

**REPEAL OF THE ALASKA ROADLESS RULE  
REGULATORY IMPACT ASSESSMENT  
AND  
COST-BENEFIT ANALYSIS**

## **SUMMARY**

The United States Department of Agriculture (USDA) is proposing to repeal the Alaska Roadless Rule (part 294 of Title 36 of the Code of Federal Regulations subpart E) (Subpart E) that exempted the Tongass National Forest from the 2001 Roadless Area Conservation Rule. The 2001 Roadless Rule prohibited timber harvest and road construction or reconstruction within inventoried roadless areas. Repealing the Subpart E exemption would reinstate application of the 2001 Roadless Rule to the Tongass National Forest (as provided for in the U.S. District Court for the District of Alaska's Judgment in *Organized Village of Kake v. USDA*, 1:09-cv-00023 JWS (D. Alaska filed May 24, 2011)).

In January 2018, the State of Alaska submitted a petition requesting that the Secretary of Agriculture consider exempting the Tongass National Forest from the 2001 Roadless Rule, in accordance with the Administrative Procedure Act (APA), section 553(e) and USDA's rulemaking procedures in 7 Code of Federal Regulations (CFR) 1.28. In June 2018, the Secretary of Agriculture directed the Forest Service to begin working to develop an Alaska state-specific roadless rule under the APA. The Secretary of Agriculture has broad authority to protect and administer the National Forest System (NFS) through regulation as provided by the Organic Administration Act of 1897 (the Organic Act), the Multiple-Use Sustained Yield Act of 1960, and the National Forest Management Act of 1976. These statutes provide the Secretary with discretion to determine the proper uses within any area, including the appropriate resource emphasis and mix of uses. Since the 2001 Roadless Area Conservation Rule was promulgated it has been the subject of uncertainty, due to litigation, on the Tongass National Forest. In August 2018, the Forest Service granted cooperating agency status to the State of Alaska. Originally, six Alaska Native Tribes became cooperating agencies. However, one Alaska Native Tribe withdrew as a cooperating agency after the publication of the proposed rule. Additionally, prior to promulgation of the final rule, the remaining five Alaska Native Tribes withdrew as cooperating agencies in protest of the final rule.

On August 30, 2018, the Forest Service published a Notice of Intent (NOI) to prepare an environmental impact statement and initiate a public rulemaking process to address the management of inventoried roadless areas on the Tongass National Forest (83 Federal Register [FR] 44252). As stated in that NOI, USDA proposed to develop a durable and long-lasting regulation for the conservation and management of roadless areas on the Tongass National Forest. On October 29, 2020 (85 FR 68688) the Alaska Roadless Rule became effective and discontinued the 2001 Roadless Rule regulation's prohibitions on timber harvest and road construction or reconstruction within inventoried roadless areas. With the 2020 Alaska Roadless rule in effect, existing statutory and management plan direction manage roadless area characteristics for the Tongass National Forest.

On January 20, 2021, President Biden ordered all executive departments and agencies to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations during the previous 4 years that may conflict with protecting the environment and to immediately commence work to confront the climate crisis (Executive Order 13990). In addition, on January 26, 2021, President Biden issued a Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships that directs executive departments and Federal agencies to make the following cornerstones of Federal Indian policy<sup>1</sup>: respect for Tribal sovereignty and self-governance, commitment to fulfilling Federal trust and treaty responsibilities to Tribal Nations, and engaging in regular, meaningful, and robust consultation with Tribal Nations.

On July 21, 2020, then Secretary of Agriculture Sonny Perdue received a petition from nine Southeast Alaska Tribal governments, requesting the United States government commence a new rulemaking in collaboration with Tribal signatories to create a Traditional Homelands Conservation Rule to identify and protect traditional and customary uses of the Tlingit, Haida, and Tsimshian peoples in the Tongass National Forest. Since the initial submission of the Traditional Homelands petition, three additional tribes joined as signatories. This petition also requested USDA create a new process for engaging in consultation with Tribes based on the principle of “mutual concurrence.” The petition states that it was submitted in response to the Tribes’ experience in the Alaska Roadless Rulemaking process and their belief that their contributions were not adequately considered. The Department and the Forest Service have initiated a consultation process with Tribes on the proposed repeal of the 2020 Alaska Roadless Rule. On May 24, 2021, Secretary Vilsack acknowledged the petition, expressing a commitment to engaging and learning more and inviting formal consultation with Tribal governments. In July 2021, the Department and the Forest Service held a consultation with 10 Tribes in Juneau, Alaska. Topics included the petition, the Alaska Roadless Rule and the Southeast Alaska Sustainability Strategy. The Tribes represented at this consultation expressed their desire to return to the 2001 Roadless Rule as quickly and expeditiously as administratively possible. USDA committed to continuing meaningful consultation throughout the rulemaking. A second consultation session took place on August 16, 2021, during which the Tribes represented continued to express their interest in seeing action from the Administration to quickly reinstate the 2001 Roadless Rule protections on the Tongass National Forest. The Department and the Forest Service will continue to consult with Tribal Governments and will consult with Alaska Native Corporations on this proposed rule.

Consistent with this Presidential Direction, the Department proposes to repeal the roadless area rule for the Tongass National Forest, or 2020 Alaska Roadless Rule, (part 294 of Title 36 of the Code of Federal Regulations Subpart E) (Subpart E), which would return the Tongass National Forest to management under the provisions of the 2001 Roadless Rule, as reinstated by the U.S. District Court of Alaska.

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<sup>1</sup> <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/>

The rationale for the rule proposed today is based on an evaluation of the importance of roadless area conservation for a combination of cultural, social, ecologic and economic values. The decision rationale for applying the roadless rule to the Tongass National Forest in 2001 as described in the response to comments on the final rule on January 12, 2001 which stated “the agency has considered the alternatives of exempting and not exempting the Tongass National Forest, as well as deferring a decision per the proposed rule. Social and economic considerations were key factors in analyzing those alternatives, along with the unique and sensitive ecological character of the Tongass National Forest, the abundance of roadless areas where road construction and reconstruction are limited, and the high degree of ecological health.” Then, and again now, in proposing this action, the agency considered the extraordinary ecological values of the Tongass National Forest and the cultural, social and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this proposed management approach best reflects those multiple values. From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass National Forest would help conserve natural resources by restoring roadless management on 9.34 million acres which protects 188,000 acres of forest from potential roadbuilding, and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass National Forest represent the world’s largest remaining, intact, old growth temperate rainforest, which supports biodiversity and sequesters carbon. The proposed rule would reflect the Administration’s priority on protecting those values while continuing to build on the region’s primary private sector economic drivers of tourism and fishing without significant adverse impacts to the timber and mining industries.

Restoring the 2001 Roadless Rule protections also reflects the Administration’s priorities to build on the region’s primary private-sector economic drivers of tourism and fishing, and is consistent with the Department’s *Southeast Alaska Sustainability Strategy* (more about the strategy is available at <https://go.usa.gov/xMNzF>), announced on July 15, 2021, to serve the broader economy of Southeast Alaska, support community resiliency, and conserve the social, cultural, and ecologic values supported by the Tongass National Forest. Roadless areas on the Tongass National Forest include watersheds and areas important for fishing, hunting, outdoor recreation and tourism, which support revenue and jobs in Southeast Alaska as well as local community well-being.

As outlined below, restoring the 2001 Roadless Rule protections also responds to the January 26, 2021, Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships ([www.govinfo.gov/app/details/DCPD-202100091](http://www.govinfo.gov/app/details/DCPD-202100091)). The proposed rule is directly responsive to unanimous input from Tribal Nations during government-to-government consultation sessions conducted in 2021. Roadless areas on the Tongass National Forest are of immense cultural significance for Alaska Native peoples. Restoring application of the 2001 Roadless Rule to the Tongass National Forest would reflect the Administration’s commitment to strengthening nation-to-nation relationships, and incorporating indigenous knowledge, stewardship and priorities into land management decision-making.

The Administration acknowledges the continued importance of forest products from the Tongass National Forest. A number of small businesses rely on timber for local community consumption, and wood from the forest also supports cultural uses such as totem poles, canoes and tribal

artisan use. Timber harvest and forest products from the Tongass National Forest would continue to be provided with the proposed rule's prohibitions in place.

In addition, the Tongass National Forest has processed 40 mineral, energy and recreation requests in inventoried roadless areas since the roadless rule was established in 2001, while it has been in effect on the Tongass National Forest. This further demonstrates that the 2001 Roadless Rule's exceptions allowing access for existing rights and leases are effective, and that roadless rule prohibitions can coexist with these industries and allow the Forest Service to continue to fulfill its multiple use mission.

USDA has the discretion to determine how to manage inventoried roadless areas. Fundamentally, the choice of how to best conserve and manage inventoried roadless areas is an exercise of USDA's delegated authority for management of the renewable surface resources of the National Forest System in a multiple-use and sustained-yield context. Or as stated in the preamble of the 2020 final rule "roadless area management ... is fundamentally an exercise in discretion and policy judgement concerning the best use of the NFS lands and resources..." (85 FR 68691). No statute compels or prohibits USDA's roadless rules, they are derived from the Secretary's delegated organic statutory authorities. Congress has expressly declared "that some land will be used for less than all resources" and "consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output." (16 U.S.C. § 531 (a.1988)). In addition, courts have similarly found that the Multiple-Use Sustained-Yield Act (MUSYA) grants USDA and the Forest Service "wide discretion to weigh and decide the proper uses within any area" (*Wind-River Multiple Use Advocates v. Espy*, 835 F.Supp. 1362, 1372 (D. Wyo. 1993) (citing *Bighole Ranchers Ass'n v. United States Forest Serv.*, 686 F.Supp. 256, 264 (D. Mont. 1988)). Thus, the Secretary and the Forest Service have wide discretion in managing the lands entrusted it and may use "less than all the resources" in certain areas, for example by prohibiting timber harvest and timber harvesting. Courts have routinely upheld the Forest Service's discretion to weigh and choose the proper mix of uses with the National Forest System. The proposed rule is such an exercise of discretionary policy judgment.

Executive Orders 13563 and 12866 direct agencies to assess costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). These executive orders require that agencies conduct a regulatory analysis for economically significant regulatory actions. Economically significant regulatory actions are those that have an annual effect on the economy of \$100 million or more or adversely affect the economy or economic sectors. This rule has been designated a significant regulatory action and the economic effects are estimated to be less than \$100 million per year. The proposed rule corresponds to the 2001 Roadless Area Conservation Rule in Alternative 1 of the Final Environmental Impact Statement for the Alaska Roadless Rule. The rule does not maximize net present value relative to the other regulatory alternatives as measured in quantitative terms (Alternative 2 is higher) as the rule proposed is an exercise of discretionary policy judgment and includes qualitative considerations similar to the decision rationale for applying the roadless rule to the Tongass National Forest in 2001. Then, and again now, in proposing this action, the agency considered the extraordinary ecological values of the Tongass National Forest and the cultural, social and economic needs of the local forest dependent

communities in Southeast Alaska. USDA believes that this proposed management approach best reflects those multiple values. From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass National Forest would help conserve natural resources by restoring roadless management on 9.34 million acres which protects 188,000 acres of forest from potential roadbuilding, and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass National Forest represent the world's largest remaining, intact, old growth temperate rainforest, which supports biodiversity and sequesters carbon. The proposed rule would reflect the Administration's priority on protecting those values while continuing to build on the region's primary private sector economic drivers of tourism and fishing without significant adverse impacts to the timber and mining industries.

None of the regulatory alternatives propose changes to the projected timber sale quantity or timber demand projections set out in the Tongass Land and Resource Management Plan (USDA Forest Service 2016). The Tongass National Forest, in compliance with the Tongass Timber Reform Act (1990), seeks to provide an annual supply of timber to meet market demand, to the extent consistent with providing for multiple use and sustained use of all renewable forest resources, and other requirements, including the National Forest Management Act of 1976 (NFMA). While projected harvest levels are not expected to be materially different under any of the alternatives under consideration, roadless protection under the alternatives can influence the potential location or likelihood of future timber harvesting. In other words, the alternatives examine different mixes of land areas and timber restrictions that would incrementally increase management flexibility for how the forest plan's timber harvest goals can be better achieved but none of the alternatives alters the plan's underlying goals or projected outcomes. In addition to timber related impacts, this report includes discussions of recreation and tourism, commercial fisheries, mining related industries, and impacts to non-market or non-use benefit categories, including a quantitative public survey to assess willingness to pay for conservation options.

The document below provides detail on quantitative costs and benefits considered (stumpage value, avoided lost revenue to outfitter and guides, avoided loss of value for non-outfitter guide recreation access, old growth conservation benefits and avoided road maintenance) alongside qualitative values considered such as roadless characteristics (Biological Diversity, Habitat, Physical Values, Scenic Quality, Recreation Opportunities, Traditional Cultural Properties and Sacred Sites, and Locally Identified Unique Characteristics). In addition, Table 6 provides detail on qualitative differences amongst the regulatory alternatives. Future cost savings from improved flexibility under the baseline Alaska Roadless Rule and other regulatory alternatives for the agency and timber industry would not accrue under the proposed rule however other benefits would be provided and are displayed in Table 6 and discussed above; including old growth conservation benefits, avoided loss of outfitter and guide revenue, avoided loss of value for recreation access, and less agency road maintenance cost. Upper bound estimates of net-benefits are positive for the proposed rule and regulatory alternatives. Lower agency road maintenance cost and avoided lost revenue to the recreation industry are based on projected road miles and timber suitability, respectively and vary across the regulatory alternatives. In addition, old growth conservation value is based on changes in suitable old-growth available for harvest. Negative net benefits are possible if lower bound estimates of these benefits correspond with

high the larger levels of stumpage value loss; however, the upper and lower estimates of stumpage revenues, agency benefits, old growth conservation value and avoided lost recreation revenue are uncertain outcomes provided for a broad orders-of-magnitude comparison of costs and benefits. This quantified benefit cost analysis does not include many of the qualitative values discussed below. While the proposed rule does not maximize net present value, the administration made a discretionary policy judgment that included qualitative considerations similar to the decision rationale for applying the roadless rule to the Tongass National Forest in 2001. Then, and again now, in proposing this action, the agency considered the extraordinary ecological values of the Tongass National Forest and the cultural, social and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this proposed management approach best reflects those multiple values. From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass National Forest would help conserve natural resources by restoring roadless management on 9.34 million acres which protects 188,000 acres of forest from potential roadbuilding, and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass National Forest represent the world's largest remaining, intact, old growth temperate rainforest, which supports biodiversity and sequesters carbon. The proposed rule would reflect the Administration's priority on protecting those values while continuing to build on the region's primary private sector economic drivers of tourism and fishing without significant adverse impacts to the timber and mining industries.

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## INTRODUCTION

The Roadless Area Conservation Rule (2001 Roadless Rule) was adopted into regulations at Title 36 of the CFR Part 294 (36 CFR 294), Subpart B (66 FR 3244) in January 2001. About 9.4 million acres (56 percent) of the Tongass National Forest were managed as “inventoried roadless areas” (IRAs) prior to the 2020 regulatory exemption. IRAs contain generally undeveloped areas that are typically 5,000 acres or greater in size. The 2001 Roadless Rule applies nationwide (except Idaho, Colorado, and on the Tongass National Forest within Alaska), and currently provides management direction for IRAs on 35.3 million acres of National Forests (approximately 19 percent of total National Forest System [NFS] lands) by prohibiting road construction and reconstruction and timber cutting, sale, or removal in those IRAs, with certain exceptions. Currently, there are no designated IRAs within the Tongass National Forest.

Since its promulgation, the 2001 Roadless Rule has been the subject of litigation. In 2001, the State of Alaska filed a complaint challenging USDA’s promulgation of the 2001 Roadless Rule and its application in Alaska. USDA and the State of Alaska reached a settlement in 2003, and USDA subsequently issued a rule temporarily exempting the Tongass National Forest from the 2001 Roadless Rule. In 2011, a federal court (District of Alaska) set aside the Tongass National Forest’s exemption and reinstated the 2001 Roadless Rule on the Tongass National Forest (with special instructions). The Alaska District Court’s ruling was initially reversed by a three-judge panel of the Ninth Circuit, but the District Court’s ruling was ultimately upheld in a 6–5 en banc ruling of the Ninth Circuit in 2015. Consequently, the 2001 Roadless Rule was reinstated on the Tongass National Forest.

In January 2018, the State of Alaska submitted a petition requesting that the Secretary of Agriculture consider exempting the Tongass National Forest from the 2001 Roadless Rule, pursuant to the APA and USDA’s petition procedures in 7 CFR 1.28. In June 2018, the Secretary of Agriculture directed the Forest Service to begin working to develop an Alaska state-specific roadless rule. In August 2018, the Forest Service granted cooperating agency status to the State of Alaska. The Forest Service published a NOI to prepare an environmental impact statement (EIS) and initiate a public rulemaking process to address the management of IRAs on the Tongass National Forest on August 30, 2018 (83 FR 44252). Originally six Alaska Native Tribes became cooperating agencies. However, one Alaska Native Tribe withdrew as cooperating agency after the publication of the proposed rule. Additionally, the remaining five Alaska Native Tribes withdrew as cooperating agencies in protest over the identification of Alternative 6, the full exemption, as the preferred alternative in the Final EIS (FEIS) for the 2020 Alaska Roadless Rule.

On July 21, 2020, then Secretary of Agriculture Sonny Perdue received a petition from nine Southeast Alaska Tribal governments, requesting the United States government commence a new rulemaking in collaboration with Tribal signatories to create a Traditional Homelands Conservation Rule to identify and protect traditional and customary uses of the Tlingit, Haida, and Tsimshian peoples in the Tongass National Forest. Since the initial submission of the Traditional Homelands petition, three additional tribes joined as signatories. This petition also requested USDA create a new process for engaging in consultation with Tribes based on the principle of “mutual concurrence.” The petition states that it was submitted in response to the Tribes’ experience in the Alaska Roadless Rulemaking process and their belief that their contributions were not adequately considered. The Department and the Forest Service have

initiated a consultation process with Tribes on the proposed repeal of the 2020 Alaska Roadless Rule. On May 24, 2021, Secretary Vilsack acknowledged the petition, expressing a commitment to engaging and learning more and inviting formal consultation with Tribal governments. In July 2021, the Department and the Forest Service held a consultation with 10 Tribes in Juneau, Alaska. Topics included the petition, the Alaska Roadless Rule and the Southeast Alaska Sustainability Strategy. The Tribes represented at this consultation expressed their desire to return to the 2001 Roadless Rule as quickly and expeditiously as administratively possible. USDA committed to continuing meaningful consultation throughout the rulemaking. A second consultation session took place on August 16, 2021, during which the Tribes represented continued to express their interest in seeing action from the Administration to quickly reinstate the 2001 Roadless Rule protections on the Tongass National Forest. The Department and the Forest Service will continue to consult with Tribal Governments and will consult with Alaska Native Corporations on this proposed rule.

USDA has the discretion to determine how to manage inventoried roadless areas. Fundamentally, the choice of how to best conserve and manage inventoried roadless areas is an exercise of USDA's delegated authority for management of the renewable surface resources of the National Forest System in a multiple-use and sustained-yield context. Or as stated in the preamble of the 2020 final rule "roadless area management ... is fundamentally an exercise in discretion and policy judgement concerning the best use of the NFS lands and resources..." (85 FR 68691).

