exceeds mine.

Hartley would miss a golden opportunity if it were to forgo the horse option. The education aspect of horse logging as an environmentally kinder way of forest thinning fits right into their education mission. They may also want to have the Positive Energy for Youth folks on board as they are veterans of environmental and horse logging education. you can call Stephanie at (218) 391-0147 for details

Love

Tell Tim & Steph I sent you.

Keith Hamre, City of Duluth Planning

RECEIVED
SEP 30 2015

Enclosed is a petition from the residents of North Rd. concerning the Hartley Park access planned for the end of our street. We have all but two of the property owners on the street , with exception of two, one who is on vacation, the other we were not able to contact.

We ask that this be forwarded to the commission, for their consideration.

Dr. Edmond Lundstrom Ph.D. E.J.L.
Emeritus, Univ. of Minn. Duluth

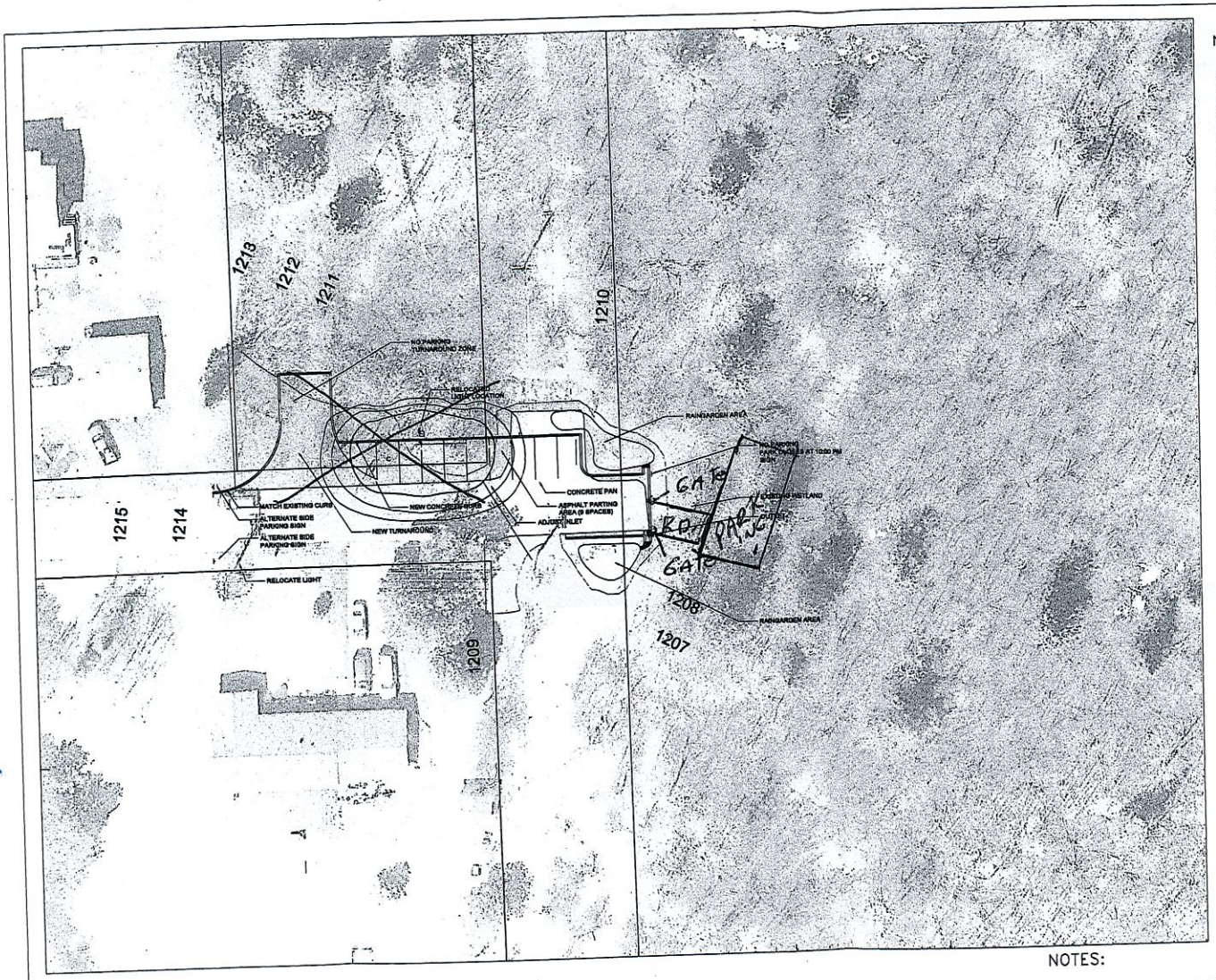
218-728-4191

City of Duluth Planning , Parks and Recreation Dept.

