

1 **7.0 COMPARISON OF ALTERNATIVES AND OTHER NEPA**  
2 **CONSIDERATIONS**

3 **7.1 INTRODUCTION**

4 This chapter compares the alternatives and their environmental consequences for the NorthMet  
5 Project and Land Exchange. It also addresses irretrievable and irreversible effects, short-term  
6 uses versus long-term productivity of the environment, and unavoidable adverse effects. The  
7 chapter concludes with a statement on the Co-lead Agencies' preferred alternative.

8 **7.2 COMPARISON OF ALTERNATIVES**

9 Alternatives to the NorthMet Project and Land Exchange were screened and analyzed relatively  
10 independently of each other because of the different nature of the actions. This section  
11 consolidates the connected actions, and summarizes the detailed analysis presented in the  
12 respective sections in Chapter 5 and 6. A description of the combined alternatives is provided  
13 below, followed by a comparison of the environmental consequences.

14 **7.2.1 Combined Proposed Action**

15 The ~~combined~~ Combined Proposed Action ~~alternative~~ would involve both the NorthMet Project  
16 Proposed Action and Land Exchange Proposed Action as ~~proposed~~ presented and described in  
17 Sections 3.2.2 and 3.3.2, respectively.

18 The NorthMet Project would involve three major components: a new copper-nickel-PGE Mine  
19 Site, a refurbished Plant Site at the former LTVSMC processing plant, and an existing  
20 Transportation and Utility Corridor that would connect the Mine Site and Plant Site. The  
21 NorthMet Project would comprise three four phases—three lasting a total of approximately 40  
22 years, and a fourth long-term phase. There would be three phases lasting approximately 40 years  
23 total, with another long-term phase to follow. The first phase would last for approximately 18  
24 months and would include site preparation, refurbishment of some existing buildings, and  
25 construction of new facilities and infrastructure. The second phase, which would last  
26 approximately 20 years, would include operation of the mine and processing facilities; ~~and~~  
27 blasting, hauling, and processing of the ore rock to be shipped; and stockpiling of waste rock;  
28 and progressive reclamation (at the same time as mining). The third phase would occur after  
29 mining and would include infrastructure removal and final land reclamation, and . ~~The long-term~~  
30 post closure maintenance. Post closure maintenance phase would involve ongoing, long term  
31 site maintenance, water monitoring, and active mechanical treatment and monitoring of water at  
32 both the Mine Site and Plant Site. mechanical and non-mechanical treatment of water for as long  
33 as necessary to meet regulatory standards at evaluation locations in groundwater and surface  
34 water. Both mechanical and non-mechanical treatment will require periodic maintenance and  
35 monitoring activities. Modeling predicts that treatment activities will be a minimum 200 years at  
36 the Mine Site and minimum of 500 years for the Plant Site. While long-term, this time frame for  
37 water treatment is not necessarily perpetual.

38 The configuration of the NorthMet Project Proposed Action is shown in Figure 3.2-1 in Section  
39 3.2.1. The development of the Mine Site is shown in Figures 3.2-4 through 3.2-9 in Section  
40 3.2.2.1. The Transportation and Utility Corridor is shown in Figure 3.2-20 in Section 3.2.2.2, and  
41 development of the Plant Site is shown in Figure 3.2-23 and Figure 3.2-29 in Section 3.2.2.3.

42 The Land Exchange Proposed Action would involve exchange of a single 6,650.2-acre (GLO)  
43 tract of federal land (encompassing ~~the activities proposed most of at the NorthMet Project the~~  
44 Mine Site) with up to ~~approximately~~ 6,722.5 acres (GLO) of privately owned, non-federal lands  
45 located within five different tracts throughout the proclamation boundary of the Superior  
46 National Forest within St. Louis, Lake, and Cook counties of northeastern Minnesota. The  
47 location of the federal and non-federal lands is shown in Figure 3.3-1 in Section 3.3.2.

### 48 **7.2.2 Combined Alternative B**

49 Combined Alternative B would involve the NorthMet Project Proposed Action as described in  
50 Section 3.2.2 and summarized above in Section 7.2.1, and the Land Exchange Alternative B as  
51 described in Section 3.3.3.2.