No statute compels or prohibits USDA's roadless rules, they are derived from the Secretary's delegated organic statutory authorities. The MUSYA, 16 U.S.C. §§ 528-531, establishes multiple-use as the foundation for management of the National Forest System and defines multiple use extremely broadly, calling for management of the various forest resources "in the combination that will best meet the needs of the American people" (16 U.S.C. § 531(a)). Congress has expressly declared "that some land will be used for less than all resources" and "consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output" (16 U.S.C. § 531(a.1988)).

Courts have similarly found that the MUSYA grants USDA and the Forest Service "wide discretion to weigh and decide the proper uses within any area" (*Wind-River Multiple Use Advocates v. Espy*, 835 F.Supp. 1362, 1372 (D. Wyo. 1993) (citing *Bighole Ranchers Ass'n v. United States Forest Serv.*, 686 F.Supp. 256, 264 (D. Mont. 1988)). Thus, the Secretary and the Chief of the Forest Service have wide discretion in managing the lands entrusted it and may use "less than all the resources" in certain areas, for example by prohibiting timber harvest and timber harvesting. In *Wyoming v. USDA*, 661 F.3d 1209 (10th Cir. 2011), the Tenth Circuit upheld the legality under MUSYA of the timber harvest and road construction prohibitions imposed by the 2001 Roadless Area Conservation Rule.

As with the Organic Act, the provisions of MUSYA give the Forest Service broad discretion to regulate NFS lands for a wide variety of purposes. See *Perkins v. Bergland*, 608 F.2d 803, 806-07 (9th Cir.1979) ("This language [in 16 U.S.C. §§ 528, 529, and 531"] can hardly be considered concrete limits upon agency discretion. Rather, it is language which 'breathe(s) discretion at every pore'" (quoting *Strickland v. Morton*, 519 F.2d 467, 469 (9th Cir.1975)).

Courts have routinely upheld the Forest Service’s discretion to weigh and choose the proper mix of uses with the National Forest System. See, for example, *Seattle Audubon Soc. v. Lyons*, 871 F.Supp. 1291, 1315 (W.D. Wash. 1991), *aff’d*, 80 F.3d 1401 (9th Cir. 1996) (upholding Forest Service’s designation of large reserves within which timber harvest is generally prohibited as “an exercise of the Secretary’s multiple use planning responsibilities”); *Sierra Club v. Hardin*, 325 F.Supp. 99, 123 (D. Alaska 1971) (“Congress has given no indication as to the weight to be assigned each value and it must be assumed that the decision as to the proper mix of uses within any particular area is left to the sound discretion and expertise of the Forest Service.”). The rule proposed today is such an exercise of discretionary policy judgment. In addition, as described by the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020), all of the alternatives analyzed, including Alternative 1 (the no action alternative), satisfied the requirements of the Tongass Timber Reform Act (TTRA). The TTRA does not require USDA to meet market demand, but only to “seek to . . . meet [ ]” such demand, and even that qualified directive is “subject to” applicable law and must be “consistent with” USDA’s authority to provide for the multiple use and sustained yield of renewable forest resources, including recreation, watershed, and wildlife and fish, in addition to timber. The current Tongass Forest Plan (2016 Tongass Forest Plan) provides sufficient timber to meet projected demand as described in the 2016 Forest Plan FEIS and Record of Decision (USDA Forest Service 2016b, 2016) and by a series of annual applications of the Morse methodology. The Morse methodology is implemented, on an annual basis, to estimate current timber supply needed to meet market demand – satisfying the TTRA’s “seek to meet market demand” provision. This is the case under all alternatives evaluated in the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020).

The rationale for the rule proposed today is based on an evaluation of the importance of roadless area conservation for a combination of cultural, social, ecologic and economic values. The decision rationale for applying the roadless rule to the Tongass National Forest in 2001 as described in the response to comments on the final rule on January 12, 2001 which stated “the agency has considered the alternatives of exempting and not exempting the Tongass National Forest, as well as deferring a decision per the proposed rule. Social and economic considerations were key factors in analyzing those alternatives, along with the unique and sensitive ecological character of the Tongass National Forest, the abundance of roadless areas where road construction and reconstruction are limited, and the high degree of ecological health. Then, and again now, in proposing this action, the agency considered the extraordinary ecological values of the Tongass National Forest and the cultural, social and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this proposed management approach best reflects those multiple values. From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass National Forest would help conserve natural resources by restoring roadless management on 9.34 million acres which protects 188,000 acres of forest from potential roadbuilding, and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass National Forest represent the world’s largest remaining, intact, old growth temperate rainforest, which supports biodiversity and sequesters carbon. The proposed rule would reflect the Administration’s priority on protecting those values.

Restoring the 2001 Roadless Rule protections also reflects the Administration’s priorities to build on the region’s primary private-sector economic drivers of tourism and fishing. Roadless areas on the Tongass National Forest include watersheds and areas important for fishing,

hunting, outdoor recreation and tourism, which support revenue and jobs in Southeast Alaska as well as local community well-being. Restoring 2001 Roadless Rule protections to those areas would support those values. This approach is consistent with the Department's *Southeast Alaska Sustainability Strategy* (more about the strategy is available at <https://go.usa.gov/xMNzF>), announced on July 15, 2021, to serve the broader economy of Southeast Alaska, support community resiliency, and conserve the social, cultural, and ecologic values supported by the Tongass National Forest.

As outlined below, restoring the 2001 Roadless Rule protections also responds to the January 26, 2021, Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships ([www.govinfo.gov/app/details/DCPD-202100091](http://www.govinfo.gov/app/details/DCPD-202100091)). The proposed rule is directly responsive to unanimous input from Tribal Nations during government-to-government consultation sessions conducted in 2021. Roadless areas on the Tongass National Forest are of immense cultural significance for Alaska Native peoples. Restoring application of the 2001 Roadless Rule to the Tongass National Forest would reflect the Administration's commitment to strengthening nation-to-nation relationships, and incorporating indigenous knowledge, stewardship and priorities into land management decision-making.

The Administration acknowledges the continued importance of forest products from the Tongass National Forest. A number of businesses rely on timber for local community consumption, and wood from the forest also supports cultural uses such as totem poles, canoes and tribal artisan use. Timber harvest and forest products from the Tongass National Forest would continue to be provided with the proposed rule's prohibitions in place.

In addition, the Tongass National Forest has processed more than 40 mineral and energy requests in inventoried roadless areas since the roadless rule was established in 2001, while it has been in effect on the Tongass National Forest. This further demonstrates that the 2001 Roadless Rule's exceptions allowing access for existing rights and leases are effective, and that roadless rule prohibitions can coexist with these industries and allow the Forest Service to continue to fulfill its multiple use mission.

This report meets the requirements of Executive Order 12866 for a significant rule by assessing the costs and benefits of available regulatory alternatives. Executive Orders 13563 and 12866 direct agencies to assess costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. These executive orders require that agencies conduct a regulatory analysis for economically significant regulatory actions. Economically significant regulatory actions are those that have an annual effect on the economy of \$100 million or more or adversely affect the economy or economic sectors.

The analysis in this report relies on data and information in the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020) and has been adjusted to incorporate the current exemption under the 2020 Alaska Roadless Rule as the baseline. This rule is a repeal of the Alaska Roadless Rule and will have the effect of thereby removing the Tongass National Forest exemption from the 2001 Roadless Rule). As a result, the same data results in analysis that now

reflects losses that were gains in the 2020 rule, and vice versa. The baseline in this Regulatory Impact Analysis is the 2020 Alaska Roadless Rule (i.e. full exemption from the 2001 Roadless Rule), and this is used to quantitatively compare the alternatives in terms of stumpage value decreases, agency road maintenance cost savings, old growth conservation benefits, avoided lost revenue to outfitters and guides, and value of access by recreationists not using outfitter and guides. This analysis utilizes the same FEIS data as the 2020 Alaska Roadless Rule given the identical scope, scale and time period of analysis.

The proposed rule is Alternative 1 in the FEIS for the 2020 Alaska Roadless Rule, and would revert the Tongass back to the 2001 Roadless Rule. Under the proposed rule, all 9.4 million inventoried roadless acres on the Tongass National Forest would be provided regulatory roadless protection (Table 2). This is the maximum number of acres afforded regulatory protections under all alternatives described in the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020) and provides the greatest protection of roadless characteristics and associated benefits (discussed below) amongst the regulatory alternatives. The rule does not maximize net present value relative to the other regulatory alternatives as measured in quantitative terms (Alternative 2 is higher) as the rule proposed is an exercise of discretionary policy judgment and includes qualitative considerations similar to the decision rationale for applying the roadless rule to the Tongass National Forest in 2001. Then, and again now, in proposing this action, the agency considered the extraordinary ecological values of the Tongass National Forest and the cultural, social and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this proposed management approach best reflects those multiple values. From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass National Forest would help conserve natural resources by restoring roadless management on 9.34 million acres which protects 188,000 acres of forest from potential roadbuilding, and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass National Forest represent the world's largest remaining, intact, old growth temperate rainforest, which supports biodiversity and sequesters carbon. The proposed rule would reflect the Administration's priority on protecting those values while continuing to build on the region's primary private sector economic drivers of tourism and fishing without significant adverse impacts to the timber and mining industries.

The 2001 Roadless Rule was designed to avoid conflicts between the rule and forest plans, as well as avoiding unnecessary or duplicative administrative processes for the operation of the 2001 Roadless Rule. As such, the 2001 Roadless Rule expressly directed that it did not compel the amendment or revision of any land and resource management plan. None of the regulatory alternatives propose changes to the projected timber sale quantity or timber demand projections from the Tongass Land and Resource Management Plan. The Tongass National Forest, in compliance with the Tongass Timber Reform Act (1990), seeks to provide an annual supply of timber to meet market demand, to the extent consistent with providing for multiple use and sustained use of all renewable forest resources, and other requirements, including NFMA.

Changes in the availability of suitable timber lands provide general context for economic effects. Suitable timber lands represent those lands on the Forest that are suitable for timber production based on all multiple-use objectives of the Forest (see the Suitable Timberland Assumptions section of the Final Environmental Impact Statement for this rule (USDA Forest Service 2020)).

Suitable acres vary under the regulatory alternatives depending on the level of roadless area protections. The estimated loss of suitable old growth timber (168,000 acres) under the proposed rule (Alternative 1), would not provide unrealized future benefits to the timber industry. However, the proposed rule would not decrease timber related jobs, income or output since the proposed rule does not change the timber sale quantity or timber demand projections from the Tongass Land and Resource Management Plan; while harvest levels have been below demand projections additional future harvest could be met using other available suitable acres under the proposed rule.<sup>2</sup> The Tongass National Forest, in compliance with the Tongass Timber Reform Act (1990), seeks to provide an annual supply of timber to meet market demand, to the extent consistent with providing for multiple use and sustained use of all renewable forest resources, and other requirements, including NFMA. The proposed rule is not anticipated to alter output or employment in local economies associated with recreation and tourism, commercial fisheries and mining-related industries (see the discussion below for more detail) as it would provide the largest level of regulatory protection of roadless characteristics and associated benefits.

Substantial public interest in the proposed rulemaking is anticipated thus this rule has been designated a significant regulatory action and the economic effects are estimated to be less than \$100 million per year. This analysis has examined a wide breadth of potential effects that include an upper estimate of recreation visitation displacement that assumes all recreation visitation is displaced under the highest level of timber suitability designation under the current Alaska Roadless Rule (hereafter referred to as Alternative 6 or ‘the exemption’); and application of forgone conservation value to not just a portion of suitable acres harvested, but all old-growth acres designated as suitable timberlands for harvest.

Recreationists and related industry (including outfitters and guides) could avoid displacement-related losses due to timber harvest under the regulatory alternatives. Protection of roadless characteristics through reinstatement of the 2001 Roadless Rule, under the proposed rule, would avoid displacement-related losses to recreationists and the outfitter and guide industry, estimated to be \$68,000 to \$224,000 annually (Table 1), relative to the baseline estimate under the current Alaska Roadless Rule (Alternative 6).<sup>3</sup> Under the proposed rule to repeal the Alaska Roadless Rule (Alternative 1) all revenue losses would be avoided maintaining historic trends in recreation visitor use and related outfitter and guide revenue. For some recreation uses, additional development for timber harvest and other infrastructure under the regulatory alternatives could

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<sup>2</sup> In addition, jobs from harvest are based on volume removed and not the stumpage value received per application of Forest Service method (Sorenson et al. 2016). While value may decrease temporarily, estimated average decreases per firm are small (ranging from 0.3 to 0.6 percent of average annual receipts, USDA Forest Service 2021) and volume harvested would not necessarily decrease. Under all of the regulatory alternatives projected harvest does not change, because of Forest Plan limitations, but would be spread over a different pool of lands. Since harvest does not change jobs do not change.

<sup>3</sup> These estimates provide an upper estimate for consideration of potential lost revenue, alongside a sales program with more acres of suitable old-growth under Alternatives 2 through 6 and should not be used as precise estimates of roadless area visitor expenditures or losses. Expenses incurred by visitors are not necessarily lost but subject to displacement related changes. While some businesses may lose revenues, if visitors choose not to travel to Southeast Alaska, others may see increases in revenues if visitors choose to stay longer or travel to substitute sites within Southeast Alaska. Detailed explanation and sources for this analysis is provided below in the Cost Benefit subsection Potential Impacts by Resource Area.

provide increased access and more opportunities. Nearly all new roads constructed under the regulatory alternatives would be closed following harvest. These roads would, therefore, not be available for use by highway vehicles or high-clearance vehicles. They may, however, be available for access by other methods, which could affect existing recreation patterns. Some roads would remain open for access on maintained roads for administrative use, recreation, and other uses such as infrastructure.

**Table 1.** Benefits and costs (annual values in 2020 dollars) under the regulatory alternatives

Industry	Alternatives					
	Proposed Rule	2	3	4	5	Baseline Exemption
	2001 Roadless Rule	Roaded Roadless Alternative	Logical Extension Alternative	Partial Dev LUDs Alternative	All Dev LUDs Alternative	Full Exemption Alternative
<b>Stumpage Value Loss</b> <sup>1</sup>						
High estimate– Stumpage value	-\$922,000	\$0	\$0	\$0	\$0	\$0
Low estimate – Stumpage value	-\$460,000	\$0	\$0	\$0	\$0	\$0
<b>Recreation/Tourism</b> <sup>2</sup>						
High estimate - Avoided lost revenue outfitter/guide recreation	\$224,000	\$206,000	\$181,000	\$10,000	\$3,000	\$0
Low estimate - Avoided lost revenue outfitter/guide recreation	\$68,000	\$51,000	\$26,000	\$3,000	\$0	\$0
Avoided loss of value for non-outfitter guide recreation access	\$80,000	\$67,000	\$38,000	\$5,000	\$1,000	\$0
<b>Conservation Value</b> <sup>3</sup>						
Old growth conservation benefits	\$287,000	\$253,000	\$142,000	\$12,000	\$0	\$0
<b>Agency Costs</b>						
Avoided Road maintenance <sup>4</sup>	\$250,000	\$250,000	\$159,000	\$73,000	\$18,000	\$0

Costs from potential displacement of recreationists would be avoided alongside the potential for declining future benefits with fewer acres available for harvest. Potential change in stumpage value provides a frame of reference for evaluating potential decreased benefits from the Tongass National Forest timber program. Timber harvest levels on the Tongass National Forest, currently 46 million board feet (MMBF) per year, are guided by the Forest Plan (USDA Forest Service 2016) and adjusted annually through timber demand monitoring. Analysis of stumpage value indicates approximately \$460,000 to \$922,000 dollars per year would not be available under the proposed rule (Table 1). The range is based on an assumed level of harvest (one standard deviation less than the average annual harvest on the Tongass National Forest over the last 17 years, in Table 5, to the harvest estimate under the Forest Plan of 46 MMBF).<sup>4</sup> This range of value accounts for uncertainty in timber demand; accounting for past influences of the 2016 and 2008 Forest Plans by using the annual average depicted in Table 5. In addition, the upper

<sup>4</sup> Detailed explanation of the source (USDA Forest Service 2019b) and calculations used in this analysis are provided below in the Cost Benefit sub-section Potential Impacts by Resource Area.

estimate of 46 MMBF, from the Forest Plan, is a projection of future demand. This includes the agency's responsibilities under the Tongass Timber Reform Act, which directs the Forest Service to seek to provide a supply of timber from the Tongass National Forest that meets annual market demand and the market demand for each planning cycle to the extent consistent with providing for the multiple-use and sustained-yield of all renewable resources and other applicable requirements, including NFMA. USDA recognizes the projected timber sale quantity is not a cap, like the allowable sale quantity from the 1982 Planning Rule. The proposed rule (Alternative 1) provides the least amount of acres designated as suitable for timber managers to design timber sales that appraise positively.<sup>5</sup> Cost savings from improved flexibility under the current Alaska Roadless Rule and Alternatives 2 through 5 would potentially improve the Forest Service's ability to offer economically feasible sales that meet the needs of industry. Areas closer to markets, either a mill or export facility, are also more likely to offer more economic timber sale options. More distant areas would be relatively expensive to harvest and less likely to be accessed. While many factors can influence the cost of timber harvest, areas along existing roads or those using marine access facilities are typically more economically efficient, followed by areas where existing roads can be extended rather than building many more miles of new roads.

Analysis of potential impacts on stumpage value (see detailed description of this analysis in the section below Potential Impacts by Resource Area) indicates the proposed rule could potentially decrease future stumpage value by approximately \$922,000 dollars annually under the Tongass Forest Plan annual harvest estimate of 46 MMBF (USDA Forest Service 2019b). This decrease in stumpage value reflects potential future efficiency losses from just a portion of the estimated increase in cost, under the proposed rule, covering just "stump to truck" from felling, yarding, and loading; and assumes transportation and towing costs remain constant. Under the current 2020 Alaska Roadless Rule (Alternative 6 exemption) and Alternatives 2 through 5 harvest near existing roads and closer to markets may provide 'stump to truck' costs saving as readily available acres in areas formerly designated as IRAs are harvested first. As these acres are exhausted efficiency gains from lower "stump to truck" costs are likely to be offset by increased transportation and towing costs. Information on transportation and towing costs are not available and highly speculative given the influence of external market forces and lack of site-specific knowledge on where and when harvest will occur. The potential increase in roads would likely increase maintenance costs to the Forest Service and these are considered in the analysis below. Detailed explanation and sources for this analysis are provided below in the sub-section Potential Impacts by Resource Area.

Because the proposed rule and other regulatory alternatives do not prescribe site-specific activities, it is difficult to predict quantitative changes in costs or benefits under the different regulatory alternatives (i.e., stumpage value, avoided lost revenue to outfitter and guides, avoided loss of value for non-outfitter guide recreation access, old growth conservation benefits and avoided road maintenance). It should also be emphasized that the types of benefits derived

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<sup>5</sup> Under the Further Consolidated Appropriations Act, 2020 P.L. 116-94, 133 Stat. 2751 (Sec. 436), timber sales that do not appraise positive using the current Region 10 Residual Value (RV) appraisal cannot be offered. The Region 10 RV appraisal and other timber valuation programs are based on the best available information (collected from timber companies, price reports, and cost indices) to appraise timber sales on the Tongass National Forest.

from uses of roadless areas in Alaska are far ranging and include a number of non-market and non-use benefit categories. As a consequence, benefits are discussed qualitatively in many sections of this report (i.e., Biological Diversity, Habitat, Physical Values, Scenic Quality, Recreation Opportunities, Traditional Cultural Properties and Sacred Sites, Locally Identified Unique Characteristics and Table 6 provides additional detail on qualitative differences amongst the regulatory alternatives).