We the undersigned as residents of North Rd. Duluth, Minnesota are opposed to the current plan for a parking and turn-around near the east end of the dead- end street where we live. We feel strongly that the purposed parking area would not blend into this residential environment. We support the inclusion of the area into the east end of the street as an alternative, with a gate and minimal impact on the area.

	Name	Address
1	ROBERT FRASER	1407 NORTH Rd. DULUTH, MN
2	Ed & Barb Lundstrom	1404 North Rd. Duluth, MN
3	Ella & mark Dohlin	1616 North Rd Duluth MN 55811
4	Niet & Jo Cox	1607 North Rd Duluth
5	Gary & Sue Sevensoe	1527 North Rd Duluth MN 55811
6	Dan & Jen Boese	1521 NORTH Rd. DULUTH, MN 55811
7	MARC GRENIER	1509 NORTH RD Duluth, MN 55811
8	Eric Firth	1503 North Rd Duluth Mn. 55811
9	Bob & Laura Krumwiede	1504 North Rd Duluth, MN 55811
10	MICHAEL & DIANE LAUGHLIN	1426 NORTH RD DULUTH, MN 55811
11	KATRINA L. WOOD	1415 NORTH RD DULUTH, MN 55811
12	Cheryl Hage & Gary Hage	1414 North Rd Duluth MN 55811
13	John & Patty Miller	1516 North Rd Duluth 55811
14	Jill & Jim Pospisil	1425 North Rd Duluth 55811
15		
16		
17		
18		

(Page 2 of 3)



NOTES:

1) CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND TOPOGRAPHIC FEATURES, SUCH AS EXISTING GRADES AT THE PROPOSED THE PARKING LOT, PRIOR TO THE START OF SITE GRADING. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE, AND THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR VARIATIONS FROM PLANS.

2) CONTRACTOR SHALL CONTACT MINNESOTA ONE CALL CENTER 811 FOR UTILITY LOCATIONS 72 HOURS PRIOR TO EXCAVATION/CONSTRUCTION.

3) ALL EROSION CONTROL MEASURES AND TREE PROTECTION MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF GRADING OPERATIONS AND MAINTAINED UNTIL ALL AREAS ALTERED ON THE SITE HAVE BEEN REPAIRED. ONCE DISTURBED AREAS HAVE BEEN STABILIZED, INSPECTED AND ACCEPTED IN WRITING BY THE OWNER OR OWNER'S REPRESENTATIVE, ALL MEASURES OF EROSION CONTROL MUST BE PROMPTLY REMOVED FROM THE SITE. NO SILT FENCING, CHECK DAMS, ETC., MAY BE LEFT ON SITE.

4) REFER TO LAYOUT PLAN FOR MOST CURRENT HORIZONTAL SITE DIMENSIONS AND LAYOUT.

5) CONTRACTOR TO PROVIDE MIN. 4" SETTLED DEPTH OF TOPSOIL TO ALL DISTURBED AREAS WHICH ARE TO BE SODDED OR SEEDED.

6) EXISTING TOPOGRAPHY PROVIDED BY ST LOIUS COUNTY.

7) GRADES SHOWN ARE FINISHED GRADES, CONTRACTOR SHALL ROUGH GRADE TO SUBGRADE ELEVATION, LEAVE SITE READY FOR SUBBASE. STOCKPILE TOPSOIL AND GRANULAR FILL AT LOCATIONS DIRECTED BY THE OWNER OR OWNERS REPRESENTATIVE.

8) ALL EXCESS OR EXCAVATED MATERIAL NOT DESIGNATED FOR PLACEMENT ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF THE CONSTRUCTION SITE.

9) WHEN PLACING NEW SURFACE NEXT TO EXISTING PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING OF THE EXISTING PAVEMENT.

10) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROL ONCE THE ALIGNMENT HAS BEEN ESTABLISHED IN THE FIELD.

11) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLEARING AND GRUBBING AS MAY BE REQUIRED FOR FINAL CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF ALL VEGETATIVE MATERIAL REMOVED AS PART OF THIS PROJECT.

