

## 1 **5.2.10 Socioeconomics**

2 This section describes the potential socioeconomic consequences of the NorthMet Project  
3 Proposed Action on communities in the study area (consisting of St. Louis, Lake, and Cook  
4 counties—see Section 4.2.10 and Figure 4.2.10-1). Socioeconomics includes demographic  
5 characteristics of the study area’s population, economic characteristics (employment, income,  
6 market composition—i.e., the types of firms and employers located in the study area), public  
7 finance, housing, public services, and the economic characteristics of subsistence activities. The  
8 cultural aspects of subsistence, specifically for Native American populations, are discussed in the  
9 Cultural Resources ~~S~~ection 5.2.9. Individual subsistence products (e.g., wild rice, game animals,  
10 etc.) are discussed in appropriate resource-specific sections of the SDEIS.

### 11 **Summary**

12 The NorthMet Project Proposed Action would generate as many as 500 direct jobs during peak  
13 construction and 360 direct jobs during operation. These direct jobs would generate additional  
14 indirect and induced employment, estimated to be 332 additional construction-phase jobs and  
15 631 additional operations-phase jobs. While some skilled workers would be involved only  
16 temporarily and possibly relocate from outside the region, the majority of the NorthMet Project  
17 Proposed Action-related jobs are expected to be filled by those currently residing in the  
18 Arrowhead region.

19 Federal, state, and local taxes would total up to an estimated \$~~1680~~ million annually. During  
20 operations, there would be approximately \$231 million per year in direct value added through  
21 wages and rents and \$332 million per year in direct output related to the value of the extracted  
22 minerals. As with employment, these direct economic contributions would create indirect and  
23 induced contributions estimated at \$99 million in value added and \$182 million in output.

24 The NorthMet Project Proposed Action would create slightly increased demand for housing and  
25 public services in cities and towns near the NorthMet Project area. The resulting increase in  
26 housing demand and prices could have minor effects on the Environmental Justice (EJ)  
27 populations.

28 The NorthMet Project No Action Alternative would have no effects.

### 29 **5.2.10.1 Methodology and Evaluation Criteria**

30 As discussed in Section 4.2.10, the study area for socioeconomics includes Cook, Lake, and St.  
31 Louis counties. Because socioeconomic consequences are measured and felt across a broad  
32 geographic area, this section does not distinguish between the Mine Site, Transportation and  
33 Utility Corridor, and Plant Site. Rather, this section describes the socioeconomic consequences  
34 of the NorthMet Project Proposed Action across the entire three-county study area and, where  
35 appropriate, includes the study area communities listed in Section 4.2.10.

#### 36 **5.2.10.1.1 Evaluation Criteria**

37 Specific criteria used to evaluate socioeconomic consequences include the following:

- 38 • Changes in local population, employment, or earnings associated with NorthMet Project  
39 Proposed Action operations.

- 40 • Changes in public sector revenues, expenditures, or the underlying fiscal conditions of local  
41 governments.
- 42 • Changes in economic activity for non-mining industries in the region, particularly the  
43 tourism industry.
- 44 • Changes in demand for temporary or permanent housing during NorthMet Project Proposed  
45 Action construction, operation, and closure periods.
- 46 • Changes in long-term demands on public services and infrastructure that reduce capacities in  
47 these systems, either triggering the need for capital expansion or resulting in a discernible  
48 reduction in the level of service provided.
- 49 • Displacement or other use of property that affects residences or businesses.
- 50 • Disproportionate effects on minority (including Native American) or low-income  
51 populations, including human health or environmental effects, and subsistence—especially if  
52 the NorthMet Project Proposed Action results in large reductions in abundance or major  
53 redistribution of subsistence resources, substantial interference with harvestable access to  
54 active subsistence sites, or major increases in non-rural resident hunting (Barnard  
55 Dunkelberg 2009). ~~For the NorthMet Project Proposed Action, the Band representative(s)  
56 identified subsistence effects as an issue for consideration in the EIS.~~

#### 57 **5.2.10.1.2 Determination of Study Area**

58 As discussed in Section 4.2.10, the socioeconomic study area for this section includes all of  
59 Cook, Lake, and St. Louis counties (the three counties that comprise the Arrowhead region of  
60 Northeastern Minnesota). This study area includes the Mine Site, Transportation and Utility  
61 Corridor, and Plant Site, as well as all of the tracts involved in the Land Exchange Proposed  
62 Action. The size of this study area also captures much of the region’s recreational resources  
63 (which are important economic engines) and a substantial portion of the 1854 Ceded Territory,  
64 which is important to the Bands. Finally, the three-county study area is large enough to reflect a  
65 regional economic picture against which the NorthMet Project Proposed Action’s effects can be  
66 compared.

67 Where possible, the analysis of effects is based on a quantitative comparison of baseline  
68 conditions (Section 4.2.10) against predicted future conditions in the entire three-county area. In  
69 cases where such quantitative data are not available for the entire region (e.g., the IMPLAN  
70 model discussed in Section 5.2.10.1.3), the evaluation of effects is either limited to St. Louis  
71 County—the site of the NorthMet Project area—or includes the other counties but only  
72 qualitatively.

#### 73 **5.2.10.1.3 IMPLAN Model Methodology**

74 Many of the socioeconomic effects of the NorthMet Project such as increased population,  
75 housing demand, and effects on public facilities and services are functions of the jobs and  
76 revenue that the NorthMet Project Proposed Action creates. To model these effects, the  
77 University of Minnesota Duluth Labovitz Bureau of Business and Economic Research (BBER)  
78 used the IMPLAN software package. IMPLAN uses an input-output approach to model the  
79 economic effects of changes in baseline conditions (e.g., a large industrial project such as the  
80 NorthMet Project Proposed Action). IMPLAN reports direct, indirect, and induced effects

81 | (definitions of these terms are provided below) in terms of employment, output (the value of  
82 | production), and value added (wages, rents, taxes, etc.).

83 | For the SDEIS, BBER used version 3.0 of IMPLAN; this version uses economic baseline data  
84 | from 2009, the most recent year for which data were available to BBER at the time the model  
85 | was developed (BBER 2012). (The model does assume a recovery—by the mining industry, and  
86 | the overall economy—from the recession that was in place in 2009). Due to their small  
87 | populations, workforces, and their distance from the NorthMet Project area, Cook and Lake  
88 | counties are not expected to experience substantial additional effects from the NorthMet Project  
89 | Proposed Action. As a result, the IMPLAN model includes only St. Louis County, which acts as  
90 | a proxy for the entire three-county study area.

91 | Economic effects were modeled for two construction phases: a 15-month Phase I and a 12-month  
92 | Phase II that would begin 6 months after completion of Phase I. The phases represent two  
93 | distinct periods of activity in mine construction involving distinct skill sets and activities. Two  
94 | operations phases were also modeled: a 6-month Startup Phase and a Typical Year (BBER  
95 | 2012). The IMPLAN model did not project the number of years of operation, due to the inherent  
96 | difficulty of predicting how variations in the grade of the extracted material or macroeconomic  
97 | forces—such as industry cycles or metal prices (see below)—will affect mine life. The Typical  
98 | Year estimate is intended to model the economic impacts of standard operations, recognizing that  
99 | “some years will be a little better, others a little worse” (BBER 2012). The IMPLAN model also  
100 | did not include effects during the closure phase or the post-closure period, again due to the  
101 | difficulty of predicting the timing and extent of those phases.