## **RELATIONSHIP OF PROPOSED RULE TO THE FOREST PLAN AND OTHER BINDING CONSTRAINTS**

The National Forest Management Act of 1976 (NFMA) requires the Forest Service to develop, maintain and as appropriate, revise land and resource management plans (forest plans) for units of the National Forest System. Land management plans provide a framework for integrated resource management and for guiding project and activity decision making, but plans do not authorize projects or activities or commit the Forest Service to take action. A revised Tongass Land Management Plan was issued in 1997 and amended in 2008 and 2016. Forest planning is a distinct and separate process from USDA's various roadless rulemakings. See *Kootenai Tribe of Idaho v. Veneman*, 313 F.2d 1094 (9th Cir. 2002); and *State of Wyoming v. USDA*, 661 F.3d 1209 (10th Cir. 2011).

The relationship between regulations, land and resource management plans (forest plans), and national forest projects is of particular importance to roadless rulemaking. In the hierarchical order, a regulation is above a forest plan, which must comply with all applicable laws and regulations. A forest plan then provides broad guidance for future forest project activities within that specific national forest.

All forest plans must conform to existing laws and regulations as well as new laws and regulations. See 36 CFR 219.1(f) and 219.13(c). All of USDA's previous roadless rules, national and state-specific, have directed that: (1) no amendment or revision of any forest plan was compelled by promulgation of such rules; (2) subsequent forest planning decisions could not revise the Secretary's regulatory instructions; and (3) line officers were to conform project decisions to the prohibitions and exceptions set forth in the applicable rules. The proposed rule would continue this approach.

The Tongass Timber Reform Act directs the Forest Service to seek to provide a supply of timber from the Tongass National Forest that meets annual market demand and the market demand for each planning cycle (10-15 years) to the extent consistent with providing for the multiple-use and sustained-yield of all renewable resources and other applicable requirements, including the NFMA. The current Tongass Forest Plan anticipates sufficient timber availability to meet projected demand as described in the 2016 Tongass Forest Plan FEIS (USDA Forest Service 2016a) and Record of Decision (USDA Forest Service 2016). In addition, the Tongass Timber Reform Act provides guidance to conduct annual monitoring and review of current timber demand. Similarly, the Tongass Timber Reform Act provides protection for riparian habitats and the multiple use and sustained yield of all renewable surface resources. Watershed protection measures, such as riparian buffers and application of watershed conservation measures will be provided for future revisions or amendments in conformance with all applicable laws, including

the Clean Water Act, Magnuson–Stevens Fishery Conservation and Management Act, and Alaska’s Department of Environmental Conservation Water Quality Standards.

In addition, the Forest Service is authorized to offer timber for sale only if that sale is determined to be “economic” or appraises positively. An economic sale is one where the sale of the harvested timber generates sufficient revenue to cover all costs of harvesting and a reasonable profit to the purchaser. Certainly not all of the available acres in the Tongass will be able to meet this test. The Forest Service also incurs costs associated with planning, preparation, and administration of treatment projects and timber sales. On average, the Forest Service spent approximately \$12.5 million per year to administer Tongass National Forest timber sales from 2005-2014, excluding road building costs, and received approximately \$1.1 million in revenue per year (GAO 2016). The proportion of funds allocated to projects in roadless areas may increase or decrease as a function of the amount of treatment (e.g., cutting) and road maintenance projected to occur under each regulatory alternative, but costs cannot exceed program budgets that have remained relatively flat. Budgetary constraints may limit prospects for increasing overall timber harvest levels, separate from considerations regarding future amendments to the Forest Plan.

A unique aspect of the Tongass Forest Plan is the land use designation (LUD) called LUD II, a statutorily established land classification that applies on lands as described in the Tongass National Forest Land Management Plan, completed March 1979 and amended 1985-1986, for areas allocated to be managed in a roadless state to retain their wildland character. Wildlife and fish habitat improvement and primitive recreation facility development are permitted in these areas. LUD II areas are defined in the Tongass Timber Reform Act (TTRA; Title II, Section 201) and the National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291, 128 Stat. 3729, Section 3720(f)). The statutory direction for LUD II areas would remain in place regardless of whether the 2001 Roadless Rule is reinstated or any other rule is promulgated.

## **DESCRIPTION OF THE PROPOSED RULE AND ALTERNATIVES**

The terms central to understanding the proposed rule and regulatory alternatives described here are defined below. These terms are used in the analysis and are also defined in the glossary of the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020):

- Alaska Roadless Areas (ARA). Lands within the Tongass National Forest designated pursuant to this subpart and identified in a set of maps maintained by the national headquarters office of the Forest Service.
- ARA Designations. Areas identified with varying degrees of exceptions and prohibitions, designed based on land management priority.
- Land Use Designation (LUD) II. Statutory land use designations managed in a roadless state to retain their wildland character as defined in the TTRA (Pub. L. 101-626, Title II, Section 201) and the National Defense Authorization Act for Fiscal Year 2015 (Pub. L. 113-291, 128 Stat. 3729, Section 3720(f)).
- Tongass 77 (T77) Watersheds and The Nature Conservancy (TNC)/Audubon Conservation Priority Areas. Through involvement of private and public groups and agencies, a number of watersheds and Value Comparison Units in the Tongass National Forest have been evaluated for relative importance for several metrics relating to fish and wildlife Conservation priority areas identified by Audubon Alaska and TNC (Audubon

Alaska and The Nature Conservancy 2007) and the T77 watersheds identified by Trout Unlimited are included. The T77 refers to Value Comparison Units, which approximate 77 major watersheds identified by Trout Unlimited, Alaska Program as priority salmon watersheds in the 2016 Tongass National Forest Land and Resource Management Plan (USDA Forest Service 2016a).

Alternative 1 is the proposed rule and provides maximum additional roadless area protection, returning the Tongass National Forest to management under the provisions of the 2001 Roadless Rule. Under the proposed rule, roadless protection would be added for all roadless areas identified in the 2001 Roadless Rule on the Tongass National Forest, resulting in an increase of 9.4 million acres of IRAs (Table 2). The proposed rule would prohibit timber harvest and road construction or reconstruction within designated inventoried roadless areas with limited exceptions (including to protect public health and safety, provide access to existing rights or leases, prevent or repair natural resource damage, maintain or restore ecosystem characteristics, or improve habitat for certain species). Roadless area designation would provide protection for about 168,000 additional acres of old growth, including 59,000 acres of high-volume old growth currently designated as suitable under the baseline exemption (Table 2). Under the proposed rule the provisions of the 2001 Roadless Rule would remain intact across the 110 IRAs, encompassing approximately 56 percent of the Tongass National Forest. Under the proposed rule, a total of about 230,000 acres of old growth and 334,000 total acres of young growth would be suitable for timber production on the Tongass National Forest.

This report provides effects of the proposed rule in comparison to baseline conditions represented as a continuation of current land management under the Alaska Roadless Rule (Alternative 6 exemption), presented as “the baseline exemption” in the discussion below, and current Forest Plan direction.

Alternative 6 is the continuation of current land management under the Alaska Roadless Rule (85 FR 68688, Alaska Roadless Rule) and provides maximum additional timber harvest opportunity. Alternative 6 is referred to as the baseline, or “the exemption” throughout this document. Alternative 6 takes no action and leaves the Tongass National Forest exempt from the 2001 Roadless Rule.

Alternative 2 provides limited additional timber harvest opportunity while maximizing roadless area designations. It adds approximately 142,000 acres to roadless designation that were substantially altered as identified by known prior road construction or timber harvest including both development and non-development LUDs. These areas are generally known as “roaded roadless” areas but include additional areas considered to be substantially altered. Alternative 2 also maximizes the geographic scope of roadless area designation by adding 110,000 acres as Alaska Roadless Areas (ARAs).

Alternative 3 provides more timber harvest opportunities than Alternative 2 by continuing to exempt substantially-altered roadless areas (including roaded roadless, similar to Alternative 2) and extends these areas to logical end points of existing road and timber harvest systems, generally defined as the nearest watershed boundary (i.e., ridgeline of 14th-field hydrologic unit) from an existing road system. Removing these areas from the roadless inventory represents the logical extensions of substantially altered acres from existing infrastructure and likely

encompasses the more economically feasible locations for future timber harvest with the least impact to roadless characteristics. Approximately 3,259,000 acres under Alternative 3 would be managed under Watershed Priority category and applied to areas identified in the Forest Plan as Tongass 77 (T77) Watersheds and The Nature Conservancy (TNC)/Audubon Conservation Priority Areas. Alternative 3 also provides additional timber harvest opportunity by designation of Community Priority areas around seven communities, Hydaburg, Juneau, Kake, Ketchikan, Sitka, Wrangell, and Yakutat. The Community Priority ARA allows for small-scale timber harvest and associated road construction or reconstruction. In addition, it allows for infrastructure development to connect and support local communities and traditional Alaska Native cultural uses. Further detail on this and other Alaska Roadless Area Land Management Categories are provided in the next section.

Alternative 4 provides significant additional timber harvest opportunity but maintains roadless protections for Scenic Viewshed Land Use Designations (LUD) and Tongass 77 (T77) Watersheds/The Nature Conservancy (TNC)/Audubon Conservation Priority Areas that are in roadless areas. There is a small amount of young growth within these areas that would be available for timber harvest. Approximately 401,000 acres would remain exempt from roadless designation, including substantially altered areas and logical extensions of substantially-altered acres (similar to Alternatives 2 and 3), along with selected additional locations for potentially feasible economic timber sales. These acres are also converted from unsuitable to suitable timber lands, resulting in significant additional timber harvest opportunity.

Alternative 5 provides the same timber harvest opportunity as the Alternative 6 (current regulation) while maintaining some roadless area protection in areas where the Forest Plan currently does not allow commercial timber harvest.

Alternative 6 represents baseline conditions, under the current regulation and is compared to the other regulatory alternatives to fully understand the impacts of the proposed rule. Table 2 provides a comparison of the regulatory alternatives and further discussion of the ARA management categories is provided below.

**Table 2.** Roadless Areas by Alternative and Management Category

Roadless Category (acres)	Alternative					
	Proposed Rule	2	3	4	5	Baseline
	2001 Roadless Rule	Roaded Roadless Alternative	Logical Extension Alternative	Partial Dev LUDs <sup>1</sup> Alternative	All Dev LUDs Alternative	Full Exemption Alternative
Total Designated Roadless Area	9,368,000	9,336,000	8,224,000	8,975,000	7,047,000	0
<b>ARA Management Categories</b>						
LUD II Priority	N/A	854,000	0	854,000	847,000	0
Watershed Priority	N/A	3,284,000	3,259,000	0	0	0
Roadless Priority	N/A	5,199,000	4,595,000	7,363,000	6,200,000	0
Community Priority	N/A	0	370,000	0	0	0
Timber Priority	N/A	0	0	757,000	0	0
<b>Old-Growth Acres Suitable for Timber Production</b>						
Total Acres	227,000	247,000	312,000	388,000	395,000	395,000
Net Change	-168,000	-148,000	-83,000	-7,000	0	0
<b>T77 &amp; TNC/ Audubon Conservation Priority Areas Outside of Roadless given Long-term Regulatory Protection</b>						
Total Acres	0	0	507,000	0	0	0

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N/A = not applicable

<sup>1</sup> Includes Timber Production and Modified Landscape LUDs, but not Scenic Viewshed.

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## **Alaska Roadless Area Land Management Categories**

Regulatory alternatives, apart from the current baseline Alaska Roadless Rule (Alternative 6 exemption), provide for a variety of management approaches within roadless areas through Alaska Roadless Areas (ARA) land management categories. Alternatives 2, 3, 4, and 5 modify inventoried roadless area (IRA) boundaries from the 2001 Roadless Rule (Alternative 1). Updated roadless areas would be known as Alaska Roadless Areas (or ARAs) and would be assigned to one of five designations of Alaska roadless areas: LUD II Priority, Watershed Priority, Community Priority, Roadless Priority, and Timber Priority. The management categories prohibit timber harvest, road construction, and road reconstruction with a range of exceptions that are applied differentially across the regulatory alternatives. A brief description of each management category follows.

### **Roadless Priority (Alternatives 2, 3, 4 and 5)**

The Roadless Priority management category is similar to the 2001 Roadless Rule but is less restrictive and addresses Alaska-specific concerns. Specifically, it expressly provides for infrastructure development to connect and support local communities, and road construction or reconstruction for access to renewable energy and leasable minerals. The leasable minerals exception provides for roading associated with geothermal, oil, gas, and/or coal development. In addition, the Roadless Priority category includes specific exceptions that, while already allowed under the proposed rule (2001 Roadless Rule), are included to improve overall clarity.

### **LUD II Priority (Alternatives 2, 4 and 5)**

LUD II designated areas existed before the 2001 Roadless Rule and approximately 870,000 acres of the Tongass National Forest are congressionally designated as LUD II (847,000 acres would be designated as IRA under the proposed rule and 22,000 acres of LUD II not designated as IRA) and are managed in a roadless state to retain their wildland character (as defined in the Tongass Timber Reform Act of 1990 and the National Defense Authorization Act for Fiscal Year 2015). Alternatives 2 and 4 propose to designate 854,000 LUD II acres as LUD II Priority ARA.

Under Alternatives 2, 4 and 5 the LUD II management Priority category would reduce confusion by having the roadless regulatory management direction manage these areas only in accordance with the statutory direction: that these lands will be managed in a roadless state to retain their wildland character as defined in the Tongass Timber Reform Act of 1990 (Title II, Section 201) and the National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291, 128 Stat. 3729, Section 3720(e)(4)). Alternatives 2 and 4 propose to designate all of the congressionally designated LUD II acres as LUD II Priority ARAs. Notably, Alternative 3 proposes to remove all LUD II areas from roadless designation rather than designating an ARA category. LUD II areas under Alternative 3 would continue to be managed under their congressional designations. Alternative 5 proposes to apply the LUD II Priority category only to LUD II areas that are currently designated as IRA.

### **Watershed Priority (Alternatives 2 and 3)**

The Watershed Priority management category is more protective than the current Alaska Roadless Rule (Alternative 6 exemption) as it offers fewer exceptions for timber harvest, road construction and road reconstruction. It also provides for activities specific to aquatic habitat improvement. Approximately 3,284,000 acres under Alternative 2 and 3,259,000 acres under Alternative 3 would be managed under this management category. The Watershed Priority category is applied to areas identified in the 2016 Tongass Forest Plan as T77 Watersheds and TNC/Audubon Conservation Priority Areas. Also, the Watershed Priority management designation was applied to high priority sockeye salmon watersheds. Additionally, for Alternative 3, commercial old-growth timber harvest would be prohibited on National Forest System lands in T77 and TNC/Audubon Conservation Areas including those that extend beyond Alaska Roadless Area boundaries.

### **Community Priority (Alternative 3)**

The Community Priority management category allows for small-scale timber harvest and associated road construction and reconstruction. In addition, it allows for infrastructure development to connect and support local communities, and traditional Alaska Native cultural uses. In all cases, activities within Community Priority ARAs would have to be consistent with the underlying 2016 Tongass Forest Plan LUD requirements. This is to say that even if a timber harvest, road building, or other activity would be permissible under the Alaska Roadless Rule, it may not be allowable because of Forest Plan requirements specific to the LUD that applies to the area. This management category applies to approximately 370,000 acres and is only proposed under Alternative 3 adjacent to seven communities: Hydaburg, Juneau, Kake, Ketchikan, Sitka, Wrangell, and Yakutat.

This management category was developed to address specific desires of some communities to retain roadless protections while also allowing for small timber operators in the community, infrastructure development to support the communities, and provide for traditional Alaska Native cultural uses. The provision allows for road building to accommodate small commercial sales of less than one million board feet (which does not exclude larger operators but is designed to reduce barriers to entry for smaller operators).

### **T77 Watersheds and TNC/Audubon Conservation Priority Areas – Additional Protections (Alternative 3)**

Watershed protection is a key element of roadless management. Watersheds are highly valued sources of municipal drinking water, support fisheries and wildlife habitat, and can act as keystones for economic activities. Under Alternative 3, areas identified in the 2016 Tongass Forest Plan as T77 and TNC/Audubon Conservation Priority Areas (high priority watershed areas) would be afforded added protection through the roadless regulation. Specifically, old-growth timber harvest would be prohibited within these areas, subject to the described exceptions. A prohibition on old growth harvesting already exists in these areas through the 2016 Tongass Forest Plan. But Alternative 3 establishes regulatory continuity between these roadless and watershed management systems given how extensively they overlap (the listed watersheds comprise over half of the Tongass National Forests' roadless areas, and approximately 90% of

the watershed areas are within roadless area boundaries). Thus, the old growth harvest prohibition would be extended beyond the designated roadless area boundaries in order to maintain the balance and integrity of the watershed protection system. Young-growth timber harvest outside of Alaska Roadless Areas within the high priority watershed areas is not prohibited.

As with all roadless rule instructions, the new old growth harvest prohibition would operate as an overlay to the forest plan, with the plan continuing to provide management direction in other regards. In this manner, Alternative 3 affords high priority watershed areas greater protection than the current baseline exemption.

### **Timber Priority (Alternative 4)**

The Timber Priority category allows timber harvest, road construction, and road reconstruction to facilitate timber management and provide economic opportunity. This management category applies to approximately 757,000 acres and is only proposed under Alternative 4.

## **ANALYSIS REQUIREMENTS**

Executive Order (EO) 12866, Regulatory Planning and Review, issued in 1993, reformed the federal government’s regulatory process as highlighted by primary objectives: 1) enhancing planning and coordination across regulations; 2) reaffirming federal government primacy in regulatory decision-making; 3) restoring the integrity of regulatory review; and 4) making the regulatory process more accessible to the public.

The proposed rule (Alternative 1) is classified as significant, as determined by the Office of Management and Budget and this report meets the requirements of Executive Order 12866 for a significant rule. Executive Orders 13563 and 12866 direct agencies to assess costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. Analysis is required to “assess both the costs and benefits” of the intended regulation, recognizing quantifiable analysis is not always possible, but that the agency make a reasoned determination that the benefits justify the regulatory costs.

The Regulatory Flexibility Act (RFA, 5 U.S.C. et seq., Public Law 96-354) as amended by the Small Business Regulatory Flexibility Enforcement Fairness Act of 1996 generally requires an agency to prepare a regulatory flexibility analysis describing the impact of the regulatory action on small entities as part of the rulemaking. This is required of any rule subject to notice and comment requirements under the APA or any other statute unless the agency certifies that the rule will not have a “significant impact on a substantial number of small entities”. Small entity impacts and opportunities are examined in the compliance document titled Repeal of the Alaska Roadless Rule, Initial Regulatory Flexibility Analysis (USDA Forest Service 2021).

## REGIONAL ECONOMIC OVERVIEW

Employment in Southeast Alaska in 2018 is summarized by sector in Table 3. The government and the visitor sectors were the largest employers, accounting for 29 percent and 18 percent of total employment, respectively. The government sector is the main source of year-round employment in all the communities in Southeast Alaska. In addition to direct employment in government, many of the area's private sector jobs are also dependent on government funding and contracts, including road construction and health care services.