52 Compared to the Land Exchange Proposed Action, the Land Exchange Alternative B would  
53 involve conveying fewer acres of federal lands, approximately 4,900.74 acres (GLO), for fewer  
54 acres of non-federal land, approximately 4,651.52 acres (GLO) from a single tract (Tract 1). The  
55 configuration of the smaller federal parcel is shown in Figure 3.3-2 in Section 3.3.3.2.

### 56 **7.2.3 No Action**

57 Under the No Action Alternative there would be no NorthMet Project or Land Exchange. Refer  
58 to Section 3.2.3.2 and Section 3.3.3.1 for a discussion on the No Action alternative for the  
59 respective connected actions.

60 At the Mine Site, PolyMet would be required under exploration approvals to reclaim surface  
61 disturbance associated with exploratory and development drilling activities. Other existing  
62 surface uses would be allowed to continue consistent with the Superior National Forest Plan. No  
63 further upgrades or new segments would be constructed along the existing power transmission  
64 line, railroad, and Dunka Road, which would continue to be used by their private owners. At the  
65 former LTVSMC Processing Plant and Tailings Basin, the land owner, Cliffs Erie would be  
66 required to complete closure and reclamation activities as required under existing state permits,  
67 plans and Consent Decree~~Cliffs Erie would be required to complete closure and reclamation~~  
68 ~~activities required under an existing MDNR and MPCA approved reclamation program.~~

69 The federal government would not convey federal lands to PolyMet and the USFS would  
70 continue managing these lands as has been done in the past. Furthermore, the federal government  
71 would not acquire the five tracts of non-federal lands and the lands would remain as private  
72 lands.

### 73 **7.2.4 Comparison of Effects**

74 A summarized comparison of the environmental consequences of the alternatives—as described  
75 in Sections 7.2.1, 7.2.2, and 7.2.3—is provided in Table 7.2-1. Refer to the respective sections in  
76 Chapter 4 for discussion on the ~~affected environment existing conditions~~ and to Chapter 5 for  
77 more detail on the environmental consequences.

78 | In comparison to the ~~combined~~ Combined Proposed Action (Section 7.2.1), the ~~combined~~  
79 | Combined Alternative B ~~NorthMet Project Proposed Action and Land Exchange Alternative B~~  
80 | (Section 7.2.2) would have the same ~~direct~~ effects from the NorthMet Project Proposed Action,  
81 | but would convey fewer lands through the Land Exchange, resulting in smaller net ~~gains~~  
82 | increases/decreases in environmental resources. The No Action Alternative would not directly  
83 | affect the existing environment and management of these lands would continue in accordance  
84 | with their current permits. Compared to the ~~C~~combined Proposed Action and ~~C~~combined  
85 | Alternative B, the No Action Alternative would likely result in active but different  
86 | comprehensive management of water from the existing LTVSMC Tailings Basin. There would  
87 | be no other measurable effect on other resources compared to their existing conditions.

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88 **Table 7.2-1 Comparison of Environmental Consequences by Alternative**

Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
<b>Land Use</b>	<ul style="list-style-type: none"> <li>No effects on land use that would require changes in ordinances or comprehensive forest plans</li> <li><u>Access to the</u> <del>Decrease in</del> federal land within the NorthMet Project would reduce <del>1854 Ceded Territory</del> at the NorthMet Project area, but would be replaced with <u>approximately</u> equal acreage through land exchange</li> </ul>	<ul style="list-style-type: none"> <li>Mostly similar effects as Combined Proposed Action with fewer federal acres <del>removed from the 1854 Ceded Territory at Mine Site from the smaller land</del> exchanged</li> </ul>	<ul style="list-style-type: none"> <li><u>Existing LTVSMC site would be reclaimed in accordance with the existing reclamation/closure plan</u> No effect</li> </ul>
<b>Water Resources</b>	<ul style="list-style-type: none"> <li><del>99.9% water</del> <u>Greater than 90% of water discharge</u> would be captured and treated to below standards</li> <li><u>The Proposed Action is expected to meet all surface and ground water evaluation criteria</u></li> <li>Mercury: <u>Net reduction in the discharge of mercury to water. WWTF and WWTP would discharge at or below the Discharge to the environment 0.5 ng/L</u> (Great Lakes Initiative discharge standard <del>of</del> = 1.3 ng/L)</li> <li>Sulfate: <u>Net reduction in sulfate released to Project waters and sulfate concentrations maintained in the Partridge River and significantly reduced in the Embarrass River to comply with the Discharge to the environment at or below MPCA wild rice standard (10mg/l target at Plant Site and 9mg/l Mine Site)</u></li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>Continuation of sulfate discharge from former LTVSMC Tailings Basin</li> <li>Seepage water quality from the existing LTVSMC Tailings Basin would be expected to improve over time as a result of the Consent Decree, other permit requirements (e.g., Permit to Mine), and natural attenuation of contaminants</li> </ul>

Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
<b>Wetlands (includes floodplains)</b>	<ul style="list-style-type: none"> <li>● Water use: Water would be taken from Colby Lake to augment flows to streams and wetlands outside of the Tailings Basin containment system</li> </ul> <ul style="list-style-type: none"> <li>● <del>912.5 acres: direct effects on decrease of wetlands at NorthMet Project area</del></li> <li>● <del>6,498.1 to 7,413.17,350.7 acres: Indirect effects on wetlands at NorthMet Project area</del></li> <li>● <del>939.4 acres of direct effects and fragmented wetlands to be mitigated upfront</del></li> <li>● <del>1,631.4 acres of compensatory off-site wetlands</del></li> <li>● <del>505.5 acres: Net increase of wetlands to the federal estate (through land exchange), therefore Land Exchange conforms to Executive Order (EO) 11190</del></li> <li>● <del>1,401.0 acres: Net decrease of floodplains to the federal estate (through land exchange); however, no decrease in regulatory floodplains, no increase in flood damage potential, and no change in ecological function of floodplain therefore Land Exchange conforms to EO 11988</del> <del>912.5 acres: Direct loss of wetlands at NorthMet Project area</del></li> <li>● <del>Wetland mitigation plan will be implemented to offset increased carbon dioxide emissions to extent practicable. 7,228.1 acres: Indirect</del></li> </ul>	<ul style="list-style-type: none"> <li>● <del>Same direct and indirect effects, and compensatory mitigation as Combined Proposed Action at the NorthMet Project area</del></li> <li>● <del>69.98.0 acres: Net increase of wetlands to the federal estate (through land exchange), therefore Land Exchange conforms to Executive Order (EO) 11190</del></li> <li>● <del>1,036.7 acres: Net decrease of floodplains to the federal estate (through land exchange); however, no decrease in regulatory floodplains, no increase in flood damage potential, and no change in ecological function of floodplain therefore Land Exchange conforms to EO 11988</del> <del>Same direct and indirect effects of on- and off-site mitigation as Combined Proposed Action</del></li> <li>● <del>74.0 acres: Gain of wetlands from fewer lands acquired through land exchange</del></li> <li>● <del>1,036.7 acres: Direct loss of floodplains (through land exchange) Loss of floodplains from fewer acres transferred out of federal ownership at NorthMet Project</del></li> </ul>	<ul style="list-style-type: none"> <li>● No change in wetland or floodplain acreage</li> </ul>

Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
	<p><del>effects on wetlands at NorthMet Project</del></p> <ul style="list-style-type: none"> <li><del>● 1,629.4 acres of compensatory off-site wetlands</del></li> <li><del>● 511.1 acres: Net gain of federal administered wetlands (acquired land exchange tracts plus off-site mitigation minus federal lands transferred at NorthMet Project)</del></li> <li><del>● 1,401.0 acres: Direct loss of floodplains (through land exchange)</del></li> </ul>		
<p><b>Vegetation (includes habitat and Special Status Species)</b></p>	<ul style="list-style-type: none"> <li>● <u>4,016.3 acres: Decrease of vegetation at the NorthMet Project area</u></li> <li>● <u>Special concern plant species: 9 directly affected; 2 indirectly affected at the NorthMet Project area</u></li> <li>● <u>579.6 acres: Net increase of vegetation land cover types to federal estate (through land exchange)</u></li> <li>● <u>Decrease of 11 plant species; increase of 2 different plant species to the federal estate (through land exchange)</u> <u>4,016.3 acres: Loss of vegetation</u></li> <li>● <u>579.6 acres: Net gain of vegetation through added federally administered wetlands through compensatory mitigation</u></li> </ul>	<ul style="list-style-type: none"> <li>● <u>Same decrease of vegetation as Combined Proposed Action at the NorthMet Project area</u></li> <li>● <u>Same effects to plant species as Combined Proposed Action at the NorthMet Project area</u></li> <li>● <u>173.6 acres: Net increase of vegetation land cover types to the federal estate (through land exchange)</u> <u>Same direct loss of vegetation as Combined Proposed Action</u></li> <li>● <u>173.6 acres: Net gain of vegetation through added federally administered wetlands through compensatory mitigation</u></li> </ul>	<ul style="list-style-type: none"> <li>● No effect <del>to</del> <u>on</u> vegetation</li> </ul>
<p><b>Wildlife (includes Special Status Species)</b></p>	<ul style="list-style-type: none"> <li>● <u>4,016.3 acres: Decrease of wildlife habitat at the NorthMet Project area</u></li> </ul>	<ul style="list-style-type: none"> <li>● <u>Same as Combined Proposed Action at the NorthMet Project area</u></li> </ul>	<ul style="list-style-type: none"> <li>● No effect on wildlife</li> </ul>

Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
	<ul style="list-style-type: none"> <li>● <u>Localized population decrease and fragmentation of critical habitat to the Canada lynx</u></li> <li>● <u>Low potential for incidental take resulting from vehicular collisions due to increased NorthMet Project Proposed Action-related traffic</u></li> <li>● <u>Special status species, including SGCN, RFSS, and other wildlife species (such as those considered tribally or culturally significant) may be affected by human activity, noise and vibration, rail and vehicle traffic, and decrease of habitat</u></li> <li>● <u>Wildlife corridors at and adjacent to the NorthMet Project would be affected through the reduction of access to these corridors</u></li> <li>● <u>579.6 acres: Net increase of vegetation land cover types for wildlife habitat to the federal estate (through land exchange) 4,016.3 acres: Loss of wildlife habitat</u></li> <li>● <u>579.6 acres: Net gain of wetland habitat (see Vegetation above)</u></li> <li>● <u>Localized population decrease and fragmentation of critical habitat to the Canada lynx</u></li> <li>● <u>Low potential for incidental take resulting from vehicular collisions due to increased NorthMet Project Proposed Action related traffic Wildlife corridors at and adjacent to the NorthMet Project would be affected</u></li> </ul>	<ul style="list-style-type: none"> <li>● <u>173.6 acres: Net increase of vegetation land cover types for wildlife habitat to the federal estate (through land exchange) Same as Combined Proposed Action</u></li> <li>● <u>173.6 acres: Net gain of vegetation through added federally administered wetlands through compensatory mitigation</u></li> </ul>	



Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
<p><b>Aquatic Species</b></p>	<p><del>through the reduction of access to these corridors</del></p> <ul style="list-style-type: none"> <li>● <u>No impact from changes in stream flow, which would remain within natural variability</u></li> <li>● <u>No decrease in the Riparian Connectivity Index</u></li> <li>● <u>Would meet or not increase existing exceedances of Class 2 water quality standards</u></li> <li><del>— Increase in lead loadings from hardness based lower water quality criteria</del></li> <li>● <u>No effect on federal- or state-listed aquatic species</u></li> <li><del>— No significant changes in Class B water quality standards</del></li> <li>● <u>Net decrease in mercury loading to Project waters (varies by modeled location)</u></li> </ul>	<ul style="list-style-type: none"> <li>● Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>● <u>Water seeps from the existing LTVSMC site would be managed in accordance with the Consent Decree</u></li> <li><del>Mercury loading at current levels</del></li> </ul>
<p><b>Air Quality (includes Greenhouse Gases and Global Climate Change)</b></p>	<ul style="list-style-type: none"> <li>● Increased emissions of criteria air pollutants, but below <u>NAAQS PSD major source thresholds, standards</u></li> <li>● 77,379 tons per year emissions of greenhouse gases</li> <li>● <u>Amphibole mineral fiber emissions minimized through use of Best Available Control Technology-like design</u></li> <li><del>Amphibole Mineral Fibers: Below USEPA Prevention of Significant Deterioration standards</del></li> </ul>	<ul style="list-style-type: none"> <li>● Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>● Continued air (fugitive dust) effects at LTVSMC site until remediation occurs under <u>Consent Decree existing closure/reclamation plan.</u></li> </ul>



Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
	<p><del>through use of Best Available Control Technology-like design</del></p> <ul style="list-style-type: none"> <li>The NorthMet Project <del>does-would</del> not affect Class I visibility <del>nor will</del>would it <del>impact the state's or</del>regional haze <del>goals</del></li> </ul>		
<p><b>Noise and Vibration</b></p>	<ul style="list-style-type: none"> <li><del>Added noise emissions and vibration. However, in all cases, the NorthMet Project Proposed Action, when in operation, would comply with the applicable state standards.</del></li> <li><del>Noise, ground vibration, and air blast impact area/zone would be limited to 11,456, 11,469, and 11,334 acres, respectively. The BWCAW, which is 20 miles away, is outside the maximum area of audibility (247,613 acres); however, effects on nearest receptors would be below applicable standards</del></li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>No effects</li> </ul>
<p><b>Cultural Resources &amp; Historic Properties</b></p>	<ul style="list-style-type: none"> <li>Adverse effects on a segment of the <i>Mesabe Widjiu</i> (Laurentian Divide)</li> <li>Effects, but no adverse effects, on Sugarbush</li> <li>Adverse effects on a segment of the Beaver Bay to Lake Vermilion Trail</li> <li>Adverse effects on Erie Mining Company Concentrator Building</li> <li>Effects, but no adverse effects, on Erie Mining Company Railroad Mine and Plant Track</li> <li>Potential to affect 1854 Treaty</li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>No effects</li> </ul>

Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
	resources		
<b>Socioeconomics (includes Environmental Justice)</b>	<ul style="list-style-type: none"> <li>Up to 500 new direct jobs (maximum during construction), plus additional indirect and induced jobs</li> <li>Millions of dollars revenue for State of Minnesota and federal taxes</li> <li>Environmental Justice (Native American) populations affected by changes in subsistence uses and potential increased living costs</li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>No effects</li> </ul>
<b>Recreation and Visual Resources</b>	<ul style="list-style-type: none"> <li>Net <u>gain/increase to the federal estate</u> of recreational land on acquired tracts through land exchange</li> <li>Visual effects would occur, but would not exceed USFS standards</li> </ul>	<ul style="list-style-type: none"> <li>Fewer federal lands <u>disposed conveyed</u> at NorthMet Project Mine Site</li> <li>Remaining federal lands at Mine <u>Site</u> <u>e</u>-would not have public access</li> <li>Fewer acres acquired through land exchange</li> <li>Same visual resources effects as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>No effects</li> </ul>
<b>Wilderness and Special Designation Areas</b>	<ul style="list-style-type: none"> <li>No effects on Wilderness or Special Designation Areas</li> <li>The air quality of the BWCAW <u>is would be</u> unaffected by the project</li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>No effects</li> </ul>
<b>Hazardous Materials</b>	<ul style="list-style-type: none"> <li>Potential effects from spills and use of explosives during operations</li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li>No effects</li> </ul>
<b>Geotechnical Stability</b>	<ul style="list-style-type: none"> <li>Waste rock stockpiles, Tailings Basin, and Hydrometallurgical Residue Facility would be constructed in</li> </ul>	<ul style="list-style-type: none"> <li>Same as Combined Proposed Action</li> </ul>	<ul style="list-style-type: none"> <li><u>Tailings Basin would be subject to closure and reclamation activities in accordance with MDNR and MPCA</u></li> </ul>

Resource	Combined Proposed Action	Combined Alternative B	No Action Alternative
	accordance with applicable State of Minnesota standards  • Monitoring and adaptive management would maintain geotechnical stability		<del>requirements</del> No effects

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89 **7.3 OTHER NEPA CONSIDERATIONS**

90 In addition to disclosure of direct, indirect, and cumulative effects, NEPA requires that federal  
91 agencies identify whether, and to what extent, the proposed action causes irreversible or  
92 irretrievable commitments of resources and considers the short-term use of the environment  
93 versus maintenance and enhancement of long-term productivity (40 CFR 1502.16). Each of these  
94 considerations is explained and disclosed below and the resultant unavoidable adverse effects are  
95 described above in Section 7.2.4.

96 **7.3.1 Irreversible or Irretrievable Commitment of Resources**

97 Irreversible commitments of resources are those that involve permanent loss because the affected  
98 resource cannot be returned to its previous condition (e.g., mined ore or wetlands that would be  
99 permanently converted to ~~tailings piles~~rock stockpile). Irretrievable commitments of resources  
100 are more temporary in nature because the environment can be returned to its previous state  
101 through reclamation and restoration activities (e.g., wetlands that would be restored or former  
102 facilities that would be removed and the land recontoured and replanted per the reclamation  
103 plan).