102 | The IMPLAN model focuses on three categories of economic effects:

- 103 | • Employment: calculated in terms of jobs, not full-time equivalent (FTE) positions. The  
104 | model does not make a distinction between full-time, part-time, permanent, or temporary  
105 | jobs. Direct employment estimates were provided by PolyMet.
- 106 | • Value added: measures economic contributions to the local economy through wages, rents,  
107 | interest, and profits.
- 108 | • Output: the value of the goods or services (e.g., minerals and processed mineral products)  
109 | produced.

110 | Each category of effects ~~is comprised of~~ comprises three separate components:

- 111 | • Direct effects: new jobs, spending, and output resulting directly from the NorthMet Project  
112 | Proposed Action (e.g., PolyMet employees, salaries, spending, and sales).
- 113 | • Indirect effects: additional inter-industry spending and employment resulting from direct  
114 | effects (e.g., wholesale purchase of tires by tire retailers who are NorthMet Project Proposed  
115 | Action vendors).
- 116 | • Induced effects: additional household expenditure resulting from the direct and indirect  
117 | effects (e.g., increased patronage of local restaurants by employees of PolyMet or affiliated  
118 | industries).

119 | The findings of the IMPLAN model are presented in section 5.2.10.2.

#### 120 **5.2.10.1.4 Sources of Uncertainty and Variability**

121 The anticipated socioeconomic effects of the NorthMet Project Proposed Action are based on the  
122 best available data, economic modeling, and lessons learned from the history of metal mining in  
123 the Mesabi Iron Range. As this history shows, there are numerous sources of economic  
124 uncertainty surrounding a project such as the NorthMet Project Proposed Action. The largest  
125 overarching socioeconomic concerns related to the NorthMet Project Proposed Action are listed  
126 below. Their relationship to the determination of effects is discussed, as appropriate, throughout  
127 the remainder of Section 5.2.10.

#### 128 **Industry Cycles**

129 The feasibility of mining is strongly tied to the market price of the commodities being extracted.  
130 When prices are high, mining activity is high (the “boom”); when prices drop, mining activity  
131 can often slow down or cease entirely (the “bust”). Such changes in mining activity would have  
132 effects on host communities. The diverse economy of the study area could offset the degree to  
133 which the effects of a bust are experienced. Though this “boom and bust” phenomenon is often  
134 present in mining economies, IMPLAN does not model this phenomenon (or assume that it will  
135 occur) because the duration of a boom or bust and the severity relative to modeled commodity  
136 prices cannot be predicted. Table 5.2.10-1 shows the metal prices assumed in the IMPLAN  
137 model, along with recent average prices and the lowest prices experienced during the 2008-9  
138 recession. The potential effects of major changes in commodity prices are addressed in the  
139 discussions of effects during the operations phase.

140 ***Table 5.2.10-1 Comparison of Assumed (IMPLAN) and Actual Commodity Prices***

<b>Commodity</b>	<b>Price Assumed in IMPLAN<sup>1</sup></b>	<b>Average Actual Price<sup>2</sup></b>	<b>Recent Low Price<sup>3</sup></b>
Copper	\$2.90/lb	\$3.56/lb	\$1.39/lb
Nickel	\$12.20/lb	\$9.47/lb	\$4.39/lb
Cobalt	\$23.50/lb	\$111.69/lb	\$13.56/lb
Platinum	\$1,230.00/oz	\$1,689.00/oz	\$843.00/oz
Gold	\$635.00/oz	\$1,485.00/oz	\$755.00/oz

141 Sources: BBER 2012 (commodity prices); Foth 2012 (average actual price); 2012m (recent low price).

142 <sup>1</sup> Prices based on PolyMet’s 2008 Bankable Feasibility Study (PolyMet 2008). This is the most detailed published information  
143 available, and PolyMet is legally bound to these data.

144 <sup>2</sup> Three-year rolling average metal prices as of June 30, 2012 (Foth 2012).

145 <sup>3</sup> Monthly low during 2008-2009 recession.

#### 146 **Changes in Industrial Productivity**

147 Throughout the nation, “regional labor productivity [in mining and overall]...has increased  
148 dramatically” since publication of the 2009 DEIS (BBER 2012). Over the longer term (since  
149 approximately 1980), mining productivity in the Arrowhead region has also increased, due to  
150 mechanization and technological innovation (Powers 2007). As a result, far fewer miners are  
151 now required per unit of extracted material than before, which therefore lessens the effects of  
152 booms and busts in mining communities. Continued technologically driven productivity  
153 increases could lead to lower employment than assumed by IMPLAN or other projections.

154 **Local Employment**

155 The NorthMet Project Proposed Action’s socioeconomic effects may be influenced by the degree  
156 to which PolyMet hires employees who already live in the socioeconomic study area. The SDEIS  
157 assumes that at least some (but not all) direct and indirect jobs will be filled by current study area  
158 residents; more specific assumptions about the construction, operations, and closure phases are  
159 discussed in subsequent portions of this section, as are the ways in which changes in “local”  
160 employment shares would affect different aspects of the study area’s socioeconomic character.

161 **Environmental Costs and Non-market Value**

162 The SDEIS contains extensive discussion of the environmental and social impacts that of the  
163 NorthMet Proposed Action (and the NorthMet Land Exchange Proposed Action). These impacts  
164 can, in turn, have real and/or perceived economic costs. Inclusion of such costs has been raised  
165 by the Band representative(s) for consideration in the SDEIS. Non-market values refer to the  
166 importance given to characteristics of the land that have personal or community value, but that  
167 are not typically expressed in monetary value. Beauty, quiet, and the ability to view nature, are  
168 examples of non-market values.

169 NEPA does not require a benefit-cost analysis; however, this SDEIS acknowledges that  
170 economic costs and loss of non-market value may result from environmental and social impacts.  
171 Also acknowledged is that the agreement on the value (i.e., the “cost”) of environmental impacts  
172 is often difficult to achieve. The approach of this SDEIS is therefore to evaluate environmental  
173 and social impacts directly, in the appropriate resource-specific section.

174 **5.2.10.2 NorthMet Project Proposed Action**

175 This section evaluates the NorthMet Project Proposed Action’s effects on socioeconomics in the  
176 three-county study area.

177 **5.2.10.2.1 Population and Population Trends**

178 This section discusses the changes in the study area’s population resulting from the NorthMet  
179 Project Proposed Action. These population changes are driven primarily by project-related  
180 changes in employment.