Federal, State, and local government make up the largest economic sector characterized in Table 3 below. Government employment has dropped significantly since 2012, with a loss of 850 state jobs in Southeast Alaska from 2012 through July 2018. Three-quarters of these losses occurred in Juneau. These losses have accompanied declining oil production and prices, with state revenues falling by 70 percent from fiscal year 2013 to fiscal year 2018, and the state budget dropping by 40 percent. Federal government employment has also declined in Southeast Alaska over the past decade, with the loss of 600 jobs since 2005 (Southeast Conference 2018).

**Table 3.** Southeast Alaska Annual Employment and Earnings by Sector, 2018

Economic Sector <sup>1</sup>	Total Employment (Jobs)	Total Earnings (\$M) <sup>2</sup>	Percent of Total	
			Employment	Earnings
Government (includes Coast Guard)	13,148	776.9	29%	34%
Visitor	8,004	249.3	18%	11%
Seafood	3,711	237.4	8%	10%
Retail and Wholesale Trade	4,490	145.1	10%	6%
Health Care (private only)	2,852	168.6	6%	7%
Construction	1,909	121.6	4%	5%
Financial	1,830	122.2	4%	5%
Professional and Business Services	2,910	123.0	6%	5%
Social Services	1,476	46.4	3%	2%
Mining	889	93.0	2%	4%
Information <sup>3</sup>	541	23.5	1%	1%
Timber	337	18.8	1%	1%
Warehousing, Utilities, Transportation <sup>4</sup>	943	61.8	2%	3%
Other	2,602	94.5	6%	4%
<b>Total</b>	<b>45,642</b>	<b>2,282</b>	<b>100%</b>	<b>100%</b>

Notes:

<sup>1</sup> These data were compiled on behalf of Southeast Conference based on data collected by the Alaska Department of Labor (DOL) and the U.S. Census Bureau. The Alaska DOL data are for 2017 for non-agricultural wage and salary employment. These data do not include proprietors or self-employed workers, and are, therefore, supplemented using data from the 2016 US Census Nonemployer Statistics, which specifically count proprietors and the self-employed.

<sup>2</sup> Total earnings are expressed in millions of 2018 dollars.

<sup>3</sup> The Information sector, as defined here, includes publishing, broadcasting, and telecommunications.

<sup>4</sup> Includes non-visitor-related transportation only. Visitor-related transportation is included in the visitor sector.

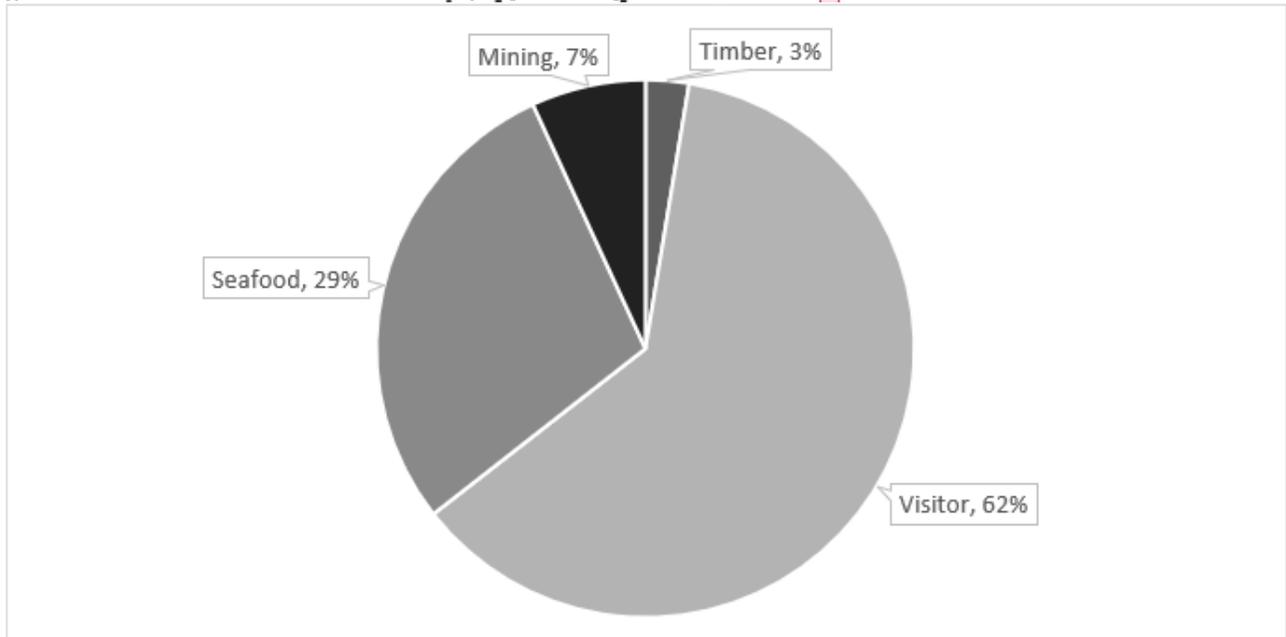
Source: Southeast Conference 2019

### Natural Resource-Based Industries

Employment in natural resource-based industries – timber, visitor, seafood, and mining – together accounted for an estimated 12,941 jobs in 2018, more than one-quarter (28 percent) of

total employment in Southeast Alaska (Table 3). The estimated distribution of resource-dependent employment is shown by industry in Figure 1. The visitor industry accounted for more than half (62 percent) of resource-dependent employment, followed by the seafood sector, which accounted for almost one-third (29 percent). Mining accounted for 7 percent and wood products (timber) made up 3 percent (Figure 1) or resource-dependent employment and smaller percentages of all employment as depicted in Table 3.

**Figure 1.** Natural Resource-Based Employment by Sector, 2018



Note:  
Total = 12,808 Employees  
Source: Southeast Conference 2019

### Forest Products

Southeast Alaska timber is primarily purchased and harvested from Tongass National Forest lands managed by USDA Forest Service, from the State of Alaska (Division of Forestry, Alaska Mental Health Trust Land Authority, and University of Alaska Trust Land Office), and Alaska Native Village and Regional corporations (Alaska Native corporations). Sawmill employment has historically been supported by Forest Service timber sales, with state timber harvest also contributing. Logging employment is generated from all ownerships, including Alaska Native corporation lands primarily harvested and sold into overseas log export markets.

Timber industry employment in Southeast Alaska peaked at the end of the 1980s, before dropping sharply in the 1990s. Much of this job loss was associated with closure of the large pulp mills in Sitka (1993) and Ketchikan (1997). Timber employment has continued to decline since the 1990s, falling from the most recent high of 561 jobs in 2003 to 193 jobs in 2018 (Table 4; Figure 2). Tongass National Forest-related employment in logging and sawmilling declined from 199 jobs in 2003 to a low of 62 jobs in 2018. Non-Tongass timber employment also declined over this period, falling from a recent high of 362 jobs in 2003 to 131 jobs in 2018, a drop of 64 percent (Table 4). From 2002 to 2018 harvest activities on the Tongass National Forest supported from 34 to 32 percent, respectively of timber jobs in Southeast Alaska. Factors

contributing to the decline include changes in the structure of the Alaska forest sector, macroeconomic conditions both in the United States and overseas (e.g., shifting demand from Asian markets), markets for Alaskan products, and conditions faced by Alaska’s competitors. In addition, Alaska faces competitive challenges due to its remote location: the high costs of harvesting and transportation in remote areas of Southeast Alaska and the relatively lower price commanded in dimensional lumber markets limits profitability (Daniels et al. 2016). Harvest activities supporting employment have included pre-commercial thinning, generally defined as a silvicultural treatment to reduce stand density, to improve understory habitat (deer), improve the growth characteristics of trees, shorten rotation times, and improve forest health.

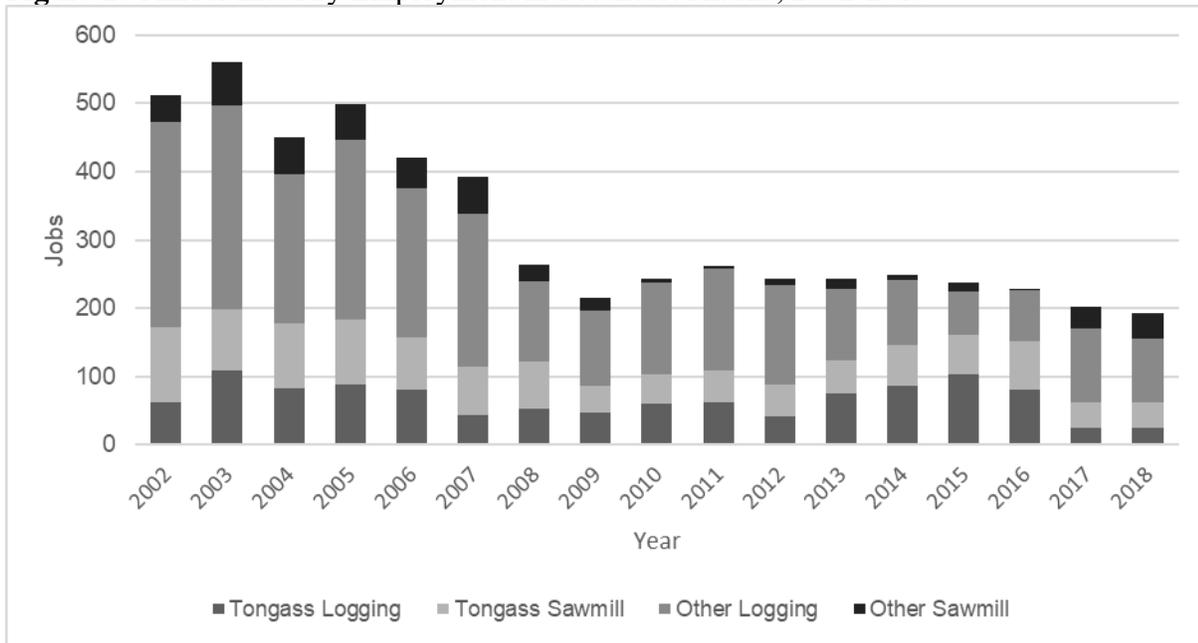
**Table 4.** Timber Industry Employment in Southeast Alaska, 2002-2018

Year <sup>1</sup>	Tongass Logging	Tongass Sawmill	Total Tongass-Related Employment	Other Logging	Other Sawmill	Total Other Timber Employment	Total Timber Industry Employment
2002	63	110	173	299	40	339	512
2003	108	91	199	298	64	362	561
2004	82	95	177	220	53	273	450
2005	88	96	184	263	52	315	499
2006	81	77	158	217	46	263	421
2007	44	70	114	225	54	279	393
2008	52	70	122	118	24	142	264
2009	48	39	87	110	19	129	216
2010	61	43	104	133	7	140	244
2011	62	47	109	150	3	153	262
2012	42	47	89	144	11	155	244
2013	75	48	123	106	14	120	243
2014	86	60	146	96	7	104	249
2015	104	58	162	63	12	75	237
2016	81	70	151	76	1	77	228
2017	25	37	62	108	32	141	202
2018	25	37	62	94	37	131	193

Note:

<sup>1</sup> Data are presented by calendar year. Source: USDA Forest Service 2018a, 2020a

**Figure 2.** Timber Industry Employment in Southeast Alaska, 2002-2018



Source: USDA Forest Service 2018a, 2020a

Timber harvest in Southeast Alaska also peaked in the late 1980s, with harvest levels slightly below 1 billion board feet. Total harvest in 2017 was 74.2 MMBF, about 8 percent of peak levels. Harvest on the Tongass National Forest accounted for about 21 percent (16.0 MMBF) of this total, with almost two-thirds (63 percent, 46.4 MMBF) of the overall total provided by Alaska Native corporation lands and 16 percent (11.9 MMBF) provided by the State of Alaska (Table 5). Table 5 displays general declining trends in timber harvest; however, caution is recommended when inferring causality between timber harvest and market demand.

**Table 5.** Timber Harvest in Southeast Alaska by Ownership, 2002–2018. Timber harvest volume reported by calendar year, in MMBF

Year <sup>1</sup>	Tongass National Forest	State of Alaska <sup>2</sup>	Alaska Native Corporation	Total
2002	31.9	57.3	101.7	190.9
2003	48.1	34.8	105.7	188.6
2004	49.2	24.2	98.9	172.3
2005 <sup>3</sup>	46.6	42.9	103.9	193.4
2006 <sup>3</sup>	40.0	44.6	71.2	155.8
2007 <sup>3, 4</sup>	22.5	44.6	50.0	117.1
2008	30.0	11.9	52.3	94.2
2009	28.3	13.5	51.8	93.6
2010	35.7	10.5	66.4	112.6
2011	31.6	16.3	63.1	111.0
2012	17.5	10.8	56.1	84.4
2013	41.2	11.2	47.4	99.8
2014	36.7	12.0	29.3	78.0
2015	59.5	6.2	32.4	98.1
2016	43.5	27.5	34.6	105.6

2017	16.0	11.9	46.4	74.2
2018	20.0	17.6	58.4	96.0
Average	35.2	23.4	62.9	121.5

Notes:

<sup>1</sup> Timber harvest volume reported by calendar year, in million board feet (MMBF), and includes both sawlog and utility.

<sup>2</sup> State of Alaska includes Division of Forestry, Mental Health Trust, and University of Alaska Trust Lands.

<sup>3</sup> The relative increase in State harvest was an effort to provide additional timber to make up for a shortfall in supply from the Tongass National Forest.

<sup>4</sup> The relative drop in Tongass harvest in 2007 was the result of an injunction that stopped Tongass National Forest logging over most of the operating season.

Source: USDA Forest Service 2018a, 2020a

The timber industry remains an important part of the economy for the rural communities of southeast Alaska and is in the midst of a transition from old growth harvest to young growth harvest. The young-growth transition strategy as described in the 2016 Tongass Forest Plan Record of Decision outlines a glide path to decrease old-growth harvest annually on the Tongass until it reaches about 5 MMBF harvest per year, expected to occur in about 2032. The analyses in the FEIS for the Alaska Roadless Rule (USDA Forest Service 2020) considered the continuation of the young-growth transition strategy in all alternatives analyzed, including the 2001 Roadless Rule (no action alternative in the FEIS) and the 2020 Alaska Roadless Rule (baseline exemption). The young-growth transition strategy defines a 16-year period starting in 2016 in which the old-growth contribution to the projected timber sale quantity decreases over time as young growth matures and becomes more economical to harvest. At year 16, the old-growth contribution to the projected timber sale quantity would stabilize at 5 MMBF per year. The Department and Forest Service are committed to investing in new opportunities through the Southeast Alaska Sustainability Strategy that will support the transition, including continuing investments in developing young growth opportunities. Secretary Tom Vilsack has directed leaders of multiple USDA agencies, including the Forest Service, the Natural Resources Conservation Service, and Rural Development, to consult with Tribes and work together with partners and communities in Southeast Alaska to identify priorities for investment that reflect the diverse needs and opportunities in the region; including sustainable timber management for young growth. There are four primary components of the strategy that include ending large-scale, old-growth timber harvest and focusing resources to support forest restoration, recreation, climate resilience, and sustainable young-growth management.

### **Recreation visitor related employment and contribution to the regional economy**

Recreation and tourism-related employment is difficult to accurately quantify because visitors spend their money throughout the local economy. Recreation and tourism are not classified or measured as a standard industrial category. Components of travel and tourism activities are instead partially captured in other economic sectors, such as retail trade (e.g., grocery stores and gift shops), transportation, hotels and other lodging places, and amusement and recreation services. Information presented above for the visitor sector is considered generally representative of recreation and tourism-related employment in Southeast Alaska (see Table 3 and Figure 1).

According to the Alaska Department of Labor (DOL) (Bell 2015), visitor-related jobs in Southeast Alaska are concentrated in Juneau, Ketchikan, and Skagway, which together accounted for more than three-quarters of the regional total in 2014. This sector is related to the natural amenities and recreational opportunities provided by the Tongass National Forest.

Transportation is the largest visitor-related economic sector in Southeast Alaska making up about one-third of visitor-related employment, with jobs ranging from whale watching boats, to tour buses, to airlines. The highest paying visitor-related occupations are also in the transportation sector, including captains and mates of water vessels (Bell 2015).

A separate study prepared on behalf of the Alaska Department of Commerce, Community, and Economic Development (DCCED) found that the visitor industry supported 11,925 jobs and \$445 million in labor income in Southeast Alaska from October 2016 through September 2017 based on direct visitor spending of \$705 million (McDowell Group 2018). These estimates are for total employment and labor income, meaning that they include workers employed directly by the visitor industry (direct jobs and income), as well as jobs and income supported elsewhere in the economy (indirect and induced jobs and income).<sup>6</sup> A separate estimate of direct employment developed from Alaska DOL and U.S. Census data identified a total of 8,004 direct jobs supported by the visitor industry in 2018 (Table 3).

### **Nature-Based Tourism**

A study prepared by the Institute of Social and Economic Research at the University of Alaska Anchorage provides insight into the contribution of nature-based tourism to the regional economy. This study, which involved field research conducted in the summers of 2005, 2006, and 2007, focused on a limited number of communities and sought to provide insight into revenues generated, the types of nature-based activities attracting tourists, and the resulting flows of money through the economy (Dugan et al. 2009). The findings of the study indicate that nature-based tourism generates substantial revenues in the region, with an estimated \$277 million generated in annual direct business revenues for the companies surveyed in Sitka, Juneau, Chichagof Island, Prince of Wales Island, Petersburg, and Wrangell (Dugan et al. 2009). In November 2020, numbers released by the U.S. Bureau of Economic Analysis highlighted the importance of Alaska's outdoor recreation industry (3.9 percent of state GDP in 2019) as one of the highest percentages in the country.

Dugan et al. (2009) also found that nature-based tourism takes a number of different forms and the ratio of cruise ship passengers to independent travelers varies by location. Most nature-based activities that originate in Ketchikan, for example, fell into four general categories: flightseeing, marine charters, adventure experiences, and general sightseeing. In all cases, the majority of clients participating in these activities were cruise ship passengers. Cruise lines contract with other visitor service businesses operating in the Ketchikan area to provide these nature-based activities. Nature-based tourism on Chichagof Island, on the other hand, included a mix of cruise ship passengers and independent travelers, depending on the location and activity involved (Dugan et al. 2009). An estimated 1.2 million people visited Southeast Alaska in 2016, with most of these visitors (86 percent) arriving by cruise ship (McDowell Group 2017). Data on visitation trends of cruise ship visitors, from the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020) and other data on visitation trends for the state of Alaska from the McDowell

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<sup>6</sup> Economic activity in one sector generates activity in others as firms purchase services and materials as inputs (termed "indirect" effects) and employees spend their earnings within the local economy ("induced" effects).

Group (McDowell Group 2018a) shows that demand for recreation in Southeast Alaska is increasing.

Another study, conducted on behalf of Alaska Department of Fish and Game (ADF&G), estimated that residents and visitors to Southeast Alaska spent \$363 million hunting and viewing wildlife in 2011, with visitors viewing wildlife accounting for an estimated 59 percent of this total (ECONorthwest 2014). Based on these estimated expenditures, the study estimated that hunting and wildlife viewing, respectively, supported 390 and 1,390 direct jobs and a combined total of \$107 million in labor income in Southeast Alaska in 2011, with additional indirect and induced jobs and income supported elsewhere in the economy (ECONorthwest 2014).