12) CONTRACTOR SHALL STAKE THE LIMITS OF SITE DISTURBANCE, PROPOSED GRADING, LOCATION AND THE ALIGNMENT OF ALL NEW WALKS AND SURFACES, FOR INSPECTION AND APPROVAL BY OWNER OR OWNERS REPRESENTATIVE PRIOR TO ANY CONSTRUCTION ACTIVITY. REQUEST FOR INSPECTION MUST BE MADE A MINIMIUM OF 24 HOURS IN ADVANCE.

13) REPAIR ALL DAMAGED AREAS WITH SOD AND TOPSOIL.

MATERIALS LIST:

2600	S.F. OF ASPHALT W/ EXCAVATION
310	L.F. OF 8" CONCRETE CURBING (INSTALLED BY OTHERS – COORDINATION ONLY)
1	LIGHT FIXTURES WITH FOUNDATIONS AND CONDUIT
39	CY OF STORMWATER
1100	SF OF WETLAND IMPACT
	SY NATIVE RESTORATION WITH 4" TOPSOIL (AREAS DISTURBED BY CONTRACTOR)

AREAS:

3018	PROPOSED IMPERVIOUS 3018 SF PARKING AND TRUNAROUND
281	EXISTING IMPERVIOUS REMOVED
2737	SF NEW IMPERVIOUS

NOTES:

1) FENCE ALL PORTIONS OF THE PROJECT FOR SAFETY, WITH A 4'-0" ORANGE SNOW FENCE. SIGN THE CONSTRUCTION ENTRY POINTS DURING CONSTRUCTION.
2) IDENTIFY STAGING AREA FOR APPROVAL BY OWNERS REPRESENTATIVE.
3) PROTECT ALL TREES TO REMAIN.
4) ELECTRICAL CONTRACTOR TO PROVIDE SIGNED ENGINEERED PLANS FOR APPROVAL, INCLUDING ELECTRICAL AND FOOTING DESIGN.
5) FIELD LAYOUT WALK FOR APPROVAL.

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Issue Record/Revision

Purpose	Date

HARTLEY PARK
PARKING IMPROVEMENTS
NORTH ROAD
CITY OF DULUTH, MINNESOTA

0 20' 40'
ONE INCH
Sheet Key

Sheet Title: NORTH ROAD SITE PLAN
Date: 8/20/15
Drawn By: LWS
Checked By: LWS
Project Number: 15205
Sheet Number: S 1.2

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EXHIBIT C

Letter from Lindsay Dean, Manager of Parks and Recreation

THE CITY OF DULUTH MINNESOTA
An Equal Opportunity Employer

Public Administration Department
Parks and Recreation Division
City Hall - Ground Floor • 411 West First Street • Duluth, Minnesota • 55802
218-730-4300 • www.duluthmn.gov/parks

DULUTH PARKS
Fun Places, Great Spaces!

October 16, 2015

Dear City of Duluth Planning Commissioners:

The City of Duluth conducted a master planning process for Hartley Park in 2014. Afterwards, the City applied for and received a Minnesota Parks Legacy Grant to complete some of the work outlined in the Master Plan, including thinning the pine plantations and removing invasive species, primarily buckthorn. Preservation and restoration of natural resources is particularly important to the use of Hartley Park in light of the Park's City Council-declared purpose to: "Foster and enhance educational and recreational activities aimed at promoting the preservation of, learning about, and understanding of the natural environment of the Duluth area." (Council Resolution 12-0407)

The City intends to work with Hartley Nature Center to thin pine plantations within Hartley Park and sees this as an opportunity to conduct environmental education about good forestry principles and practices. Prior to thinning, the City will remove understory buckthorn to prevent further spread of invasive plants during tree removal, and will erect educational signage in advance of the thinning operation.

The City of Duluth fully intends to utilize Best Forestry Management Practices, including the protection of water quality and soils, management of visual quality, conformance with acceptable silvicultural, operational and utilization standards, compliance with government regulations applicable to logging operations, and adherence to a site-specific harvest and management plan.

The City of Duluth intends to enter into a contractual agreement with a logger to have the work completed. The contract will contain the following:

- All City of Duluth indemnification and liability insurance requirements
- Agreement to follow all OSHA standards
- Proof of a Certificate of Good Standing with the Master Logger Certification Program
- Requirement by the logger to utilize Best Management Practices as put forth in the Minnesota Forest Resources Council's Forest Management Guidelines
- Oversight that will include daily supervision and reporting by a Certified Forester
- An agreement to make public safety and equipment safety a high priority

Sincerely,

Lindsay Dean
Manager, Parks and Recreation
ldean@duluthmn.gov
(218) 730-4309