181 **Construction**

182 IMPLAN modeling estimates that construction activities would create an average of 500 direct  
183 and 128 indirect construction jobs over the 18-month Phase I period (the most labor-intensive  
184 portion of the construction phase). The 204 induced jobs during this phase are likely to be  
185 existing residents hired to accommodate the additional demand from direct and indirect jobs.

186 Typical mine construction involves fluctuating work flows and specialized crews that may be  
187 employed for short duration tasks within the construction time frame. Very few construction  
188 phase employees would work within the NorthMet Project area for the entire 30-month  
189 construction period (including Phase I, the 6-month gap, and Phase II).

190 Given the NorthMet Project area, most construction employees would likely be from Minnesota,  
191 and many would already live in the study area. Many direct and indirect employees are likely to  
192 reside outside of the communities in the immediate vicinity of the NorthMet Project area (e.g.,

193 Hoyt Lakes, Babbitt, Biwabik, Aurora). However, mine workers in the Arrowhead region and  
194 beyond “are willing to commute considerable distance to...well-paid jobs...to protect investment  
195 in their homes” (Powers 2007). This finding is generally true of mine construction workers as  
196 well. As a result, most employees (regardless of project phase) would not need to relocate.

197 Due to the proximity of the NorthMet Project area to population centers such as Duluth (80  
198 miles), Hibbing (50 miles), and Virginia (25 miles), the SDEIS assumes that 80 percent of direct  
199 and indirect construction labor (approximately 500 employees during Phase I of construction,  
200 which requires more workers than Phase II) would commute to the NorthMet Project Proposed  
201 Action construction site on a regular basis (PolyMet 20121). The SDEIS assumes that another 5  
202 to 10 percent of direct and indirect workers (approximately 25 to 50 employees) would  
203 temporarily reside in the study area, at local hotels or in designated mobile home facilities, but  
204 would not relocate their families to the region.

205 The remaining 10 to 15 percent of the direct and indirect workforce (as many as approximately  
206 100 employees) would relocate to the study area for portions (or all) of the construction process  
207 (PolyMet 20121). An influx of 100 workers would equate to as many as 225 total new residents  
208 (including family members—see the average population per housing unit in Table 4.2.10-14)  
209 who would seek long-term (e.g., more than a few months) residences in nearby communities.  
210 This represents an increase of less than one quarter of 1 percent over the 2010 population of the  
211 study area (approximately 216,000 residents—see Table 4.2.10-1), and slightly more than a 2  
212 percent increase in the population of nearby cities (Aurora, Babbitt, Biwabik, Hoyt Lakes,  
213 Tower, and Virginia). Such a small increase would not meaningfully change the demographic  
214 composition of the study area; thus, construction of the NorthMet Project Proposed Action would  
215 have negligible effects on population.

## 216 **Operations**

217 During typical operations, the NorthMet Project Proposed Action would generate 360 direct and  
218 330 indirect jobs. Direct and indirect employees are likely to work at the Mine Site, Plant Site,  
219 and in the study area for a substantial period of time (perhaps as long as the 20-year projected  
220 life of the mine). Direct and indirect employees who do not already live within commuting  
221 distance of the Mine Site and Plant Site (i.e., in the study area) are likely to relocate to the study  
222 area. It is not known how many direct employees will be current study area residents. PolyMet  
223 estimates that as many as 338 of the 360 new direct operations-phase positions (94 percent of  
224 these positions) could be filled by study area residents (PolyMet 2012k).

225 For purposes of this analysis, the SDEIS assumes that approximately 75 percent of direct and  
226 indirect operations phase employees would be local residents who would not need to relocate as  
227 a result of employment. The SDEIS also assumes that the vast majority of the 301 induced jobs  
228 created during operations would be filled by existing residents or the spouses and children of  
229 new NorthMet Project Proposed Action employees.

230 The remaining 25 percent of operations-phase workers (approximately 175 employees) would  
231 relocate to the study area with their families, causing a total increase of approximately 400 new  
232 residents (see the average population per housing unit in Table 4.2.10-14). This is less than one  
233 quarter of one percent of the study area population (approximately 216,000 residents).

234 These workers are likely to be younger, on average, than the existing populations of the study  
235 area communities, and may have higher overall incomes. Other demographic characteristics

236 (race, level of education) cannot be determined. The effect of such a shift on housing and public  
237 services is discussed below.

238 Increases in worker productivity spurred by technological change could reduce the anticipated  
239 number of direct, indirect, and induced employees. The effect of such reductions would be to  
240 reduce the overall new population of the study area. This in turn would diminish the NorthMet  
241 Project Proposed Action's demographic effects.

#### 242 **Reclamation and Closure**

243 During the closure of the NorthMet Project Proposed Action, PolyMet estimates that a reduced  
244 number of employees and contractors would remain employed for approximately 3 to 4 years for  
245 building demolition, but other closure activities would likely be followed by several years of  
246 reclamation activities (e.g., surface water quality monitoring). PolyMet is in the process of  
247 finalizing reclamation designs and estimates. Current estimates are based on experience at  
248 closure of the former LTVSMC processing plant and include 30 to 50 FTEs for the first 7 years,  
249 which includes demolition, remediation, reclamation, construction, and monitoring, and 5 to 10  
250 FTEs for the following 30 years, which includes a period of monitoring, reporting, and active  
251 water treatment. During closure, direct, indirect, and induced employment associated with the  
252 project would decline. All other factors being equal, by the end of the seven-year closure period,  
253 the demographic characteristics of the study area would likely revert to levels that could be  
254 expected under the NorthMet Project No Action Alternative.

#### 255 **5.2.10.2.2 Employment and Income**

256 Table 5.2.10-2 shows the anticipated economic contributions of the NorthMet Project Proposed  
257 Action, as modeled using IMPLAN. Detailed estimates of jobs by type are provided in the  
258 IMPLAN Report (BBER 2012). The IMPLAN model includes assumptions about the portion of  
259 employment, value added, and output that accrues to the study area (in the case of the IMPLAN  
260 model, this is limited to St. Louis County), as opposed to the amount that “leaks” to locations  
261 outside of St. Louis County (BBER 2012). While the data in Table 5.2.10-2 depict the economic  
262 effects of the project specifically on St. Louis County alone, they capture the vast majority of the  
263 NorthMet Project Proposed Action's effects in the entire three-county study area. By  
264 comparison, the total value added to the Minnesota economy in 2009 (from all sources) was  
265 \$268 billion. 's forecasted operating budget for 2012 and 2013 is \$62.4 billion (State of  
266 Minnesota 2012USFS 2013xx).