### **Recreation on the Tongass National Forest**

While it is reasonable to assume that the majority of visitor recreation and tourism activity in the region is related to the natural environment, not all of the activity generating this employment can be directly linked to the Tongass National Forest. Many visitors experience the Tongass National Forest from the deck of a cruise ship without directly using the forest for recreation purposes. In addition, while the Tongass includes approximately 80 percent of the land area in Southeast Alaska, there are other lands that offer wildland recreation opportunities in the region, including 3.3 million acres of National Park Service lands, and recreation lands managed by the State of Alaska. Further, other popular recreation and tourism activities, such as saltwater fishing, sea kayaking, and shopping, do not take place on the Tongass National Forest, although the forest may provide a backdrop for these activities, as well as contributing via production of ecosystem services.

The Alaska Region of the Forest Service (Region 10) has been participating in the Forest Service's National Visitor Use Monitoring (NVUM) program since 2000. Based on the results of the NVUM program for 2010 to 2014 and coefficients developed by White and Stynes (2010), the Forest Service (2017a) calculated a visitation estimate of 2,874,000 annual visits to the Tongass National Forest. The results of earlier surveys indicated that half of Alaska residents surveyed who live in Southeast Alaska reported using a boat or plane to access the national forest (White and Stynes 2010). Almost half (49.7 percent) of non-resident visits to the Tongass National Forest involved the use of a guide or outfitter at some point, with local cruises, wildlife viewing, and flightseeing reported most frequently. Alaska residents in contrast were found to very rarely use outfitters or guides (White and Stynes 2010).

Spending profiles were estimated for residents and non-residents visiting the Tongass National Forest based on data compiled during the NVUM surveys. Using coefficients developed by White and Stynes (2010), the Forest Service (2017a) estimated that 2,874,000 annual visits to the Tongass National Forest generated about \$382 million in spending and supported 3,947 direct jobs and an additional 1,110 jobs elsewhere in the regional economy. This overall estimate specific to visitation on the Tongass National Forest is equivalent to about 42 percent of the regional visitor estimate in Southeast Alaska developed for Alaska DCCED in 2017 (McDowell Group 2018), and the direct component is about 51 percent of the direct visitor jobs in Southeast Alaska estimated by Southeast Conference (2018). Recreational visitors with an expectation of a remote experience would be most affected by timber production in Primitive, Semi Primitive Non-Motorized, and Semi Primitive Motorized settings. These are three of seven Recreation Opportunity Spectrum (ROS) categories described in the Cost-Benefit analysis below.

## **Commercial Fishing and Seafood Processing**

Data for the entire Southeast Alaska region on seafood production, seafood industry harvest and value from Alaska Department of Fish and Game is provided by the 2018 Southeast Conference report (Southeast Conference 2018). In 2018, an estimated 185 million pounds of seafood was harvested in Southeast Alaska with a value of \$247 million. Viewed in terms of value, salmon accounted for more than half (55 percent) of the total commercial catch in Southeast Alaska in 2018, with the remainder divided among black cod (16 percent), halibut (13 percent), crab (7 percent), herring (2 percent), and other (8 percent) (Southeast Conference 2019).

Employment in the seafood harvesting and processing sectors remains relatively stable from year to year despite fluctuations in the volumes and value of salmon harvested each year. Salmon harvesting employed an estimated 864 people in Southeast Alaska in 2018, with an additional 1,281 people employed harvesting other fish (Alaska DOL 2019). A further total of 1,300 people were employed in fish processing in 2018 for a combined total of 3,445 jobs (Alaska DOL 2019a). Seafood harvesting and fish processing employment trends are shown for 2000 to 2013 in the Tongass Forest Plan FEIS (USDA Forest Service 2016).

Unlike other basic sectors of Southeast Alaska's economy, components of the seafood industry are spread throughout the region with an important presence in virtually every community. Seafood processing workers, for example, were employed in all of the boroughs in 2017, ranging from 15 workers in Skagway to 1,024 workers in Sitka (Alaska DOL 2019a).

The seafood processing sector is generally characterized by high seasonality and low resident hire, as well as low hourly wages, with a median annual wage of \$24,689 in 2013 (Strong 2014). The industry does, however, have a number of higher paid occupations, including ship engineers, captains, mates, boat pilots, and general and operations managers, which accounted for just 1.2 percent total employment, but 6 percent of wages, with a median annual wage of \$66,720 (Strong 2014).

## **Mining and Mineral Development**

Mineral exploration and mining have been a part of life in Southeast Alaska for more than a century. Estimates developed using Alaska DOL data found that a total of 889 workers were employed in the mining sector in Southeast Alaska in 2018 (Table 3). According to a recent economic impact study prepared for Alaska's mining industry, the Greens Creek and Kensington mines employed 420 workers and 387 workers in 2018, respectively, with the Kensington Mine employing an additional 90 contractors (McDowell Group 2019). Mining jobs are the highest-paying jobs in the region, with average annual wages of \$104,650 in 2018 (Southeast Conference 2019). The high wages in this sector reflect the skilled nature of the job, as well as the demands of working in remote locations (Abrahamson 2013). The region's two large mines (Greens Creek and Kensington) accounted for the majority of the mining employment in Southeast Alaska in 2018 (Southeast Conference 2019).

Both the Greens Creek and Kensington mines are located in the City and Borough of Juneau, mostly on Tongass NFS lands. Greens Creek Mine is a primary silver mine located on Admiralty Island; Kensington Mine is a gold mine located on the mainland approximately 45 miles north of Juneau. Alaska residents make up about two-thirds of the total labor force at each mine, 66 percent at Greens Creek and 67 percent at Kensington while nonresidents make up the remainder

of the labor force. Alaska resident employees of both mines live throughout the region. More than two-thirds of Greens Creek's Alaska resident employees live in Juneau. The other third lives in other Southeast Alaska communities or elsewhere in the region (McDowell Group 2018).

Two proposed underground mine projects on NFS lands on Prince of Wales Island received approval for financial assistance through the Alaska Industrial Development and Export Authority in June 2014 (Bradner 2014). Senate Bill 99 authorized \$145 million and \$125 million in infrastructure and construction financing, respectively, for the proposed Bokan Mountain and Niblack projects. The Bokan Mountain project is a rare earth mine that would include on-site ore processing facilities. The McDowell Group (2013) in a study prepared for the Bokan Mountain project estimated that construction of the project would last 2 years and employ an average construction workforce of 200, with peak employment potentially reaching 300 workers. Operation would be expected to employ 190 workers with approximately \$18 million in annual payroll (McDowell Group 2013). The governor of Alaska asked that the Federal Infrastructure Permitting Council (FIPC) designate the Bokan Mountain project as a high priority infrastructure project in August 2019 (Southeast Conference 2019). The Niblack Project is a proposed underground copper-gold-zinc-silver mine. The project owners estimate that the construction and operation phases of the project would both employ approximately 200 workers (Niblack Project LLC 2015). No exploration activity was reported for either project in 2016 and 2017 (McDowell Group 2018).

## **COST-BENEFIT ANALYSIS**

Benefits and costs are divided into two parts: 1) those which are realized by any organization or individual and 2) those realized by the Forest Service. Financial considerations include revenues and costs from the perspective of the Forest Service or other government agencies. Other benefits and costs can be realized by users of roadless areas in National Forests, including backpackers, hunters, viewers of wildlife, permitted outfitters and guides, timber processors, and water users. Other benefits and costs can also be realized by those who never set foot in roadless areas and/or who desire the retention of wildland characteristics for their children, whether they are Alaska residents, other U.S. residents or others. These social costs and social benefits are considered qualitatively and, to the degree possible, quantitatively below.

The word "value" can have a variety of meanings. In one sense, value can mean that which is desirable or worthy for its own sake. In another, value can mean a fair or proper equivalent in money, commodities, etc. (Freeman, 2003). Economics considers value in the latter sense, using tradeoffs to determine the "equivalence." Often these values and tradeoffs are expressed in monetary terms. At other times where monetary expressions are not available, value and tradeoffs are considered in qualitative terms. Executive Order 13563 recognizes that a quantifiable analysis is not always possible but must include a reasoned determination that the benefits justify the regulatory costs. In the sections below (*Analysis of Roadless Area Characteristics*, *Potential Impacts by Resource Area* and *Agency Costs*) values are discussed qualitatively as well as quantitatively.

## *General Assumptions*

This analysis compares the benefits and costs associated with the proposed rule (Alternative 1). According to Office of Management and Budget (OMB) direction, the benefits and costs of proposed regulations and Forest Service directives must be compared or measured against a baseline. The baseline applies to the provisions of the 2020 Alaska Roadless Rule (85 FR 68688) under the No Action Alternative discussed as Alternative 6 in the FEIS (USDA Forest Service 2020).

The benefits and costs of this proposed rule both come primarily from changes in land use that may occur with addition of inventoried roadless areas under the 2001 Roadless Rule. Future timber harvest may occur in less efficient acres, instead of the more efficient acres easily accessed under the exemption, reducing potential benefits of timber production in the area. Decreases in potential future timber value are anticipated with decreased access to old-growth suitable acres (considering the higher value of acres with older stands of trees). These decreases represent the cost of the proposed rule. Any beneficial effects of such changes, such as environmental impacts or shifts in lands available to other businesses represent the benefits associated with implementing past standards for resource protection. These costs and benefits are inextricably linked. If no change in land use patterns occur (or less than estimated changes in land use), then the beneficial effect of those changes will also not be realized. The cost benefit analysis discusses benefits and costs that are not readily quantifiable, but nonetheless demonstrate benefits, costs and efficiencies gained from the proposed rule (Alternative 1). The potential benefits and costs are dependent on local conditions and the complexity and nature of issues associated with future decisions that are unknown and difficult to predict. Many benefits and costs are therefore not quantified but discussed in a qualitative manner for the baseline exemption, proposed rule, and other regulatory alternatives below. An analysis of stumpage value, avoided lost revenue from recreation related displacement, and costs to the agency is provided in the introduction above and cost-benefit discussion below.

As discussed in the introduction above, the types of benefits derived from uses of roadless areas in Alaska are far ranging and include a number of non-market and non-use benefit categories. The section on *Analysis of Roadless Area Characteristics* provides this detail. The section below on *Potential Impacts by Resource Area* provides detail on market values related to affected resource areas. Lastly there is a section on *Agency Costs*. Table 6 summarizes the environmental consequences, for both market and non-market categories, for each regulatory alternative in a comparative format. The table is from the FEIS for the 2020 Alaska Roadless Rule (Table 2-12, USDA Forest Service 2020) and has not been changed to reflect the new baseline under the existing 2020 Alaska Roadless Rule, however, is included to demonstrate differences amongst regulatory alternatives. Environmental consequences for each alternative are independent of one another and not presented relative to the baseline. The nine categories below used for the qualitative ratings in Table 6 are as follows (from most adverse to most beneficial):

- Substantial Adverse Effect
- Moderate Adverse Effect
- Minimal Adverse Effect
- Very Minimal Adverse Effect
- Neutral/No Effect
- Very Minimal Beneficial Effect

- Minimal Beneficial Effect
- Moderate Beneficial Effect
- Substantial Beneficial Effect

Before authorizing a land-use activity, the Forest Service must complete a site-specific environmental analysis, pursuant to NEPA and its implementing regulations. When a specific project or activity is proposed on NFS land, the Forest Service conducts site-specific analyses of the effects associated with that project or activity and makes a decision that authorizes implementation of that project or activity (this requirement exists under all regulatory alternatives including the baseline 2001 Roadless Rule). Ground disturbing activities covered by NEPA would adhere to the 2016 Tongass Forest Plan and would be consistent with the goals, objectives, management prescriptions, standards, guidelines, projected timber sale quantity, projected wood sale quantity, and young-growth transition strategy. This includes standards and guidelines for non-timber resources, for example riparian management standards and guidelines which provide protection for fisheries with subsistence and commercial importance. All timber harvest, including harvest in areas formerly designated as inventoried roadless areas, would be compelled to adhere to these resource standards and guidelines (fisheries, water quality, air, recreation, etc.), thus providing continuation of Forest Plan direction under all the regulatory alternatives. Regardless these activities would have indirect effects on roadless area characteristics and are discussed below.

**Table 6.** Qualitative comparison of the Alternatives

Resource/Category	Alternative					
	Proposed Rule	2	3	4	5	Baseline
	2001 Roadless Rule	Roaded Roadless Alternative	Logical Extension Alternative	Partial Dev LUDs <sup>1</sup> Alternative	All Dev LUDs Alternative	Full Exemption Alternative
<b>Analysis of Roadless Area Characteristics</b>						
Overall Protection of Roadless Characteristics on the Tongass	Neutral/No Effect	Neutral/No Effect	Very Minimal Adverse Effect	Minimal Adverse Effect	Moderate Adverse Effect	Moderate Adverse Effect
<b>Potential Impacts by Resource Area</b>						
Forest Products	Neutral/No Effect	Very Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect
Recreation/Tourism (Visitor)	Neutral/No Effect	Neutral/No Effect	Very Minimal Adverse Effect	Minimal Adverse Effect	Minimal Adverse Effect	Minimal Adverse Effect
Industry Employment	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect
Fisheries Employment	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect
<b>Minerals Development Potential</b>						
Locatable	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect	Neutral/No Effect
Leasable	Neutral/No Effect	Very Minimal Beneficial Effect	Very Minimal Beneficial Effect	Moderate Beneficial Effect	Moderate Beneficial Effect	Moderate Beneficial Effect
Infrastructure: Renewable Energy Project Development Potential	Neutral/No Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect
Infrastructure: Potential for Development of State Roads and Other Transportation Projects	Neutral/No Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Moderate Beneficial Effect	Moderate Beneficial Effect	Moderate Beneficial Effect

Resource/Category	Alternative					
	Proposed Rule	2	3	4	5	Baseline
	2001 Roadless Rule	Roaded Roadless Alternative	Logical Extension Alternative	Partial Dev LUDs <sup>1</sup> Alternative	All Dev LUDs Alternative	Full Exemption Alternative
Alaska Native Customary and Traditional Uses	Neutral/No Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect	Minimal Beneficial Effect
Subsistence	Neutral/No Effect	Minimal Adverse and Beneficial Effects	Minimal Adverse and Beneficial Effects	Minimal Adverse and Beneficial Effects	Minimal Adverse and Beneficial Effects	Minimal Adverse and Beneficial Effects

Notes:

This table is from the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020) and has not been changed to reflect the new baseline under the existing Alaska Roadless Rule.

### ***Analysis of Roadless Area Characteristics***

Roadless areas are important because of their wildlife and fish habitat, recreation values, importance to multiple economic sectors, inherent passive use values, traditional properties and sacred sites for local indigenous people, and ecosystem service values they provide (USDA Forest Service 2020). Under the Forest Plan, timber management activities are governed by a number of rules and regulations designed to protect or mitigate adverse impacts to natural resources that provide ecosystem services (USDA Forest Service 2016). Ecosystem services values on the Tongass National Forest are discussed further in the 2008 Forest Plan FEIS (USDA Forest Service 2008, pp. 3-553 to 3-556). The effects of the alternatives on these types of services are assessed in the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020)—specifically the sections that address fisheries, wildlife and subsistence use, and timber and vegetation, among others. Monetary values are not assigned to these services, but this does not lessen their importance in the decision-making process. Passive use values represent the value that individuals assign to a resource independent of their use of that resource and typically include existence, option, and bequest values. These values represent the value that individuals obtain from knowing that expansive roadless areas provide ecosystem services by virtue of being roadless and that they exist, knowing that they are available to visit in the future should they choose to do so, and knowing that they are available for future generations to inherit.

Passive use values are also nonmarket values and exist for individuals and households both in and beyond Southeast Alaska and should thus be considered in the aggregate alongside changes to roadless protection under the regulatory alternatives. Forest ecosystems provide many important nonmarket services, and thus values, to society (e.g., clean air, clean water, biological regulation, climate regulation, biodiversity, cultural and recreational services, etc.). However, markets and governments most often fail to properly and fully account for those economic and ecological values, as well as their significance. The incorporation of nonmarket values into public decision making has been limited due to institutional and methodological barriers. The cost and benefit analysis below quantifies a potential range of values held by Alaska residents using a measure of willingness to pay for conserving Tongass National Forest old growth forests as opposed to harvesting them (Hjerpe and Hussain 2016). These values are primarily passive, due to the design of the study, but more traditional use values cannot be excluded.

While the Hjerpe and Hussain research quantifies the economic value of old-growth preservation on the Tongass National Forest, uncertainty exists about the applicability of those values to the suitability designation under the regulatory alternatives. Designation of old-growth as suitable timber does not mean conservation benefits described in the Hjerpe and Hussain paper (i.e., biological regulation, climate regulation, biodiversity refugia, and numerous cultural and recreational services) are not provided. Even if suitable old-growth is harvested, these services and benefits would still be provided, per legal requirements (e.g., NFMA implementing regulations, 36 CFR Part 219) to provide for ecological sustainability, species of concern, and multiple uses such as wildlife habitat and clean water<sup>7</sup> but at possibly lower or altered levels from those assumed by Hjerpe and Hussein for old-growth preservation. However, this was not clear in description of the survey provided in the paper and respondents might assume that failing to preserve old growth would eliminate the ecosystem services associated with old-growth. Regardless the Hjerpe and Hussain paper can be used to examine the more passive value to society from conservation of old-growth. A per acre value for average willingness to pay for conserved old growth is derived by Hjerpe and Hussain (2016) by dividing the mean willingness to pay (by some Alaska households<sup>8</sup>) for conservation of 50% of remaining harvestable old-growth on the Tongass National Forest (\$33.3 million) by the harvestable old-growth acres for that attribute (222,500) revealing an average willingness to pay of \$150 per acre (2012 dollars) to conserve remaining old-growth. Using a consumer price index deflator this value is \$171 per acre in 2020 dollars. This willingness to pay value is adopted as a proxy for measuring potential passive use benefits from old growth conservation (implicit in roadless area designations) through changes in timber suitability designations under the regulatory alternatives.

Willingness-to-pay values are applied to removal of all old-growth suitable acres under the regulatory alternatives (Table 7), implying that benefits from the ecosystem services provided by old growth are maintained for all areas, regardless of actual harvest occurring within suitable areas. Table 7 provides this estimate of old growth conservation benefits but is not included in the discounted analysis in Table 12 given the uncertainty regarding potential inconsistencies about benefits with and without old-growth conservation described above. While most consistent with the format of the Hjerpe and Hussein survey questions, the values did not describe the benefits from lands designated as suitable but not harvested, or from forest lands post-harvest. For this reason, levels of benefits using all suitable acres can be considered an overestimate of Alaska residents forgone old growth conservation benefits and are not used in the discounted analysis of the regulatory alternatives. Instead, conservation values are applied to an estimate of average annual harvest to provide consistency with analysis of other costs and benefits that use

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<sup>7</sup> NFMA directs that plans assure that timber will be harvested from National Forest System lands only where soil, slope, or other watershed conditions will not be irreversibly damaged. 16 U.S.C. 1604(g)(3)(E) for example, in the case of fisheries stream buffers and soils standards and guides provide protection to fisheries. In addition, the harvest of timber is subject to the legal context (e.g., Clean Water Act, Clean Air Act, Endangered Species Act, National Historic Preservation Act, etc.) within which forest plans and site-specific environmental analysis (NEPA) is performed.