104 The construction and operation of the NorthMet Project Proposed Action would result in the  
105 irreversible loss of approximately 225 million tons of base and precious metal ore. Mining  
106 activities would remove 912.5 acres of wetlands that would be permanently lost. Through on-site  
107 restoration and off-site compensatory mitigation, these would be eventually replaced by the ~~on-~~  
108 ~~site~~-restoration of 101.8 acres and ~~1,629.41,631.4~~ acres of wetlands, respectively. The  
109 reclamation of on-site wetlands would be considered an irretrievable commitment since it would  
110 restore wetlands temporarily lost through mining activities.

111 Other resources could also be irreversibly lost by the NorthMet Project Proposed Action. For  
112 example, changes in the viewshed from the expansion of the existing Tailings Basin creation of  
113 ~~new tailings piles and basins~~ would permanently alter visual resources. While cultural resources  
114 may be adversely affected, irreversible commitments would be minimized through avoidance.  
115 ~~Those cultural resources that cannot be avoided through mitigation planning and~~  
116 ~~coordinated with the Tribes and SHPO. There would be both irreversible and irretrievable loss of~~  
117 ~~federally-managed wildlife habitat under the NorthMet Project Proposed Action and Land~~  
118 ~~Exchange. Some species, such as white-tailed deer may not avoid the area throughout the mine~~  
119 ~~life, although some habitat would be disturbed. Others, such as the Canada lynx may seek other,~~  
120 ~~better habitat elsewhere. Air quality impacts, primarily from fugitive dust, would occur during~~  
121 ~~the mine life, but would return to pre-mining conditions after closure and rehabilitation and~~  
122 ~~restoration of disturbed areas.~~

123 ~~For air quality, there would be temporary increases in NAAQS criteria pollutants, which would~~  
124 ~~only last the life of the mine.~~ Water quality would be affected, but would not result in new  
125 exceedances in water quality standards. These would be considered irretrievable commitments  
126 due to their temporary nature.

127 The federal lands may contain natural resources culturally important to tribal entities, including  
128 access to the land itself, which would be irreversibly lost following the ~~proposed~~-Land Exchange  
129 ~~Proposed Action~~ and conversion of the land from public to private ownership.

130 **7.3.2 Short-Term Uses versus Long-Term Productivity of the**  
131 **Environment**

132 ~~As a result of the effects from the NorthMet Project Proposed Action, the productivity of the~~  
133 ~~land and other resources may be affected for a longer period of time. NEPA requires that~~  
134 ~~agencies disclose how the short-term use of land or a resource may affect its long-term~~  
135 ~~productivity. For example, That is, the proposed NorthMet Project Proposed Action and Land~~  
136 ~~Exchange will would utilize existing federal resources (that is, at the mine site), which would~~  
137 ~~no longer be available for other purposes, such as timber or wildlife habitat. The long-term loss~~  
138 ~~of the productivity of the land for these purposes would constitute a foregone opportunity. This~~  
139 ~~portion of NEPA recognizes that short term uses and long term productivity of the environment~~  
140 ~~are linked, and that opportunities acted upon have corollary opportunity costs in relation to~~  
141 ~~forgone opportunities and productivity that could have continuing effects well into the future.~~

142 The construction and operation of the NorthMet Project Proposed Action would cause short-term  
143 effects on air, noise, and visual resources during the 20-year life of the mine. Additionally, there  
144 may be potential short-term effects on wetlands from time delays between the loss of existing  
145 wetland resources (at the NorthMet Project area) and the development of new, viable wetlands  
146 with similar functions (at the off-site wetland mitigation areas), ~~but these effects would be offset~~  
147 ~~(mitigated) through appropriate ratios of credit.~~ During construction and operation of the mine,  
148 air pollutant concentrations would be higher throughout the study area than they are currently,  
149 but below applicable air quality standards. Once mining and reclamation are completed, the  
150 pollutant concentrations would return to pre-mining levels. The noise levels in the area, while  
151 below standards, would increase during operation of the mine. However, post-closure, the noise  
152 levels would return to pre-mining levels. The visual effects from the NorthMet Project would be  
153 most noticeable during year 11, when the Category 2/3 Stockpile and Category 4 Stockpile  
154 would be at their maximum heights (after which time they would be placed into the East Pit as  
155 backfill), and year 12, when the Category 1 Stockpile would reach its maximum height.  
156 Additionally, there would be short-term effects on visual resources from fugitive dust and night-  
157 lighting during operations. Long-term visual effects would be landform changes as a result of  
158 mining activities.