267 **Table 5.2.10-2 Summary of IMPLAN Model Results**

Phase <sup>1</sup>	Direct Effect	Indirect Effect	Induced Effect	Total
<b>Construction Phase I</b>				
Value Added <sup>2</sup>	\$143,637,243	\$41,774,260	\$61,120,854	<b>\$246,532,357</b>
Output <sup>3</sup>	\$312,000,009	\$75,343,964	\$101,199,927	<b>\$488,543,900</b>
Employment	500	128	204	<b>832</b>
<b>Construction Phase II</b>				
Value Added	\$75,501,628	\$21,958,266	\$32,127,628	<b>\$129,587,122</b>
Output	\$164,000,005	\$39,603,897	\$53,194,833	<b>\$256,798,717</b>
Employment	264	68	107	<b>439</b>
<b>Operations Phase – Startup</b>				
Value Added	\$44,619,571	\$12,117,664	\$6,865,833	<b>\$63,603,068</b>
Output	\$64,122,003	\$23,821,174	\$11,367,855	<b>\$99,311,032</b>
Employment	300	275	251	<b>826</b>
<b>Operations Phase – Typical Year</b>				
Value Added	\$231,315,193	\$62,819,962	\$35,593,610	<b>\$329,728,765</b>
Output	\$332,418,993	\$123,492,880	\$58,932,833	<b>\$514,844,706</b>
Employment	360	330	301	<b>991</b>

268 Source: BBER 2012.

269 <sup>1</sup> The IMPLAN model did not include effects during the closure phase or post-closure period.

270 <sup>2</sup> Defined in BBER 2012 as “a measure of the affecting industry’s contribution to the local community; it includes wages, rents,  
 271 interest and profits.”

272 <sup>3</sup> Defined in BBER 2012 as “the value of local production required to sustain activities.”

273 **Construction**

274 Construction of the NorthMet Project would create as many as 832 jobs during the peak of Phase  
 275 I, of which 500 would be mine construction jobs. Indirect and induced employment would be  
 276 spread across a variety of industries, such as engineering, restaurants, medical providers, and  
 277 hospitals (see Table 10 in BBER 2012). The NorthMet Project Proposed Action-related  
 278 construction employment would increase overall study area employment by less than one percent  
 279 at its peak (less during Phase II).

280 As discussed in Section 5.2.10.2.1, the SDEIS assumes that a substantial share of direct  
 281 construction jobs will be filled by study area residents—particularly those with construction  
 282 experience—while other study area residents will obtain indirect and induced jobs. Construction  
 283 is therefore expected to at least marginally reduce the unemployment rate in the study area.

284 ~~The IMPLAN model does not specify~~ It is not known how much of the estimated \$376 million in  
 285 total value added during the two parts of the construction phase would be dedicated to employee  
 286 salaries, although employee pay is assumed to be a substantial share. The value added ~~(and thus~~  
 287 ~~earnings)~~ from the NorthMet Project Proposed Action are likely to be substantial compared to  
 288 other non-ferrous (e.g., copper, nickel, lead, zinc) mining activity, but will be limited to the  
 289 construction phase. ~~A study of mining in northeastern Minnesota estimated that non ferrous~~  
 290 ~~mining contributed approximately \$250 million in value added statewide in 2007—the vast~~  
 291 ~~majority of which is from the Arrowhead region (BBER 2009).~~



292

293 While employment related to construction of the NorthMet Project will have minimal effects, the  
294 earnings from construction employees would be positive, albeit relatively short-lived (e.g., for no  
295 more than the 36-month overall construction phase).

296 **Operations**

297 ***Overall Effects***

298 During typical year operations, the NorthMet Project Proposed Action would generate nearly  
299 1,000 total direct, indirect, and induced jobs. This would increase study area employment by  
300 approximately one percent. One-third of new employment (360 jobs) would be direct mine-  
301 related jobs. The remainder would be spread among a variety of industries, such computer  
302 programming, restaurants, engineering, and health care (BBER 2012).

303 As discussed in Section 5.2.10.2.1, the SDEIS assumes that a substantial share of direct  
304 operations jobs will be filled by study area residents, particularly those with mining experience.  
305 In 2009, there were approximately 3,000 mining jobs in the study area (U.S. Census Bureau  
306 2009). This figure does not include residents who have skills appropriate for the mining sector  
307 but who are not currently employed in mining. Other local residents are likely to obtain indirect  
308 and induced jobs. Operation of the NorthMet Project Proposed Action could reduce  
309 unemployment in the study area by nearly one percent (991 new jobs out of 111,090 members of  
310 the workforce, see Table 4.2.10-9).

311 ~~The IMPLAN model does not specify~~ It is not known how much of the estimated \$330 million in  
312 total value added during typical operations would be dedicated to employee salaries, although  
313 employee pay is assumed to be a substantial share. The NorthMet Project Proposed Action's  
314 estimated value added (and thus earnings) is substantial compared to the 2007 estimate of \$250  
315 million in annual statewide value added economic effects from non-ferrous mining (BBER  
316 2009).

317 Earnings and all economic contributions of the NorthMet Project are influenced by external  
318 market factors, such as those discussed in Section 5.2.10.1.4. Significant decreases in metal  
319 prices and/or competition from other regions or countries can lead to reduced production.  
320 PolyMet states that, due to its structure as a "low-cost producer," the NorthMet Project Proposed  
321 Action would be unlikely to completely cease operations during a recession (PolyMet 2012m).  
322 That statement notwithstanding, complete suspension of mining activity is not an uncommon  
323 response to recession or significant drops in commodity prices. This "bust" aspect of the cyclical  
324 economy is familiar to mining regions in Minnesota and beyond (Powers 2007; Freudenberg and  
325 Wilson 2002). Increases in productivity may not affect the output of the NorthMet Project  
326 Proposed Action (i.e., the sales price of the extracted and processed materials), but could reduce  
327 employment and value added.

328 To account for some of these concerns, commodity prices in the IMPLAN model are generally  
329 conservative, compared to price trends. In particular, copper, gold, and platinum prices used in  
330 the IMPLAN model are significantly below recent average prices. Nickel and cobalt, which are  
331 expected to comprise a small share of the total volume extracted by PolyMet, are significantly  
332 above current average prices, but were also conservative compared to contemporary prices that

333 formed the basis of PolyMet’s 2008 Bankable Feasibility Study (see notes in Table 5.2.10-1).  
334 Section 5.2.10.1.4 provides more information about sources of uncertainty and variability.

335 ~~The IMPLAN estimate of 1,000 new jobs and \$330 million in annual value is likely a cautiously~~  
336 ~~optimistic estimate (although not a “best case scenario,” which would assume much higher~~  
337 ~~commodity prices). A less productive NorthMet Project Proposed Action—for example, if the~~  
338 ~~NorthMet Project would only contribute half of the jobs and value added predicted by~~  
339 ~~IMPLAN—would still represent a substantial contribution to the study area and state economy.~~  
340 ~~The contribution to value added would be more substantial than to employment.~~

### 341 *Effects on Regional Tourism*

342 ~~Tourism is rooted in the Arrowhead region’s unique recreation opportunities such as BWCAW,~~  
343 ~~and is more broadly dependent on recreational opportunities such as hunting, fishing, boating,~~  
344 ~~sightseeing, and wilderness experiences provided by the region’s high-quality natural~~  
345 ~~environment.~~