<sup>8</sup> Hjerpe and Hussein were not able to adequately determine willingness to pay for Alaska households with annual income less than \$50,000. As a consequence, WTP values are only for AK households with annual incomes greater than \$50,000. Their estimates were adjusted by subtracting 10% of Alaskan households from the total number used to reflect those households below the poverty level and lacking discretionary income.

harvest levels, instead of all suitable acres, such as stumpage value. This conservative approach is also appropriate given limitations of stated preference methods like willingness-to-pay (Diamond and Hausman 1994; Kling et al. 2012).

The \$171 willingness-to-pay-per-acre value is applied to an estimate of acres harvested to estimate old growth conservation benefits to Alaska residents. While harvest levels do not vary across the regulatory alternatives, the level of suitable old growth acreage does vary across the regulatory alternatives (Table 2) and provides a frame of reference for measuring old growth conservation benefits. While annual levels of old growth harvest within suitable acres are uncertain, the Record of Decision for the 2016 Tongass Forest Plan estimated that a total of approximately 24,000 old-growth acres would be harvested Forest-wide after 25 years, with a total of 42,500 old-growth acres harvested after 100 years (USDA Forest Service 2016a). While only a portion of suitable acres will be harvested, using net change in suitable old growth acres divided by 100 as the 100-year estimate provides higher estimates of annual harvest for analysis providing a net measure in harvest acres and consistency with the Hjerpe and Hussein intention of applying values to suitable acres. This provides a higher value than the 42,500 acres divided by 100 (except for Alternative 4 which uses 42,500 acre estimate since higher than 7,000 suitable acres) and is multiplied by \$171 per acre for an estimate of Alaska resident’s old growth conservation benefits without harvest.

**Table 7.** Average annual old growth conservation benefits to Alaska households

	<b>Proposed Rule- 2001 Roadless Rule</b>	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 4</b>	<b>Alt 5</b>	<b>Baseline Exemption</b>
Net change in old growth acres suitable for harvest <sup>1</sup>	-168,000	-148,000	-83,000	-7,000	0	0
Suitable acres - old growth conservation benefits (suitable acres * \$171)	\$28,728,000	\$25,308,000	\$14,193,000	\$1,197,000	\$0	\$0
Suitable acres - old growth conservation benefits (annualized) <sup>2</sup>	\$2,013,280	\$1,773,604	\$994,656	\$83,887	\$0	\$0
Estimate for discounting - old growth conservation benefits (annual harvest acres * \$171) <sup>3</sup>	\$287,280	\$253,080	\$141,930	\$72,675	\$0	\$0

<sup>1</sup> From Table 2.

<sup>2</sup> Annualization could assume conservation benefits per acre into perpetuity however 100 years is used for consistency and comparison with the estimate of conservation value used in the discounted analysis.

<sup>3</sup> The estimate of conservation value for the regulatory alternatives use the largest measure of estimated annual harvest, which is suitable acres divided by 100, except for Alternative 4 which uses the larger 100-year 42,500 acre estimate (USDA Forest Service 2016a).

While the estimates provide insight on old growth conservation benefits held by households in Alaska, these estimates are an underestimate because they do not consider the conservation values held by U.S. households outside of Alaska, and their corresponding benefits. As stated in the Hjerpe and Hussain paper “the passive use values held by nonresidents may not be the same as held by the locals.” (Hjerpe and Hussain 2016). These conservation benefits to Alaska residents, are incorporated in the cost benefit analysis in Table 12 below.

The qualitative values considered under roadless characteristics include biological, physical and

social values. Roadless areas are considered high in biological value if they contain a diversity of plant and animal communities, old-growth forests, and/or habitat for threatened, endangered, or sensitive species or wide-ranging species that are dependent on large, undisturbed tracts of land. The physical values associated with roadless areas include soils, water, and air. The social values considered under roadless characteristics include remoteness, scenic quality, traditional cultural areas and sacred sites, reference landscapes, and other locally unique characteristics. Exceptions include the roaded roadless areas, where previous road development and timber harvest has taken place and localized areas along the shoreline where historic development has occurred or localized areas where mining-related activities have occurred. This section first provides findings specific to the proposed rule (Alternative 1) and then provides a comparison of the proposed rule to the baseline Alaska Roadless Rule (Alternative 6) and other regulatory alternatives for the values considered under roadless characteristics (biological, physical and social values). Analysis of values, mentioned above, assumes indirect effects from ground disturbing activities, including timber harvest, occurs.

### **Analysis of Roadless Characteristics under the Proposed Rule**

Under the proposed rule, 9.4 million acres of roadless areas would be added with an estimated net loss of about 168,000 acres of suitable old growth available for harvest. As depicted in the first row of Table 6, the proposed 2001 Roadless Rule and Alternative 2 result in no adverse effects (Neutral/No Effect) to “Overall Protection of Roadless Characteristics” and the values they provide to multiple economic sectors, inherent passive use values, traditional properties and sacred sites for local indigenous people, and ecosystem services. Since this is no longer the baseline and is now the proposed rule, the proposed rule and Alternative 2 would provide the most beneficial effect to roadless characteristics, since the baseline exemption previously (as depicted in Table 5) was the most adversely effected across the regulatory alternatives.

Alternatives 2 and 3 would add roadless protection apart from “roaded roadless” areas. In addition, areas adjacent to existing road and harvest systems would also not be provided roadless protection. Under Alternative 3, adjacent areas, considered “logical extensions” of the existing road and harvest systems within the same watersheds, would maintain acres of previously unsuitable lands to suitable old-growth lands that would be available for harvest. The addition of roadless protections from roaded roadless acres along with logical extension acres (including ownership changes and updated mapping) would result in a net decrease of about 83,000 acres of suitable old-growth lands that would not be available for harvest.

As displayed in Table 6 changes under Alternatives 3 and 4 would result in very minimal and minimal adverse effects, respectively to “Overall Protection of Roadless Characteristics” and the values they provide; however relative to the new baseline these would be Very Minimal Beneficial Effect and Minimal Beneficial Effect, respectively relative to the baseline exemption. While more adverse than the proposed rule and Alternative 2 adverse effects under Alternatives 3 and 4 are less than Alternatives 5 (operation subject to requirements under the Forest Plan) and the baseline Alaska Roadless Rule (Alternative 6) (moderate adverse effects). Detail on effects to the values considered under roadless characteristics (biological, physical and social values) are provided below.

In addition, under Alternative 4 the Timber Priority roadless category (see description above) would provide about 43,000 acres of suitable old-growth lands that would be available for

harvest, resulting in the smallest decrease of 7,000 acres of suitable old growth relative to Alternative 5 and the baseline exemption. Additions to roadless protection under Alternative 4 include the LUD II acres not designated as roadless in 2001.

Under the baseline exemption (Alternative 6), all 9.4 million acres of roadless areas would remain removed from designated roadless, with an estimated 395,000 acres of suitable old growth available for harvest. As depicted in Table 6, “Overall Protection of Roadless Characteristics” the baseline exemption has the most adverse effects anywhere in the table, with Alternatives 5 and 6 showing the same impact.

Under all of the regulatory alternatives, projected harvest on suitable acres is not expected to change because of Forest Plan limitations but would be spread over a wider pool of lands. Harvest in the areas not designated as roadless would reduce roadless characteristics protected under the proposed rule and Alternatives 2 through 5.

### **Biological Diversity**

On the Tongass National Forest, the biological diversity associated with old-growth forests is considered of high importance to residents and visitors and from a national and worldwide perspective. Protection of this resource has been given high priority by the Tongass National Forest through the Old-growth Habitat Conservation Strategy, which was originally developed for the 1997 Forest Plan and has subsequently been carried forward through the 2008 and 2016 Forest Plan FEISs (USDA Forest Service 2008, 2016a).

The Tongass National Forest Plan Old-growth Habitat Conservation Strategy was developed to maintain the integrity of the old-growth forest ecosystem, and thereby conserve biological diversity across the Forest, by retaining intact, largely undisturbed habitat. This strategy, initially incorporated into the 1997 Forest Plan, was reviewed and amended for incorporation into the 2008 and 2016 Forest Plans. The Old-growth Habitat Conservation Strategy includes two major components: (1) a forest-wide network of variably sized old-growth reserves (OGRs) allocated to the Old-growth Habitat LUD plus other non-development LUDs and all small islands less than 1,000 acres, and (2) a series of standards and guidelines applicable to lands where timber harvest is permitted, also known as the matrix (USDA Forest Service 2020).

The effects of the alternatives on biological diversity and the Old-growth Habitat Conservation Strategy are described in detail in the Biological Diversity section of the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020). Effects related to old-growth harvest acres under all the regulatory alternatives are the same as those for the Alternative 1 of the 2016 Forest Plan FEIS, which allows for a harvest level much lower than the level originally allowed under the Conservation Strategy (see 1997 Forest Plan and 2008 Forest Plan Amendment; USDA Forest Service 2008, 2016a). However, effects due to the distribution of harvest, related to fragmentation and connectivity, would vary. The proposed rule (2001 Roadless Rule) and Alternatives 2 and 3 would have very low effects, while the baseline exemption and Alternatives 4 and 5 would have greater effects because of entry into more remote watersheds and roadless areas as described in the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020).

### **Habitat in Roadless Areas**

Roadless areas provide expansive areas of high-quality intact habitat for the full range of native

species and ecosystem components. These include threatened, endangered, and sensitive species, endemic species, and wide-ranging species dependent on large, undisturbed areas. The Tongass National Forest currently has no threatened or endangered species associated with terrestrial habitats. However, it does have 16 plant and 4 bird species designated as sensitive (see the section Key Issue 3, Fish and Wildlife and the Sensitive and Invasive Plants section of the FEIS for the 2020 Alaska Roadless Rule; USDA Forest Service 2020). Of the 16 sensitive plant species, only 4 species have known occurrences expected to be within suitable young-growth or old-growth harvest areas. For these populations and for previously undocumented populations that are located during project surveys, Forest-wide standards and guidelines under all the regulatory alternatives would result in consideration for protection to minimize impacts to these species. Among the bird species, three are marine or shoreline species and are expected to be protected from almost all adverse effects by Forest Plan LUDs and standards and guidelines. However, the Queen Charlotte goshawk (*Accipiter gentiles laingi*) is a wide-ranging species that seems to prefer mature and old-growth forest habitats for nesting and foraging. This species would be affected under all regulatory alternatives; effects would generally be similar among the regulatory alternatives but slightly higher for the exemption and Alternatives 4 and 5 because of longer road developments and associated fragmentation expected under these alternatives relative to the proposed rule and Alternatives 2 and 3.

Endemic species occur in isolated populations and can have limited mobility or specific habitat requirements (see the Key Issue 3, Wildlife section of the FEIS for the 2020 Alaska Roadless Rule; USDA Forest Service 2020). Thus, they are vulnerable to the effects of habitat loss and fragmentation, introduced non-natives, pathogens and disease, natural events (i.e., climate change), and overharvesting (Dawson et al. 2007). Although timber harvest levels are the same among all alternatives, the baseline exemption and Alternatives 4, and 5 would have the greatest potential for effects on endemics because the degree of fragmentation is likely to be higher under these alternatives (landscape connectivity and fragmentation are discussed in detail in the Biological Diversity section of the FEIS for the 2020 Alaska Roadless Rule; USDA Forest Service 2020). Most endemic species would benefit from the transition to young-growth harvest permitted under all alternatives due to the reduced amount of scheduled productive old-growth harvest over the long term.

Roadless areas may be of greatest value to wide-ranging species that require large, undisturbed areas of land. In general, this group consists of predators. Three mammals are included in this category: Alexander Archipelago wolf (*Canis lupus ligoni*) (for which there is a petition to U.S. Fish and Wildlife Service to list this species as threatened or endangered), brown bear (*Ursus arctos*), and American marten (*Martes americana*; see the Key Issue 3, Wildlife section of the FEIS for the 2020 Alaska Roadless Rule; USDA Forest Service 2020). These species are of concern because their numbers are relatively low (they are at or near the top of the food chain), they are under hunting harvest pressure (which is affected by access), they are sensitive to disturbance, and they range widely so they are often subject to many disturbances within their home ranges. Remote roadless areas often represent optimum habitats for them and may serve as important refugia for populations under harvest and development pressures. Of greatest concern on the Tongass National Forest is the Alexander Archipelago wolf, particularly on Prince of Wales and surrounding islands. Although the alternatives would be similar in terms of overall harvest levels, the baseline exemption and Alternatives 4 and 5 would result in the largest adverse effects on these species because of greater road lengths, penetration into remote roadless

areas, and habitat fragmentation that they would produce relative to the proposed rule and Alternatives 2 and 3.

### **Roadless Characteristics: Physical Values**

The physical values associated with roadless areas include soils, water, and air. The Tongass National Forest roadless areas are generally in near pristine condition in terms of soils, water quality, and air quality. Large acreages of excessive soil erosion, detrimental soil disturbance, or landslides attributed to management activities generally do not exist within roadless areas. However, there are localized areas within the roadless portion that include past management-related soil impacts. During project-level analysis, areas sensitive to surface erosion or landslides are identified and appropriate mitigation measures, including the Forest-wide standards and guidelines for Soil and Water (USDA Forest Service 2016), are used to reduce surface erosion and sediment production. Although timber harvest, energy project development, mining activities, and other development would be similar under each regulatory alternative, the potential for adverse impacts on the soil and water resource in roadless areas would differ slightly among the regulatory alternatives based on different levels of projected road construction. The baseline exemption and Alternatives 4 and 5 would have a slightly larger potential for adverse effects, relative to the proposed rule and Alternatives 2 and 3, because they are expected to result in slightly more road development. However, the differences among regulatory alternatives would be minor because effects from those projected activities would be mitigated through the use of site-specific analysis, Forest-wide standards and guidelines, and other best management practices, including post-project rehabilitation of disturbed soil. In addition, actual impacts on water quality anticipated from any alternative would be small in magnitude and scattered over a wide geographic area. Most of the potential effects would be of short duration, with disturbed soil areas rehabilitated after projects are completed in those areas.

Effects on air quality would also not substantially differ among regulatory alternatives. Based on the projected land management activities that differ among regulatory alternatives, atmospheric emissions in roadless areas are not anticipated to directly, indirectly, or cumulatively increase to a level that would be likely to exceed state or federal air quality standards. Air quality impacts from dust emissions would be negligible and would not vary significantly by regulatory alternative. Air quality effects could be slightly higher under the Alternatives 2 through 6, especially Alternative 5 and the current Alaska Roadless Rule (Alternative 6), due to slightly greater road construction, but the differences among the alternatives would be insignificant for air quality (USDA Forest Service 2020).

### **Scenic Quality**

The Tongass National Forest offers a variety of high-quality scenery to its visitors, from spectacular mountain ranges and glaciers to low-lying marine landscapes composed of intricate waterways, bays, and island groups. Scenic quality is based on two definable elements: landscape character and scenic integrity. Tongass National Forest roadless areas have natural-appearing landscapes, very high scenic integrity, and high value for landscape character as well. The exception for scenic integrity is the roadless areas, which have significantly reduced scenic integrity because of past harvest and road construction. Roadless areas are viewed from a variety of vantage points, including the communities of Southeast Alaska, the Alaska Marine Highway ferry route, cruise ship routes, existing road systems, popular small boat routes and anchorages, small aircraft, and hiking trails.

Road construction and timber harvest can have varying degrees of adverse effects on the scenic integrity of a landscape. The scenery analysis in the FEIS for the 2020 Alaska Roadless Rule cited here (USDA Forest Service 2020) is not directly related to acres in roadless protection. To help focus the visual effects on more familiar areas, the alternatives were analyzed by selected large viewsheds in the Tongass National Forest. These 23 viewsheds were selected for their popularity and intensity of public use and travel. In most studied viewsheds, the highest effects on scenery would be associated with Alternatives 5 and the baseline exemption, followed in order by Alternative 4, Alternative 3, Alternative 2, and the proposed rule. In addition, the baseline exemption and Alternatives 4 and 5 would likely result in more road development to reach more remote places, which would have a greater adverse effect on scenery than with less road development under the proposed rule and Alternatives 2 and 3. Road mileage differences, however, would not be large, because all regulatory alternatives would have the same level of harvest (estimated maximum difference for new road construction of 49 miles among alternatives; Table 3.3-21 of the FEIS for the 2020 Alaska Roadless Rule, USDA Forest Service 2020).

### **Recreation Opportunities**

Roadless areas provide recreation opportunity due to the variety of primitive, semi-primitive motorized, and semi-primitive non-motorized Recreation Opportunity Spectrum (ROS) classes of dispersed recreation. Approximately 95 percent of the 2001 roadless areas on the Tongass National Forest consist of primitive and semi-primitive ROS classes, and almost two-thirds of these are primitive. The ROS system portrays the combination of activities, settings, and experience expectations along a continuum that ranges from highly modified to primitive environments. The following seven classifications are identified along this continuum from most to least developed:

- Urban
- Rural
- Roded Modified
- Roded Natural
- Semi-Primitive Motorized
- Semi-Primitive Non-Motorized
- Primitive

The setting indicators and applicable standards and guidelines for the seven ROS classes are described in Appendix I to the Tongass Forest Plan (USDA Forest Service 2016).

Under Alternative 2, roded roadless and other substantially altered areas would lose protection as roadless. The net change in roadless designations would result in a decrease of 148,000 acres of suitable old growth and 9,000 acres of suitable young growth. Under Alternative 2 approximately 95 percent of Tongass National Forest roadless areas would be maintained as primitive and semi-primitive ROS classes.

Under Alternative 3, approximately 96 percent of the roadless areas on the Tongass National Forest would be maintained as primitive and semi-primitive ROS classes. The net changes in roadless designations would provide 83,000 fewer acres of suitable old growth and 5,000 fewer acres of suitable young growth. Under Alternatives 4 and 5, the remaining roadless areas would maintain approximately 96 and 97 percent of their areas as primitive and semi-primitive ROS

classes, respectively. The net change in roadless designations under these two alternatives would provide no change in acres of suitable old growth and 3,000 fewer acres of suitable young growth, under Alternative 5. Under all other regulatory alternatives, the retained roadless areas would remain similar in terms of their ROS allocations. The exception would be the baseline exemption, which would include no retained roadless designations.

Similarly, outfitter-guide use on the Tongass National Forest includes activities in more remote areas. The majority of these areas would be retained as roadless under the proposed rule and Alternatives 2 and 3. Substantially more lands in the primitive ROS class would be removed under Alternatives 4, 5 and the baseline exemption.

### **Traditional Cultural Properties and Sacred Sites**

The proposed rule and other regulatory alternatives require compliance with existing laws and regulations; therefore, before any management actions take place, the standard process for considering effects would be conducted as required by the implementing regulations for the National Historic Preservation Act and other relevant law, policy, and guidance provided in agreement documents. Consideration of effects would occur on a site-specific basis if projects were proposed in areas of historic importance. In most cases impacts would be avoided or mitigated. Tribal consultation is an integral part of the planning process for management actions, as well as consultations with the State Historic Preservation Officer and other interested parties.

For cultural resources, including historic and traditional cultural and sacred sites, prior to management actions taking place on the ground under the proposed rule and other regulatory alternatives, resource inventories and appropriate mitigation are required by law. Increasing risk to cultural resources may occur under the Alaska Roadless Rule and other regulatory alternatives because of potentially greater road lengths and potential activity, associated with harvest activities in areas protected from development under the proposed rule.