159 The Land Exchange would result in the permanent loss of the federal lands for mining purposes,  
160 which would be offset by the long-term increased productivity of the non-federal lands as they  
161 would be managed under the Forest Plan. As a result of the Land Exchange, there would be no  
162 effects as a result of short-term use of aquatic species, cultural resources, vegetation, wildlife,  
163 water resources, air resources, wetlands, or recreational and visual resources.

164 The NorthMet Project Proposed Action and Land Exchange Proposed Action would remove  
165 ~~6,1506,650.2 (GLO)~~ acres (GLO) ~~at the mine Mine site Site~~ from Forest Service administration  
166 and management under the ~~Superior National Forest Land and Forest Management Forest~~ Plan.  
167 Currently, the ~~federal lands, which includes the mine Mine site Site, is are~~ managed under the  
168 ~~SNF Forest~~ Plan as General Forest – Longer Rotation (~~6,143-140.1~~ acres) and as General Forest  
169 (~~355.3~~ acres). If the land were exchanged, the long-term productivity of the federal lands at the  
170 ~~Mmine Ssite~~ would be lost to timber production and other forest uses for the short-term use as a  
171 mine. This would represent an unquantified opportunity cost in which the lands and resources  
172 could not be used for forest purposes. The Combined ~~NorthMet Project Proposed Action and~~  
173 ~~Land Exchange~~ Alternative B would result in 4,397.3 acres lost under General Forest – Longer

174 | Rotation management and 355.3 acres under the General Forest management category. These  
175 | losses would be replaced by the acquisition, through the Land Exchange, of land for Forest  
176 | purposes.

### 177 | **7.3.3 Unavoidable Adverse Effects**

178 | Regardless of the inclusion of all reasonable mitigation, some effects may not be avoided. For  
179 | example, the NorthMet Project Proposed Action would utilize technologies to mitigate effects on  
180 | water quality, which have been demonstrated through modeling to meet applicable water quality  
181 | standards. However, effects on water quality would remain after all reasonable mitigation  
182 | measures have been applied.

183 | After the implementation of mitigation measures that have been built into the design, the  
184 | NorthMet Project Proposed Action would have unavoidable adverse effects on wetlands,  
185 | vegetation, wildlife, air quality, noise and vibration, visual resources, cultural resources, water  
186 | resources, and aquatic species. Unavoidable direct effects on surface features such as wetlands,  
187 | | vegetation, and wildlife resources would be offset by gains through off-site mitigation (wetlands)  
188 | and through lands acquired through the Land Exchange. Unavoidable noise and vibration, air,  
189 | and water emissions from the NorthMet Project Proposed Action would affect the existing  
190 | conditions, but would not trigger new exceedances of relevant standards and would result in  
191 | comparatively small cumulative increases to existing levels. The residual practical effects of the  
192 | Land Exchange would be the loss of federal land, which would be used for the NorthMet Project,  
193 | and the gain of non-federal lands.

## 194 | **7.4 PREFERRED ALTERNATIVE**

195 | Consistent with the CEQ regulations, the federal Co-lead Agencies are required to identify an  
196 | agency preferred alternative in a DEIS, if one exists, and in the FEIS unless another law prohibits  
197 | the expression of such a preference. At this time the Co-lead agencies have not identified a  
198 | preferred alternative, and for the USACE, 33 CFR Part 325, Appendix B, supersedes  
199 | identification of an agency preferred alternative.

200 | ~~Consistent with the CEQ regulations, the federal Co-lead Agencies are required to identify a~~  
201 | ~~preferred alternative in DEISs, if one exists. In addition, agencies may defer the identification of~~  
202 | ~~the preferred alternative until the FEIS if another law “prohibits the expression of such a~~  
203 | ~~preference” (40 CFR 1502.14(e)). The USFS has considered this requirement and has determined~~  
204 | ~~that, at this time, the agency has not chosen a preferred alternative. The USACE has determined~~  
205 | ~~it cannot identify a preferred alternative until the FEIS. The Least Environmentally Damaging~~  
206 | ~~Practicable Alternative would be determined in accordance with CWA Section 404 (b)(1)~~  
207 | ~~Guidelines.~~

208 | No similar requirement to identify a preferred alternative exists for the MDNR under state law.