346 ~~Mining and tourism have coexisted in the study area for decades. As shown in Table 4.2.10-7,~~  
347 ~~industries associated with tourism (arts, entertainment, recreation, accommodation, and food)~~  
348 ~~account for nearly 13 percent of all employment in St. Louis County (data could not be summed~~  
349 ~~for the entire study area). The “attractive landscape and climatic features [of the region have]~~  
350 ~~attracted recreationists, retirees, and other new residents” (Powers 2007). In particular,~~  
351 ~~retirement income (from individuals who move to the Arrowhead region for its recreational and~~  
352 ~~scenic resources) has been an important source of economic vitality for the region’s communities~~  
353 ~~(Powers 2007). These non-mining economic gains have occurred in the presence of active~~  
354 ~~mining activity (including the Northshore Mine adjacent to the NorthMet Project area) and the~~  
355 ~~remnant landscape of past mining activity.~~

356 Effects on species (game animals, fish, and vegetation) and resources (water quality, air quality,  
357 and noise) that contribute to the tourism industry are discussed in appropriate sections of Chapter  
358 5. Housing is also an important component of the tourism industry—the Arrowhead region is  
359 often regarded as a location for long vacations, rather than short day-trips—and is discussed in  
360 Section 5.2.10.2.4. To the degree that the NorthMet Project Proposed Action adversely affects  
361 those resources, then it also has the potential to affect the tourism industry. However, the  
362 presence of the NorthMet Project Proposed Action would not significantly affect regional  
363 recreation or visual resources (see Section 5.2.11.2.1), nor would it affect air or water quality or  
364 increase noise levels in popular regional recreation resources such as BWCAW (see Section  
365 5.2.12). Consequently, -and there is also insufficient evidence to suggest that the presence of the  
366 NorthMet Project Proposed Action would affect the tourism industry as a whole.

367 As discussed in 5.2.10.2.1, the NorthMet Project Proposed Action would retain a small  
368 workforce, generating a corresponding small number of indirect and induced jobs, to perform  
369 post-mining activities such as demolition and reclamation as well as to maintain a very small  
370 post-closure staff. Using the IMPLAN model’s construction-phase employment multipliers  
371 (BBER 2012) a 50-person closure staff (direct employment) could equate to as many as 30  
372 indirect and induced jobs (a decline, compared to the 1,000 operations-phase jobs generated by  
373 the NorthMet Project Proposed Action). Because no minerals or other commodities would be  
374 extracted, the value added from the closure phase would be limited to employee salaries, rents,  
375 and other contributions.

376 **Closure**

377 Overall, the employment, output, and value added from the closure phase would be small  
378 compared to the study area's overall economy. More important, at mine closure, workers who  
379 held operations-phase direct, indirect, and induced jobs would be expected to secure alternative  
380 local employment, retire, or relocate out of area. There would likely be a spike in unemployment  
381 and a resulting decline in income during the transition between the operations and closure  
382 phases. The 991 operations-phase jobs (including direct, indirect, and induced jobs) collectively  
383 account for less than one percent of the overall study area workforce (111,090 individuals—see  
384 Table 4.2.10-9). Any increase in study area unemployment during and after closure—resulting  
385 from individuals who remain in the study area workforce but who cannot find jobs—would be  
386 minimal. As former employees move, find new work in the area, or retire, unemployment and  
387 income will normalize to levels predicted for the NorthMet Project No Action Alternative  
388 (holding all other economic variables constant).

389 **5.2.10.2.3 Public Finance**

390 The IMPLAN model estimates the value of several federal and state taxes, including personal  
391 income taxes (i.e., taxes paid by employees on their salaries), indirect business taxes, and other  
392 taxes paid as a result of the NorthMet Project Proposed Action for the duration of the project  
393 (BBER 2012). PolyMet provided the tax estimates for taxes that will be paid directly by the  
394 company (PolyMet 2012m). The remainder of this section discusses those tax estimates.

395 **Construction**

396 Construction of the NorthMet Project Proposed Action would generate approximately \$51  
397 million in federal tax revenue, and \$24 million in state tax revenue (combined, both construction  
398 phases) (BBER 2012). A portion of these tax contributions would be returned to the study area  
399 through various federal programs (e.g., grants to school systems and state governments) and  
400 through distributions from the state's general fund. However, such effects on local public  
401 finances are indirect and difficult to quantify. Other construction-phase revenues could include  
402 sales and use tax on some materials used for NorthMet Project Proposed Action construction,  
403 although most such materials and supplies are exempt from the tax (MDR 2011).

404 **Operations**

405 The majority of economic benefits to the local community through taxes would be realized  
406 during the operations period. IMPLAN modeling estimates that, during a typical year of  
407 operation, the federal government would receive approximately \$30 million, and the state and  
408 local governments would receive approximately \$39 million in taxes from the operation of the  
409 NorthMet Project Proposed Action.

410 PolyMet estimates that, if the NorthMet Project Proposed Action was currently in operation, its  
411 direct federal and state tax payments would be—would have ranged from approximately \$37 to  
412 \$80 million per year over-~~aduring the previous~~ five-year period (PolyMet 2012m, personal  
413 communication, March 29, 2012.) —This equates to approximately \$8 to \$16 million per year.  
414 Table 5.2.10-3 details how these direct tax payments would be divided among different state and  
415 federal taxes (as described in Section 4.2.10.1.3), if the NorthMet Project Proposed Action would  
416 have been in full operation in 2011. A substantial portion of state taxes would be returned to  
417 study area school systems, local governments, and local general funds.

418 **Table 5.2.10-3 Estimated Annual NorthMet Project Proposed Action Taxes Paid, 2011**  
 419 **Dollars (millions)**

	<b>Minnesota Taxes<sup>1</sup></b>	<b>Federal Taxes<sup>1</sup></b>
Net Proceeds Tax	\$ <del>1.185.9</del>	NA
Occupation Tax	\$ <del>1.427.1</del>	NA
Sales and Use Tax	\$ <del>0.482.4</del>	NA
Withholding Tax on Royalty Payments <sup>2</sup>	Undetermined	Undetermined
Ad Valorem Tax	\$ <del>0.040.2</del>	NA
<b>Total</b>	<b>\$<del>3.1215.6</del></b>	<b>\$<del>12.864</del></b>

420 Source: PolyMet, ~~pers. comm., March 29, 2012.~~ 2012m.

421 <sup>1</sup> Assumes full operation ~~in~~ at 2011 metal prices.

422 <sup>2</sup> Royalty payments will be subject to a 6.25% withholding tax. The value of this tax cannot be calculated or estimated at this  
 423 time.

424 The magnitude of tax contributions is strongly linked to commodity prices. A significant drop in  
 425 commodity prices would likely result in a significant reduction in tax revenue generated by the  
 426 NorthMet Project Proposed Action. Even under such circumstances, operation of the NorthMet  
 427 Project Proposed Action would benefit the local economy.