### **Locally Identified Unique Characteristics**

A range of distinctive characteristics occur within the Tongass National Forest roadless areas. Many of these are already identified in the Forest Plan and managed as Special Interest Areas. These include Geological Areas, Recreation Areas, Zoological Areas, Botanical Areas, Cultural Areas, and Scenic Areas. Special Interest Areas cover 186,000 acres within 2001 inventoried roadless areas. In addition, a number of Research Natural Areas occur within the Tongass National Forest roadless areas (21,000 acres). The Research Natural Areas, along with some of the Special Interest Areas, serve as reference landscapes. Further, a number of river corridors are managed under the Forest Plan as wild and scenic rivers. Within 2001 inventoried roadless areas, there are 14,000 acres of Recreational River, 16,000 acres of Scenic River, and 48,000 acres of Wild River. Finally, there are other small areas, not included within these special LUDs, such as areas with unique karst features that occur within roadless areas.

Altogether, these special LUDs cover 285,000 acres and would fall within 2001 inventoried roadless areas under the proposed rule. Under Alternative 2, these acres would remain at 285,000 acres, and they would be little changed under Alternatives 3, 4 and 5 at 281,000 acres, 279,000 acres, and 283,000 acres, respectively. However, under the baseline exemption (Alternative 6), the roadless acreage within these special LUDs would decrease to zero. Long term regulatory certainty is afforded with roadless acres under these special LUDs under Alternative 5, while

roadless acreage within these special LUDs would remain at zero under the baseline exemption.

### **Potential Impacts by Resource Area**

The proposed rule and regulatory alternatives have implications for specific places on the Forest used by various communities. They also have potential implications for resource dependent industries, infrastructure development, Alaska Native customary and traditional uses, and the availability of subsistence resources.

The proposed rule and regulatory alternatives establish direction and allowable activities for broad land areas, rather than schedule specific activities in specific locations. This makes it difficult to predict effects on individual communities and locations. This is a common source of frustration to local residents and businesses, who want to know exactly how they and the places they care about could be affected. While many potentially affected outputs of forest management, such as scheduled timber harvest, generally translate into social and economic activity, such as employment in the timber industry, it is difficult to predict which communities would be most affected from that activity. Forest Service activities provide economic opportunities to the private sector. How that sector and the various industries that comprise it respond depends on many variables in addition to Forest Service management. Communities that rely on a given resource-related industry would, however, be expected to be the first to benefit or lose from significant changes in planned output levels affecting that industry. The degree of local ownership of those industries would further affect the degree to which communities benefit or lose from changes in output levels.

### **Forest Products**

Analysis of stumpage value under the proposed rule indicate stumpage value could potentially decrease by approximately \$460,000 to \$922,000 dollars as a result of less flexibility to the timber sales program (USDA Forest Service 2019b). The proposed rule and Alternatives 2 through 5 would all decrease the suitable acres available for harvest, but acres would remain in three broad categories or areas: areas that have been substantially altered as identified by known prior road construction or timber harvest<sup>9</sup> (the baseline exemption and Alternatives 2 through 5); logical extension areas (the baseline exemption and Alternatives 3, 4 and 5); and areas more distant from roads (the baseline exemption and Alternatives 4 and 5). In addition, suitable old-growth acres would remain in Community Priority ARAs (Alternative 3). The suitable acres in areas where roads already exist (roaded roadless) or could be logically extended (logical extensions) are generally considered relatively more economically feasible to harvest. Acres identified as more distant from roads are likely to be more expensive to harvest and less likely to be accessed for timber production.

In practice, many factors can influence the cost of timber harvest, adding economic risks for potential purchasers and affecting the ability of the Forest Service to offer timber sales. Road construction, helicopter yarding, complex silvicultural prescriptions, stand size, and other factors may increase costs, which then decrease the value of the offering. The value of the timber

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<sup>9</sup> Removed areas include both development and non-development LUDs. These areas are generally known as “roaded roadless” areas but also include additional areas considered to be substantially altered.

offered must be sufficient to cover costs and include profit for the purchaser. Under the Further Consolidated Appropriations Act, 2020 P.L. 116-94, 133 Stat. 2751 (Sec. 436), timber sales that do not appraise positive using the current Region 10 Residual Value (RV) appraisal cannot be offered (USDA Forest Service 2020). Estimated costs per thousand board feet vary substantially across the Forest. Transportation infrastructure costs and haul distances are typically higher in more remote areas, i.e., those areas that are further from existing infrastructure and markets. In this context, markets may include a mill or export yard.

The Record of Decision for the 2016 Tongass Forest Plan estimated that a total of approximately 24,000 old-growth acres would be harvested Forest-wide after 25 years, with a total of 42,500 old-growth acres harvested after 100 years (USDA Forest Service 2016a). These estimates represent an approximate upper estimate of the number of roadless acres that could be potentially harvested under any of the regulatory alternatives. The 2016 Forest Plan FEIS (USDA Forest Service 2016a) estimated that approximately 5 MMBF of small and micro-sales of old-growth timber is required each year to meet the needs of existing small old-growth mills that produce high value products such as appearance grade lumber and cedar shingles. This annual small and micro-sale demand (5 MMBF) is anticipated to be met for the duration of the planning period under all of the regulatory alternatives, including the proposed rule.

For larger sales, more acres of suitable old-growth, under Alternatives 2 through 6, would allow the Forest Service greater flexibility in the selection of future timber sale areas, as well as the potential for more flexibility in sale design, depending on the planning areas selected. This improved flexibility could, in turn, potentially improve the Forest Service's ability to offer economically feasible sales that meet the needs of industry. This greater flexibility could be especially beneficial during the first two decades of the Forest Plan (the transition period), when most old-growth harvest would take place. While many factors can influence the cost of timber harvest, as noted above, areas along existing roads or those using marine access facilities are typically more economically efficient, followed by areas where existing roads can be easily extended. Transportation infrastructure costs can include road construction, reconditioning, reconstruction, and maintenance, as well as log transfer facility development. Road construction, reconditioning, reconstruction, and maintenance involve substantial costs that can strongly influence timber sale economics.

Areas closer to markets, either a mill or export facility, are also more likely to offer more economic timber sale options. Existing sawmills in Southeast Alaska are primarily located in the south part of the region, with a concentration of mills, including the last remaining medium-sized mill (Viking Lumber), on Prince of Wales Island. Sales on the south part of the Forest are, therefore, more likely to appraise positive. In cases where the Regional Forester allows 100 percent export, which is permissible on a case-by-case basis, proximity to an export facility may also result in sales being more likely to appraise positive (USDA Forest Service 2020).

The analysis uses stumpage value (all costs to sale purchasers subtracted from end product selling price) to measure benefits from a timber sales program with more acres of suitable old-growth, under Alternatives 2 through 6. Forest level "stump-to-truck" data on cost of harvest are used to examine costs to industry with and without roadless restrictions under the proposed rule. Data are available for two time periods, discussed below, reflecting the Tongass National Forest timber sale program under the 2001 Roadless Rule and an exemption. Changes in stumpage

value reflect efficiency gains from a portion of purchaser costs, covering just “stump to truck” from felling, yarding, and loading. Transportation and towing costs are assumed to remain constant. Harvest near existing roads and closer to markets may provide ‘stump to truck’ cost saving as readily available acres in areas formerly designated as IRAs are harvested first. As these acres are exhausted efficiency gains from lower “stump to truck” costs are likely to be offset by increased transportation and towing costs. Information on transportation and towing costs are not available and highly speculative given the influence of external market forces and lack of site-specific knowledge on where and when harvest will occur.

Stump-to-truck cost estimates used in this assessment are based on actual appraised values for past timber sales specific to felling, yarding, and loading costs. Under the Further Consolidated Appropriations Act, 2020 P.L. 116-94, 133 Stat. 2751 (Sec. 436), timber sales that do not appraise positive using the current Region 10 Residual Value (RV) appraisal cannot be offered. The Region 10 RV appraisal and other timber valuation programs are based on the best available information (collected from timber companies, price reports, and cost indices) to appraise timber sales on the Tongass National Forest. The main cost center affected by roadless restrictions is “fell yard load” because most of the easier ground (lower logging cost) was already logged in a first and second entry. In these cases, each subsequent entry into the roaded base has an increasing higher percentage of units with cable or helicopter logging or lower quality smaller timber in units deemed uneconomical (“left-overs”) in previous entries. In 2011 the federal court (District of Alaska) set aside the Tongass National Forest’s exemption and reinstated the 2001 Roadless Rule on the Tongass National Forest. Cost per thousand board feet (MBF) in the 8 years before and after 2011 provide a useful means for comparison. In the period during the exemption (2003 to 2010) the average cost per MBF harvested was \$267 while the average cost was \$287<sup>10</sup> per MBF over the period when roadless restrictions were in place (2011 to 2018) (USDA Forest Service 2019b). This increase in logging cost likely reflects the increased need for cable and heli-logging to harvest the units previously deemed “uneconomical” and “left-over”. This analysis however does not reflect road cost changes before and after 2011, which were twice as high before 2011 (0.4 vs 0.2 road miles per MMBF before and after 2011: USDA Forest Service 2019b). While reduced need for heli-logging provides cost saving, road construction and decommission costs paid by purchasers would increase without roadless restrictions.

In addition, analysis assumes road construction and decommissioning costs associated with timber sales are not covered by the agency given the influence of the limited export policy. In 2007, the Forest Service approved a Limited Export Policy in an effort to boost appraised values and provide purchasers economical sale opportunities and additional processing options. The policy was expanded in November 2009 to apply to all contracts and allowed export of unprocessed Sitka spruce and western hemlock logs, up to 50 percent of the total sale sawtimber volume, upon Regional Office approval. The Limited Export Policy is discussed in detail in Appendix H to the Tongass Forest Plan Amendment FEIS (USDA Forest Service 2016a).

As stated previously projected harvest levels are not expected to be different under any of the regulatory alternatives. Timber harvest levels on the Tongass National Forest depicted in the

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<sup>10</sup> Average costs for both periods were deflated to 2020 dollars prior to averaging.

Forest Plan (USDA Forest Service 2016) are assessed by continual timber demand monitoring and provide an upper estimate (46 MMBF per year) for estimating potential change to stumpage value. This upper estimate of 46 MMBF, is guided by the Forest Plan, and is a projection of future demand. This includes the agency's responsibilities under the Tongass Timber Reform Act, which directs the Forest Service to seek to provide a supply of timber from the Tongass National Forest that meets annual market demand and the market demand for each planning cycle to the extent consistent with providing for the multiple-use and sustained-yield of all renewable resources and other applicable requirements, including NFMA. Applying cost averages before and after the federal court decision in 2011 (\$267 and \$287 per MBF, respectively) indicates the proposed rule could reduce annual stumpage value by approximately \$922,000 dollars<sup>11</sup> at the harvest estimate of 46 MMBF under the Forest Plan FEIS.

In addition, a lower estimate of stumpage value change is provided to address uncertainty. Average annual timber harvest on the Tongass National Forest over the 17 years depicted in Table 5 is 35 MMBF; in any given year harvest may be different than the average. In the interest of estimating a lower level, one standard deviation (12 MMBF) is subtracted from the average timber harvest for an estimate of average timber harvest (23 MMBF). In addition, using average annual harvest from the past 17 years reflects harvest levels under the 2016 Forest Plan and 2008 Forest Plan. Applying cost averages before and after the federal court decision in 2011 (\$267 and \$287 per MBF, respectively) indicates the proposed rule could reduce annual stumpage value by approximately \$460,000 dollars at the lower harvest estimate of 23 MMBF. Thus, stumpage value could decrease by approximately \$460,000 to \$922,000 dollars in as a result of less flexibility under the proposed rule.

### **Recreation and Tourism**

Changes in land management have the potential to affect recreation opportunities on the Forest. Impacts could occur where timber management and development activities conflict with recreation opportunities for local residents and/or commercial recreation operators and their clients. Changes in old-growth and young-growth acres available for harvest provide an indicator of potential displacement of recreationists interested in primitive recreation experiences. For some recreation uses, additional development for timber harvest and other infrastructure could increase access to the Forest for more opportunities.

A range of potential avoided lost revenue to outfitter and guides is estimated under the proposed rule (and Alternatives 2 through 6). Under the proposed rule, estimated lost revenue, relative to the baseline exemption, ranges from approximately \$68,000 to \$224,000 annually in outfitter and guide related expenses in Southeast Alaska from IRA visitors not displaced from changes to young- and old-growth areas available for harvest. These upper- and lower bound estimates are used to consider potential lost revenue and should not be used as precise estimates of roadless area visitor expenditures or losses. Expenditures by visitors are estimated as entirely lost but may be just subject to displacement related changes. While some businesses may lose revenues, if

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<sup>11</sup> This value is used to examine the economic significance of the proposed rule. Economically significant regulatory actions are those that have an annual effect on the economy of \$100 million or more or adversely affect the economy or economic sectors.

visitors choose not to travel to Southeast Alaska, others may see increases in revenues if visitors choose to stay longer or travel to substitute sites within Southeast Alaska. Thus, these losses are most likely distributional or considered a redistribution of wealth if there are substitute opportunities in Southeast Alaska or on the Tongass National Forest. Travel to substitute sites is not necessarily realized as increased revenue by outfitters and guides if visitors choose to go elsewhere due to higher travel costs (time and money). However, in some cases visitors may choose to not come to Southeast Alaska at all, thus these estimates are appropriate for inclusion in the analysis of societal costs and benefits. Further, these estimates of lost revenue do not represent the loss in benefits to recreationists from reduced access to current recreation opportunities which are estimated below. Detailed explanation and sources for this analysis are provided in the following paragraphs.

The following analysis uses changes in suitable young- and old-growth acres in conjunction with information on existing outfitter/guide use to focus on potentially affected areas. Not all of the outfitter/guide use areas were used over the past 5 years; a number do not include any roadless acres; others include roadless acres, but none are suitable for old-growth harvest; and others would see little change in suitable old-growth acres by alternative. The FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020) performed a screening review based on these factors and recent patterns of existing use; and identified 15 outfitter/guide use areas where potential conflicts between existing outfitter/guide use and future management could occur. These are outfitter/guide use areas with recent outfitter/guide use where there would be changes in suitable old-growth acres under one or more of the action alternatives. Areas with no or limited existing use and no or small estimated changes in suitable old-growth acres relative to the Alternative 1 2001 Roadless Rule were removed from further review. A majority of the areas removed had no or minimal change in suitable old-growth acres under all five action alternatives (see Table C-4 in Appendix C of the FEIS for the 2020 Alaska Roadless Rule; USDA Forest Service 2020).

This location information is useful at broad level but does not identify actual patterns of outfitter/guide use, which may extend over relatively large areas, depending on the activity. It is also important to note that outfitter/guide use areas are large areas ranging from about 63,000 acres to more than 1.3 million acres in size; many are larger than the District of Columbia (43,740 acres) and three are larger than the state of Rhode Island (776,900 acres). Use in some of these areas involves multiple outfitter/guides, activities, and locations. Potential conflict could occur in multiple locations in each area. The following assessment is not a site-specific review, rather it uses available information to illustrate broad patterns of use and differentiate between the regulatory alternatives.

The analysis uses outfitter/guide related visitation in outfitter/guide use areas and the level of timber suitability designation under the regulatory alternatives to assess outfitter and guide related visitation displacement. Suitable timber lands represent those lands on the Forest that are suitable for timber production based on all multiple-use objectives of the Forest (see the Glossary and the Suitable Timber Land Assumptions section of the FEIS for the 2020 Alaska Roadless Rule (USDA Forest Service 2020). Suitable acres vary under the regulatory alternatives depending on the level of roadless area protections. Table 7 below provides visitation for the 15 outfitter/guide use areas (from Table C-1 of the FEIS Appendix C; USDA Forest Service 2020). The adjustment of visitation of each regulatory alternative is based on their suitability acreage as a percent of total suitable acres under the baseline exemption (from Tables C-4 and C-5 of the

FEIS for the 2020 Alaska Roadless Rule Appendix C; USDA Forest Service 2020) for an upper estimate of displacement; this is offered to provide a broad orders-of-magnitude comparison with other costs and benefits. Visitation and potential harvest do not occur evenly across the forest. The adjustment of visitation, using old-growth and young-growth timber suitability relative to the baseline exemption, avoids mischaracterizing visitor displacement as an assumption that visitation and harvest occurs evenly across outfitter/guide areas. In addition, this provides for an estimate of visitor displacement from harvest and associated lost revenue under the proposed rule.

The review by outfitter/guide use area also considers projected old-growth and young-growth harvest by alternative. Based on the assumptions used to distribute estimated old-growth harvest acres, very limited to no old-growth harvest is projected to occur in eight of the 15 outfitter/guide use areas discussed above, specifically those areas located on the north part of the Forest. In the remaining seven, old-growth and young-growth harvest is projected to decrease relative to Alternative 1, based on the relative distribution of suitable acres across the Forest. The remaining seven areas include the entire Craig and Thorne Bay Ranger Districts, and outfitter/guide use areas on the Petersburg (four areas) and Ketchikan-Misty Fjords (one area) Ranger Districts. The subset of seven outfitter/guide use areas provides a lower estimate of displaced visitation; adjusted based on the change in suitable acres (old-growth and young-growth) as a share of total suitable acres under the baseline exemption (Table 8).

**Table 8.** Outfitter/guide visitation and change in suitable acres as a percentage of the baseline exemption (Alternative 6)

<b>Outfitter/Guide Use Areas</b>	<b>Average Annual visitation</b>	<b>Proposed Rule – 2001 Roadless Rule</b>	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 4</b>	<b>Alt 5</b>	<b>Baseline Exemption</b>
01-03 EAST CHILKATS	294	65%	71%	71%	91%	100%	100%
04-03 SITKA AREA	5,632	83%	83%	83%	100%	100%	100%
04-04A RODMAN BAY	384	76%	76%	76%	100%	100%	100%
04-04B KELP BAY	4,926	61%	62%	62%	100%	100%	100%
04-11A PORT FREDERICK	896	57%	57%	58%	98%	99%	100%
04-11B FRESHWATER BAY	1,389	68%	70%	77%	98%	98%	100%
04-12 TENAKEE INLET	186	66%	63%	71%	100%	100%	100%
04-13 PERIL STRAIT	1,179	82%	82%	82%	93%	100%	100%
CRD 00-00NO AREA DESIGNATED	1,869	60%	74%	88%	97%	100%	100%
K19 NORTH REVILLA	213	61%	63%	63%	96%	100%	100%
P01 MITKOF ISLAND	928	87%	87%	92%	99%	100%	100%
P08 NORTH LINDENBERG PENINSULA	278	46%	69%	91%	99%	100%	100%
P12B KUIIU ISLAND ROAD SYSTEM	139	89%	85%	92%	100%	100%	100%
P21 MUDDY RIVER AREA	347	51%	52%	74%	100%	100%	100%
TBRD 00-00NO AREA DESIGNATED	1,239	89%	91%	97%	99%	100%	100%
Total displaced visitation in the 7 outfitter/guide use areas (shaded above) <sup>1</sup>		3,595	3,954	4,462	4,939	5,004	5,013
Total displaced visitation in all 15 outfitter/guide use areas above <sup>1</sup>		14,273	14,721	15,356	19,648	19,834	19,899

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Notes:

<sup>1</sup> Totals in the first column correspond to all visitation in the 7 and 15 outfitter/guide use areas while the totals under the regulatory alternatives are the sum of all products of visitation in each outfitter/guide use area and the respective percent for each outfitter/guide use area under each regulatory alternative.