428 **Reclamation and Closure**

429 Closure activities would last approximately 20 years after cessation of operations. The first seven  
 430 years of this period would be the most active, and would include reclamation, demolition, and  
 431 restoration of the site. Years 7 to 20 of closure would include low-intensity monitoring,  
 432 maintenance, and water treatment activities, followed by covering of the Tailings Basin at the  
 433 end of this period. Low-intensity post-closure activities (such as long-term monitoring and  
 434 maintenance) would extend indefinitely beyond Year 20 of closure.

435 During closure and post-closure, the NorthMet Project Proposed Action would generate a small  
 436 amount of tax revenue from the above activities, primarily from income taxes and business taxes.  
 437 Other revenue sources, such as net proceeds taxes, and local ad valorem taxes would no longer  
 438 apply. By the end of the closure phase, contributions to public finances would return to levels  
 439 that would be expected for the NorthMet Project No Action Alternative. Relative to existing  
 440 conditions, closure of the NorthMet Project Proposed Action would generate a negligible benefit  
 441 for public finances in the study area.

442 **5.2.10.2.4 Housing**

443 Housing effects are tied to both employment and earnings; increases in both of these factors can  
 444 cause increased demand for housing. There are more than 24,000 vacant housing units in the  
 445 study area, of which approximately 7,000 are “permanent” (not seasonal) vacant units (see Table  
 446 4.2.10-14). Of that total, approximately 4,000 non-seasonal vacant units are located in the  
 447 individual study area communities listed in Section 4.2.10 (the remainder are scattered  
 448 throughout St. Louis, Lake, and Cook counties). All of these communities are within a  
 449 reasonable commuting distance of the NorthMet Project area (Powers 2007).

450 **Construction**

451 As described in Section 5.2.10.2.1, 75 percent of the construction-phase employees are expected  
452 to commute to their jobs from existing residences in or near the study area. Relatively few  
453 construction-phase employees (approximately 100) are expected to permanently relocate to the  
454 study area, due to the short-term and transient nature of mine construction. Given the existing  
455 vacant housing stock (and including seasonal units, which could be converted to permanent units  
456 at the owners' discretion), this added demand in permanent housing in the study area would be  
457 largely imperceptible.

458 Approximately 25 to 50 employees may choose to procure temporary housing. This could consist  
459 of short-term rentals of available housing units (seasonal or otherwise), and use of mobile home  
460 parks or hotels/motels. Lodging and mobile home facilities close to the NorthMet Project area,  
461 such as those in Aurora, Hoyt Lakes and Babbitt, could be more heavily occupied throughout  
462 both phases of the construction period, affecting both availability and pricing for the region's  
463 tourist demand. However, there are approximately 5,400 hotel rooms and more than 1,400  
464 mobile home berths (as well as park facilities that permit mobile homes) in the study area  
465 (Northland Connection 2012). Construction-phase demand for these accommodations would not  
466 substantially limit availability.

#### 467 **Operations**

468 Demand for permanent housing is likely to increase during the operations phase. As discussed in  
469 Section 5.2.10.2.1, approximately 175 workers would choose to relocate to the study area. The  
470 actual number of housing units required to accommodate this demand may be lower (less than  
471 380), due to the presence of two-worker in-migrating households (e.g., the spouse of a direct  
472 employee may obtain an indirect or induced job). Even if there are no multiple-worker in-  
473 migrating households (an unlikely scenario), the study area has approximately 7,000 vacant non-  
474 seasonal housing units. Thus, the study area has adequate housing to accommodate the influx of  
475 workers associated with the NorthMet Project Proposed Action.

476 Individual communities close to the NorthMet Project area may experience more competition for  
477 available housing units. While it is unlikely that any single community would achieve 100  
478 percent non-seasonal occupancy, such competition could drive up housing prices and could also  
479 encourage the renovation of existing housing units and/or construction of new housing units  
480 (either on vacant land or as replacements of older housing units). Given the small number of new  
481 residents, such effects would be minor.

482 As with other economic effects of the NorthMet Project Proposed Action, effects on housing are  
483 tied to market fluctuations and workforce productivity. Major changes in levels of production  
484 (caused by major changes in commodity prices) could cause effects on housing demand and  
485 value. However, the total estimated new housing demand associated with the NorthMet Project  
486 Proposed Action is relatively small compared to the region's existing housing supply. Even a  
487 market "bust" (a drop in commodity prices so severe that it causes shutdown of the NorthMet  
488 Project Proposed Action) should not dramatically alter the housing market in any single  
489 community, let alone the study area as a whole.

490 There are concerns that the presence of the NorthMet Project Proposed Action could reduce  
491 housing demand (and thus housing value) in the study area, because of the conflict between the  
492 NorthMet Project Proposed Action's heavy industrial character and the high-quality natural  
493 environment that supports the region's tourism economy and thus the housing market. As

494 described in Section 5.2.11, the NorthMet Project Proposed Action's effects on recreation and  
495 visual resources would be very limited.

496 Given the coexistence of mining and tourism in the Arrowhead region, the NorthMet Project  
497 Proposed Action's effects on the study area's housing values would be minimal. The most likely  
498 result of the operation of the NorthMet Project Proposed Action is a minor increase in housing  
499 demand and prices in study area communities, with moderate effects in individual communities  
500 closest to the NorthMet Project area. Increased housing prices may or may not be a negative  
501 effect; average housing values in the communities closest to the NorthMet Project area are  
502 relatively low compared to other study area communities. Minor to moderate increases in  
503 housing value would likely be seen as a benefit by homeowners, and the opportunity to add  
504 newer housing stock (either through rehabilitation of existing units or the construction of new  
505 units) to the study area would generally improve property values, thus improving local property  
506 tax revenues in those communities.

### 507 **Reclamation and Closure**

508 During and following reclamation and closure of the NorthMet Project Proposed Action, it is  
509 likely that the demand for housing would drop as workers migrate from the area. Housing  
510 characteristics (vacancy rates and values) would likely revert to levels that would be expected for  
511 the NorthMet Project No Action Alternative. However, increases in housing demand spurred by  
512 the strength of the tourism industry and the increasing popularity of the study area for retirement  
513 could obscure any such declines.

### 514 **5.2.10.2.5 Public Services and Facilities**

515 The NorthMet Project Proposed Action would affect public services and facilities in the study  
516 area both directly and indirectly. Direct effects would include services provided to the NorthMet  
517 Project Proposed Action itself, and would largely be limited to demand for emergency response  
518 in the case of an accident. Indirect effects would include increased demand for public services  
519 such as potable water, sewer, emergency services, and schools in communities where direct,  
520 indirect, and induced employees and their families live.

521 Most public water and sewer infrastructure in the study area was designed to accommodate  
522 larger populations than currently exist; therefore, the NorthMet Project Proposed Action will  
523 generally have no effect on these services (see Table 4.2.10-15). As Section 4.2.10.1.5 shows,  
524 emergency and medical services are equipped to handle existing demand, and most have mutual  
525 aid agreements in place with nearby cities to cooperatively respond to major emergencies.

526 The public schools in the study area were constructed to accommodate larger populations than  
527 currently exist in the study area (e.g., the larger populations that were associated with the iron  
528 and taconite mining industry in the 1960s and 1970s). Collectively, public schools in the study  
529 area have capacity for nearly 22,000 students, with existing enrollment of nearly 16,000 students.  
530 Thus, these schools are able to support new students without building new facilities. To address  
531 concerns about maintenance of older buildings, several school facilities in the region have  
532 already established renovation programs, and some schools in Duluth plan to downsize (see  
533 Section 4.2.10.1.5). These plans predate the NorthMet Project Proposed Action, and would not  
534 be accelerated or changed by new population associated with any phase of the NorthMet Project  
535 Proposed Action.

536 The five technical and community colleges and two four-year colleges located throughout the  
537 study area provide a variety of degree programs. These schools would continue to provide  
538 educational opportunities to new and existing study area residents seeking further education,  
539 including high school graduates and existing employees seeking to enhance their job skills.  
540 Several community colleges and universities in the study area offer, or are developing,  
541 educational curriculum related to jobs in the mining industry.

#### 542 **Construction**

543 Direct demands from construction of the NorthMet Project Proposed Action will primarily fall  
544 on local emergency service providers who would respond to any emergencies at the NorthMet  
545 Project Proposed Action site.

546 A small number of construction-phase employees and their families (approximately 225 total  
547 new residents, as described in Section 5.2.10.2.1) are expected to permanently relocate to the  
548 study area, while another 150 employees would stay in the study area for moderate periods of  
549 time (from several weeks to several months), in hotels or mobile homes. All of these employees  
550 would generate indirect demand for drinking water, wastewater capacity, and emergency  
551 services; the relocated residents would also generate demand for space in public schools.

552 Public schools in the study area generally have sufficient capacity to accommodate new students.  
553 As described in Section 4.2.10.1.5, several school facilities in the region are in need of  
554 renovation. This need predates the NorthMet Project Proposed Action, and would not be  
555 exacerbated by the relatively small number of new students added by NorthMet Project Proposed  
556 Action construction.

#### 557 **Operations**

558 Direct demands from operation of the NorthMet Project Proposed Action will primarily fall on  
559 local emergency service providers who would respond to any emergencies within the NorthMet  
560 Project area. Approximately 400 operation-phase employees and family members are expected to  
561 relocate to the study area (see Section 5.2.10.2.1). All of these employees and their families  
562 would generate demand for drinking water, wastewater capacity, emergency services, and school  
563 capacity.

564 Additional police, fire, and ambulance staff may be required to service increased populations in  
565 study area cities, particularly in smaller cities. However, these expansions are likely to consist of  
566 one to two employees per service (e.g., one new police officer, two new firefighters), per city, as  
567 well as upgrades of existing equipment, rather than wholesale expansions of police and fire  
568 departments. Increased tax revenues from the NorthMet Project Proposed Action would be  
569 expected to cover the costs of these expansions.

#### 570 **Reclamation and Closure**

571 During reclamation and closure of the NorthMet Project Proposed Action, direct and indirect  
572 demands for public service would decrease to baseline levels ([those present at the start of the](#)  
573 [NorthMet Proposed Action](#)) due to the anticipated decrease in population and activity at the  
574 Mine Site and Plant Site. Any [cap](#) upgrades to public services and facilities constructed to  
575 accommodate operations-phase demands, such as newer police and fire vehicles, would be  
576 available to the remaining residents of the study area during closure and post-closure activities.

577 **5.2.10.2.6 Environmental Justice and Subsistence**

578 Evaluation of EJ effects—the degree to which the potential effects of the NorthMet Project  
579 Proposed Action or any alternative are felt disproportionately across a community, considering  
580 ethnicity, age, ~~gender, and income and other demographic characteristics~~—follow criteria set  
581 forth in the following federal EOs:

- 582 • EO 12898, (*Federal Actions to Address Environmental Justice in Minority Populations and*  
583 *Low-Income Populations*, 1994), directs federal agencies to incorporate EJ into their mission  
584 and activities. Federal agencies are to accomplish this by conducting programs, policies, and  
585 activities that substantially affect human health or the environment in a manner that does not  
586 exclude communities from participation in, deny communities the benefits of, or subject  
587 communities to discrimination under such actions, because of their race, color, or national  
588 origin.
- 589 • EO 13045, (*Protection of Children from Environmental Health Risks and Safety Risks*,  
590 1997), requires each federal agency give high priority to the identification and assessment  
591 of environmental health and safety risks to children.

592 In particular, this EJ analysis focuses on the degree to which the NorthMet Project Proposed  
593 Action could disproportionately affect the populations described above and includes residents of  
594 the study area, as well as Band members who use the study area for subsistence, regardless of  
595 where they live.

596 Minority (non-white) populations comprise less than 5 percent of the study area, and less than 5  
597 percent of the individual communities listed in Table 4.2.10-3 (except for the three reservations).  
598 By comparison, the minority population of Minnesota was approximately 15 percent. The  
599 following groups in the study area meet the criteria described above:

- 600 • Approximately 13.5 percent of the study area population is below the federal poverty level,  
601 compared to 10 percent for the state.
- 602 • Native Americans comprise 2.3 percent of the study area, compared to 1.1 percent of the  
603 state population.
- 604 • Children (individuals under 18 years of age) comprise nearly 29 percent of the study area  
605 population, compared to 24 percent for the state.

606 Native American tribes exercise usufructuary rights to hunt, fish, and gather plants within the  
607 1854 Ceded Territory, which includes the study area. This section discusses the degree to which  
608 the NorthMet Project Proposed Action would disproportionately affect these subsistence  
609 practices, with the understanding that these practices have both socioeconomic and cultural value  
610 for the Native American tribes. Section 5.2.9 discusses the cultural aspects of subsistence in  
611 greater detail.

612 **Construction**

613 As described in Section 5.2.10.2.2, the economic effects of construction of the NorthMet Project  
614 Proposed Action would be largely positive. Construction would provide new jobs, substantial  
615 new earnings, and indirect contributions to public finances. Potential negative socioeconomic  
616 effects of construction of the NorthMet Project Proposed Action include increased demand for  
617 short-term housing (hotels and mobile home facilities)—although this is a benefit for the owners



618 of those facilities—and increased demand for public services (especially emergency services).  
619 These negative effects are generally minor ~~in severity~~.

620 Increased public service demands would not disproportionately affect EJ populations. Increased  
621 prices would negatively affect the study area's poorest residents who did not receive a  
622 commensurate direct or indirect economic benefit from the NorthMet Project Proposed Action.  
623 Approximately 150 workers are expected to relocate to or occupy short-term housing in the study  
624 area during construction. This number of new and temporary residents, and therefore demand for  
625 public services, is small compared to available vacant housing, although poor residents closer to  
626 the NorthMet Project area may experience higher prices and demand than in the study area as a  
627 whole.

628 The NorthMet Project area is within the 1854 Ceded Territory. Section 4.2.10.1.6, and Table  
629 4.2.9-X in Section 4.2.9 –summarizes available information about subsistence patterns and  
630 resources within the 1854 Ceded Territory. Construction of the NorthMet Proposed Action  
631 would make the Mine Site unavailable for subsistence use. ; however, there is no information  
632 available regarding recent or historic subsistence activity at the Mine Site, Transportation and  
633 Utility Corridor, or Plant Site. In addition, as described in Section 5.2.11, the NorthMet Project  
634 area is surrounded by private land, and thus cannot be easily accessed. Thus, there is minimal  
635 opportunity for the Bands to exercise usufructuary rights (hunting, fishing, and gathering) on this  
636 property.

637 The degree to which construction of the NorthMet Project Proposed Action would affect  
638 individual subsistence resources (i.e., fish, game, and plant species) outside of the Mine Site,  
639 Transportation and Utility Corridor, and Plant Site is discussed in Section 5.2.9 (Cultural  
640 Resources). ~~Construction of the NorthMet Project Proposed Action would not reduce overall~~  
641 ~~availability of fish, game, or plant species that are typically part of subsistence activities in the~~  
642 ~~1854 Ceded Territory.~~

### 643 Operations

644 As described in Section 5.2.10.2.2, the economic effects of operation of the NorthMet Project  
645 Proposed Action would be largely positive. Operations would provide new jobs, substantial new  
646 earnings, and substantial direct and indirect contributions to public finances. In addition, the  
647 Bands operate four casinos in or near the study area (the Fond-du-Luth Casino in Duluth,  
648 operated by the Fond du Lac Band; the Black Bear Casino in Carlton, operated by the Fond du  
649 Lac Band; the Fortune Bay Resort Casino in Tower, operated by the Bois Forte Band; and the  
650 Grand Portage Lodge and Casino in Grand Portage, operated by the Grand Portage Band). While  
651 the Black Bear Casino is outside of the study area, it is nonetheless close enough to study area  
652 communities to potentially benefit from increased visitation and spending. Increased  
653 employment and income associated with the NorthMet Project Proposed Action could increase  
654 visitation and revenues at these facilities.

655 Potential negative socioeconomic effects of operation of the NorthMet Project Proposed Action  
656 include increased demand for housing (which could negatively affect the study area's poorest  
657 residents who did not receive a direct or indirect commensurate economic benefit from the  
658 NorthMet Project Proposed Action) and increased demand for public services and facilities.

659 Increased public service demands would not disproportionately affect minority and low income  
660 populations. The influx of direct, indirect, and induced NorthMet Project Proposed Action

661 employees could cause demand for as many as 175 housing units across the study area. While  
662 this number is small compared to available vacant housing in the study area, some marginal  
663 increase in housing demand and cost, as well as demand for public services, is possible,  
664 particularly in communities closer to the NorthMet Project area. Increased housing competition  
665 would likely affect the study area's poorest residents, particularly renters (whose housing costs  
666 are more volatile), and particularly those living closer to the NorthMet Project area.

667 ~~As described in the construction phase discussion, there is no evidence of subsistence activity~~  
668 ~~within the federal lands, and the federal lands are not readily accessible.~~ Operation of the  
669 NorthMet Project Proposed Action would ~~not reduce overall~~ make the Mine Site unavailable  
670 availability of game or plant species that are typically part of for subsistence use activities; in the  
671 1854 Ceded Territory, although noise and other consequences of operations could affect  
672 migration or other animal species behavior in the vicinity of the Mine Site and Plant Site—see  
673 Section 5.2.5 (Wildlife).

674 Operations could affect individuals who consume fish consumption harvested from nearby  
675 waterbodies; For the NorthMet Project Proposed Action, mercury bioaccumulation in fish, with  
676 and subsequent consumption by subsistence fishers consuming locally caught fish, has been  
677 raised by the Band representative(s) for consideration in the EIS. In particular, air deposition of  
678 mercury from ~~†~~The NorthMet Project Proposed Action could increase mercury concentrations in  
679 nearby water-bodies by at most 0.3–2 to 1.8 percent over current levels (~~Barr 2012b~~ see Sections  
680 5.2.2 and 6.2.3.7.4—Adverse Effects from Mercury Deposition). As described in Section  
681 4.2.10.1.6, subsistence fishing and consumption is a common activity for Native American bands  
682 in the 1854 Ceded Territory. Members of the Grand Portage and Fond du Lac Bands are known  
683 to consume substantially more fish than the assumed statewide average. As a result, This  
684 increased mercury deposition, and associated ~~—could lead to~~ increases in mercury  
685 bioaccumulation of mercury in fish, including species associated with subsistence could  
686 therefore constitute an EJ impact for Band members and other subsistence consumers of fish. For  
687 the NorthMet Project Proposed Action, mercury bioaccumulation in fish, with subsequent  
688 subsistence fishers consuming locally caught fish, has been raised by the Band representative(s)  
689 for consideration in the EIS.

### 690 **Reclamation and Closure**

691 During reclamation and closure, socioeconomic characteristics of the study area would revert to  
692 conditions that would be expected for the NorthMet Project No Action Alternative. Employment,  
693 earnings, and contributions to public finances generated by the NorthMet Project Proposed  
694 Action would end (potentially with a phase-out period); housing demand and prices would ease  
695 as would demands for public services and facilities. Poorer residents of the study area would  
696 have more difficulty coping with this transition if they hold lower-paying, less secure “induced”  
697 jobs (as opposed to direct or indirect jobs), as they may have more difficulty moving out of the  
698 study area to secure new jobs (particularly if housing values drop). However, given the relatively  
699 small number of jobs generated by the NorthMet Project Proposed Action (compared to the total  
700 number of jobs held by study area residents), these difficulties would not be substantially higher  
701 than existing conditions.

702 As during other phases, the NorthMet Project area would remain closed to the public—and thus  
703 unavailable for subsistence use—during and following the closure phase, thus preventing  
704 subsistence activities. ~~Since there is no evidence that such activities take place today, closure~~

705 | ~~would represent no change from the current situation.~~ Air dD deposition of mercury from the  
706 | NorthMet Project Proposed Action would cease at closure, but mercury bioaccumulation and  
707 | resultant fish consumption limits would likely persist beyond the mine's operational life.

708 |

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709 **5.2.10.3 NorthMet Project No Action Alternative**

710 Under the NorthMet Project No Action Alternative, the NorthMet Project Proposed Action  
711 would not be developed. There would be no NorthMet Project Proposed Action-related change to  
712 the study area. Externally existing demographic trends such as population growth or decline, and  
713 shifts in employment patterns would continue. The study area would not accrue the economic  
714 benefits of the NorthMet Project Proposed Action, nor would it experience any of the negative  
715 effects identified in this SDEIS. As described in Section 5.2.10.2, the presence of the NorthMet  
716 Project Proposed Action would not ~~necessarily~~ hamper growth of the Arrowhead region's  
717 tourism industry; the NorthMet Project No Action Alternative would not ~~necessarily~~ hasten this  
718 growth, either. Overall, the NorthMet Project No Action Alternative would have no effect on  
719 socioeconomics in the study area.

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