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Revenue to outfitter and guides from visitors to the Tongass National Forest is an important source of income for many communities in Southeast Alaska. The University of Alaska Anchorage assessed the economic importance of nature-based tourism in Southeast Alaska, as measured by business revenue (Dugan et al. 2009). Information from Dugan et al. indicate that average annual outfitter and guide revenues (associated with Tongass National Forest activities) range from \$122 to \$1,280 and average \$711 per trip (deflated to 2020 dollars); excluding guided hunting trips. Hunting trips can cost from \$4,270 to the most expensive \$15,370 per trip (deflated to 2020 dollars). The average (excluding hunting) is used for 78 and 72 percent of potential visitation displacement while the most expensive hunting trip cost are applied to 22 and 28 percent (for the fifteen and seven outfitter/guide use areas, respectively where 22 and 28 percent of clients were on guided hunting trips; USDA Forest Service 2019c) (Table 9).

**Table 9.** Projected change from the baseline exemption, in average annual potential displaced visitors and avoided lost revenue (2020 dollars) in outfitter/guide use areas

	Proposed Rule2001 Roadless Rule	Alt 2	Alt 3	Alt 4	Alt 5	Baseline Exemption
<b>15 outfitter/guide use areas</b>						
Displaced Clients <sup>1</sup>	142.7	147.2	153.6	196.5	198.3	199.0
Net Change in displaced clients <sup>2</sup>	56.3	51.8	45.4	2.5	0.7	0.0
Max potential avoided lost revenue	\$567,000	\$585,000	\$610,000	\$781,000	\$788,000	\$791,000
Net Change in avoided lost revenue	\$224,000	\$206,000	\$181,000	\$10,000	\$3,000	\$0
<b>7 outfitter /guide use areas</b>						
Displaced Clients <sup>1</sup>	36.0	39.5	44.6	49.4	50.0	50.1
Net Change in displaced clients <sup>2</sup>	14.2	10.6	5.5	0.7	0.1	0.0
Max potential avoided lost revenue	\$174,000	\$191,000	\$216,000	\$239,000	\$242,000	\$242,000
Net change in avoided lost revenue	\$68,000	\$51,000	\$26,000	\$3,000	\$0	\$0

<sup>1</sup> Under the proposed rule and regulatory alternatives projected harvest acres are not subject to harvest in a single year. This provides for variation in annual harvest in any given outfitter/guide use area but visitation displacement noted above would occur over the 100 years of harvest projected thus estimates of displaced clients are divided by 100.

<sup>2</sup> Totals may not add due to rounding.

These estimates should not be used as precise estimates of IRA visitor expenditures, but instead to compare between alternatives. Expenses incurred by visitors are not necessarily lost but subject to displacement related changes. While some businesses may lose revenues, if visitors choose not to travel to Southeast Alaska, others may see increases in revenues if visitors choose to stay longer or travel to substitute sites within Southeast Alaska. Potential avoided lost visitor expenditures for the 15 outfitter/guide use areas are used as an upper estimate to examine economic significance<sup>12</sup> and are discounted alongside avoided lost revenue in the seven outfitter/guide use areas (over a 20-year period at a 3 and 7 percent discount rate) and compared to benefits from the timber program, and costs to the agency from road maintenance in Table 12 below.

In addition to the analysis of potential avoided lost revenues to outfitter and guides, the potential loss in value for other recreationists *not using outfitter and guides* is examined. Table 6 and the recreation discussion above, under the section **Analysis of Roadless Area Characteristics**, provides effects related to the non-market value of the recreation experience under the proposed rule and other regulatory alternatives; providing qualitative examination of these values (Scenery, Recreation Opportunities, etc.) while the forgone conservation values (Table 7) examine non-use or existence values. In addition, use-values associated with recreation opportunities in roadless areas exist and are examined quantitatively here using 16 activity specific values (Backpacking, Cross-country Skiing, Fishing, Gathering Forest Products,

<sup>12</sup> Economically significant regulatory actions are those that have an annual effect on the economy of \$100 million or more or adversely affect the economy or economic sectors.

Hiking/Walking, Hunting, Nature Study, No Activity Reported, Non-motorized Water, Other Non-motorized, Picnicking, Primitive Camping Relaxing, Some Other Activity, Viewing Natural Features, and Viewing Wildlife) for Alaska from the Recreation Use Values Database that include an exhaustive review of economic studies spanning 1958 to 2015 (Rosenberger et al. 2017).

Information from NVUM on the type of site visit for the Tongass National Forest indicates general forest area visits made up 64 percent of all forest site visits (2,874,000 visits) or 1.8 million visits annually. General forest area visits include IRA visitation, because such visitation does not make day use or overnight use of developed sites, as well as wilderness visits. An overview of land area percentages on the Tongass National Forest provides perspective on the application of general forest area visits to IRAs: the existing 110 IRAs on the Tongass National Forest cover 9.4 million acres which is 56 percent of the forest outside of wilderness. Developed areas cover about 1.3 million acres (about 8 percent), wilderness covers about 5.9 million acres (35 percent); leaving 1 percent of the remaining forest area classified as other general forest area. Visitation in IRAs, wilderness and other general forest area visits rely upon access routes and thus the assumption that general forest area visits are evenly distributed on a per acre basis is an overestimate of IRA visitation. However, this provides an upper estimate useful for analysis of forgone value due to displacement from timber harvest.

Although the alternatives would vary in terms of the amount and location of acres suitable for timber harvest, the total volumes expected to be harvested would be the same under each regulatory alternative. The Record of Decision for the 2016 Tongass Forest Plan estimated that a total of approximately 24,000 old-growth acres would be harvested Forest-wide after 25 years, with a total of 42,500 old-growth acres harvested after 100 years. Using the same assumptions for young growth, an estimated 284,000 acres of young growth would be harvested over 100 years (USDA Forest Service 2016). These estimates represent an approximate upper estimate of roadless acres that could be potentially harvested under any of the regulatory alternatives (USDA Forest Service 2020) and provide a per acre basis for measuring potential displacement of IRA visitors.

Young- and old-growth harvest acreages need to be converted to annual averages in order to estimate potential displacement of IRA visitors. An upper estimate of the 25 year old growth estimate (24,000 acres/25 years = 960 acres per year) is added to the annual average of the 100 year young growth estimate (284,000 acres/100 years = 2,840 acres per year) to estimate average annual disturbance due to harvest (960 + 2,840 = 3,800 acres). In any given year the annual harvest is likely to vary from the annual average over the 25 or 100 year periods, thus the estimate of disturbance is tripled (3,800 \* 3 = 11,400 or roughly 12,000). Assuming that the 1.8 million general forest area visitors and harvest locations are both evenly distributed over IRAs approximately 2,400 visitors may be displaced due to annual harvest of suitable young- and old-growth (12,000 acres / 9,368,000 acres \* 1,839,360 visits).

Similar to the outfitter/guide analysis above, the following analysis uses changes in suitable young- and old-growth acres under the regulatory alternatives in conjunction with information on visitation in IRAs to help focus on potentially affected areas and provide variation across the alternatives. The analysis assumes all potentially displaced visitation is displaced under the highest level of suitability designation, under the baseline exemption, to provide an upper

estimate of displacement; this is offered to provide a broad orders-of-magnitude comparison with other costs and benefits. Potentially displaced visitation under the regulatory alternatives is adjusted based on the change in suitable acres (old-growth and young-growth) as a share of total suitable acres under the baseline. This provides adjustment to the assumption based on harvest above to account for visitation and potential harvest not occurring evenly across the forest. In addition, this provides for an estimate of visitor displacement from harvest and associated avoided loss of value of access under the proposed rule.

**Table 10.** Potential avoided loss of value of access to non-outfitter/guide recreation from harvest

	<b>Proposed Rule – 2001 Roadless Rule</b>	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 4</b>	<b>Alt 5</b>	<b>Baseline Exemption</b>
Old growth plus Young growth suitable acres <sup>1</sup>	560,980	30,796	99,695	175,742	184,688	187,907
change in suitable as a share of Proposed rule baseline exemption	75%	79%	88%	98%	100%	100%
Displaced visitors	1,798	1,896	2,117	2,361	2,390	2,400
Avoided loss of value of non-outfitter guide recreation access <sup>2</sup> (2020 dollars)	\$240,000	\$253,000	\$282,000	\$315,000	\$319,000	\$320,000
Net change in Avoided loss of value (2020 dollars)	\$80,000	\$67,000	\$38,000	\$5,000	\$1,000	\$0

<sup>1</sup> USDA Forest Service 2020

<sup>2</sup> Rosenberger et al. 2007

Potential avoided loss of value of access to recreation are discounted (over a 20-year period at a 3 and 7 percent discount rate) and compared to benefits from the timber program, and costs to the agency from road maintenance in Table 12 below.

### Commercial Fisheries

The proposed rule and other regulatory alternatives are not expected to have a significant change to the commercial fishing or fish-processing industries over the planning period, provided that Forest Plan direction remains in place. Riparian Management standards and guidelines established in the 2016 Forest Plan (USDA Forest Service 2016a) would remain in place under the proposed rule and all of the regulatory alternatives. While there would be some variation in the level of protection, these variations are not expected to affect the fishing industry. The future of the fishing industry in Southeast Alaska is more likely to depend upon occurrences outside of the Tongass National Forest such as hatchery production, offshore harvest levels, and changes in ocean conditions.

The absence of an effect due to the proposed rule and regulatory alternatives is based on the conclusion from the 1997 Tongass Forest Plan FEIS (USDA Forest Service 1997); which noted that the amount of acreage of timber harvest was at most less than 20,000 acres per year, representing approximately 0.5 percent of the total remaining productive old growth (or 5 percent over the next decade) and less than 0.02 percent of the entire Forest. That FEIS concluded that this level of timber harvesting was not expected to result in a significant change to commercial fishing. The proposed rule and other regulatory alternatives would allow considerably less timber harvest and new road construction than the alternatives evaluated in the

1997 FEIS. Total annual old-growth harvest allowed over the 100-year planning period would be approximately 42,500 acres, substantially lower than the maximum proposed in the 1997 FEIS.

### **Infrastructure Development**

With some important exceptions, federal and state road development would be limited in IRAs under the proposed rule and Alternatives 2 through 5. Exceptions include roads with reserved or outstanding rights, roads provided for by statute or treaty, or road development related to a Federal Aid Highway. Roadless protection would be added to various degrees under the proposed rule and Alternatives 2 through 5 with corresponding implications for regional highway development. In most cases, changes in discretionary roadless management, as well as changes in the number of acres managed as roadless, would be more restrictive with respect to regional road systems under the current baseline Alaska Roadless Rule. In addition to those roads excepted under the proposed rule, Roadless Priority ARAs, under Alternatives 2 through 5, would also allow roads needed for the connection of communities and development of the regional transportation system as identified in the State of Alaska's Southeast Alaska Transportation Plan. Timber Priority ARAs and areas provided roadless protection would add roadless rule-related restrictions on road building. As a result, fewer areas would be available for additional types of regional road development under Alternatives 2 through 5. Future road projects would be subject to funding constraints and evaluated in detail on a project-by-project basis.

None of the regulatory alternatives are expected to substantially affect the development of energy projects or related infrastructure. Adding roadless designations in areas under the proposed rule and Alternatives 2 through 5 may complicate the process for projects but would not necessarily result in a decrease in the number of projects developed.

In areas where roadless areas are added or expanded, under the proposed rule and Alternatives 2 through 5, the permitting process could be more complicated, but projects would not be prohibited. An exemption for utility systems in Roadless Priority ARAs under Alternatives 2 through 5 and Community Priority ARAs (under Alternative 3) would allow for tree cutting and road construction. Under Alternative 4, Timber Priority ARAs would not prohibit tree cutting or road construction at all. Where restrictions are removed, or exemptions added, the greatest effect may be in making the permitting process for developers less burdensome, resulting in a more rapid permitting process rather than an increase in the number of sites developed.

### **Alaska Native Customary and Traditional Uses**

Areas allocated to Roadless Priority and Community ARAs would explicitly allow the cutting, utilization, customary trade, and removal of trees for the purposes of Alaska Native customary and traditional uses, as well as road construction deemed necessary by a federally recognized Tribe for access to Alaska Native cultural sites. This type of use would also be allowed in Timber Priority ARAs, which allow all timber harvest and road construction. These types of uses would also be allowed in areas without roadless protection, subject to applicable Forest Plan standards and guidelines.

### **Subsistence**

Marine resources, including fish, mammals, and plants, account for more than half of total per capita harvest in all Southeast Alaska communities, ranging from 55 percent in Tenakee Springs

to 88 percent in Skagway (USDA Forest Service 2020). These resources are not expected to be affected by any of the regulatory alternatives, as described in the FEIS for the 2020 Alaska Roadless Rule (pages 3-239 through 3-253). Detailed assessments for individual Southeast Alaska communities, that include demographic data on percent native, percent below poverty, information on subsistence uses specific to these communities, along with community specific discussion of effects are included in Appendix E of the FEIS (pages E-2 to D110). Among the subsistence resources of greatest importance (salmon, other finfish, marine invertebrates, and deer), deer is the only one that could be potentially significantly affected by the alternatives evaluated in the 2016 Tongass Forest Plan EIS (USDA Forest Service 2016a). Therefore, the subsistence analyses prepared for each community area for that EIS used deer as a key indicator for potential impacts to subsistence resources.

The proposed rule, and other regulatory alternatives, including the current baseline Alaska Roadless Rule, would result in a reduction in deer habitat capability from existing conditions due to the harvest of mature young-growth and productive old-growth forest. Over the long term, reductions in habitat capability would reduce carrying capacity, or the numbers of deer an area is capable of supporting given the available resources. This could lead to a decline in the deer population, particularly following severe winters, if the demand for resources (e.g., food or habitat) exceeds the amount available.

Timber harvest tends to affect deer-related subsistence activities in two ways. In the short run, approximately 20 to 30 years following harvest, deer populations tend to increase in harvested areas in response to increased understory growth responding to sunlight associated with opening the forest canopy, although it may be of lesser quality compared to the same species of plants grown in the shade (Person and Brinkman 2013; Happe et al. 1990). In the long run, populations tend to decline as the canopy in even-aged forest stands closes, resulting in lower habitat quality. Impacts to habitat quality can be reduced through management (e.g., thinning) of young-growth stands.

Deer populations in unharvested areas are likely to remain at fairly constant levels that are typically lower than a comparable harvested area in the short run, but higher in the long run. Road construction also affects subsistence by providing subsistence hunters with ready access to areas that may have been previously inaccessible. This effect may be perceived as either positive or negative depending on the parties involved, as increased access may lead to increased competition for resources. Potential effects are likely to vary by community and may be perceived differently by members of the same or neighboring communities. Potential effects by community are assessed in the Communities section in the 2016 Forest Plan EIS (USDA Forest Service 2016a).

Multiple species of fish (including salmon) are harvested for subsistence, personal use, commercial fisheries, tourism and guided recreational fishing. Salmon, trout, char, and eulachon (hooligan) are harvested in subsistence fisheries and for personal use by local residents. Salmon and trout are also the basis of tourism and guided fisheries enjoyed by thousands of visitors, supporting hundreds of tourism and support businesses. The commercial fisheries derived from Tongass National Forest streams and rivers produce 28 percent of the Alaska salmon harvest, and support fishing and processing jobs for thousands of local residents and nonresidents (USDA Forest Service 2017).

The subsistence analysis conducted for the 1997 Forest Plan Revision FEIS found that some effects to fish habitat may result from land management activities, but the magnitude of the effects could not be calculated. The 1997 FEIS (USDA Forest Service 1997) noted that the amount of acreage of timber harvest was at most less than 20,000 acres per year, representing approximately 0.5 percent of the total remaining productive old growth (or 5 percent over the next decade) and less than 0.02 percent of the entire Forest. The proposed rule and other regulatory alternatives would allow considerably less timber harvest and new road construction than the alternatives evaluated in the 1997 FEIS. Total annual old-growth harvest allowed over the 100-year planning period would be approximately 42,500 acres, substantially lower than the maximum proposed in the 1997 FEIS. Regardless of the absence of Watershed priority protections under Alternatives 4, 5 and the current baseline exemption, Riparian Management standards and guidelines established in the Forest Plan (USDA Forest Service 2016) would remain in place.

While there would be some new road access under the regulatory alternatives in the long run, nearly all new roads constructed under the regulatory alternatives would be closed following harvest. These roads would, therefore, not be available for use by highway vehicles or high-clearance vehicles. They would, however, be available for access by other methods and would, as a result, have the potential to affect existing subsistence patterns. Some roads would be left open and available for access on maintained roads for administrative use, recreation and other uses such as infrastructure.

### **Mining and Mineral Development**

The Forest Service divides minerals resources into three groups: locatable minerals, leasable minerals, and salable minerals. Locatable minerals are those minerals that may be located and removed from Federal lands under the authority of the General Mining Law of 1872, as amended. Examples of locatable minerals on the Tongass National Forest include gold, silver, copper, molybdenum, iron, nickel, lead, and zinc. The General Mining Law of 1872, as amended, grants every United States citizen the right to prospect and explore public domain lands open to mineral entry. The right of reasonable access is guaranteed and is not at the discretion of the Forest Service. Exploration, mining, and mineral processing activities, including road construction and reconstruction, would be allowed in IRAs to the extent provided by statute and would be allowed under the proposed rule and all the other regulatory alternatives. Changes in roadless management under the proposed rule are, therefore, not expected to affect existing or future locatable mineral exploration or mining activities on the Forest.

Leasable minerals are certain types of minerals, primarily energy resources (e.g., oil, gas, coal, and geothermal resources) that are not subject to mining claim location but are available for exploration and development under provisions of the Mineral Leasing Act of 1920. Roadbuilding would be prohibited for any new leasable projects, including geothermal projects, within IRAs under the proposed rule and regulatory alternatives. For Alternatives 2 through 5, this prohibition would be in place for ARAs with watershed (Alternative 2) and LUD II priorities. Following project-specific analyses, roads could be approved for leasable projects within ARAs with timber (Alternative 4) or roadless priorities. Under the proposed rule, roadbuilding would be prohibited for any new leasable projects, including geothermal projects, within roadless areas on the Tongass National Forest.

The Tongass National Forest has three current geothermal leases where no development has occurred and the probability of development is low since the anticipated demand for leasable minerals is expected to remain low. The Bureau of Land Management (BLM) assessed mineral resource potential in support of a resource management plan for the Ring of Fire planning area, which includes Southeast Alaska. While there has been oil and gas exploration activity in the Yakutat area in the past, the resource development potential is considered low; therefore, the BLM expects no exploration or development activity within the Forest Plan period of analysis (10 to 15 years). Outside of the Yakutat area, oil and gas occurrence potential elsewhere in the Tongass National Forest is considered low to none. Occurrences of coal have been found at several locations in Southeast Alaska; however, the BLM considers development of these resources to be uneconomic in the near future, other than possibly for local use, and does not foresee associated exploration or development activity (USDA Forest Service 2016). As a result, changes in roadless management are expected to have limited effect on leasable mineral development.

Salable minerals from the Forest are mainly used to construct NFS roads. Since road construction is not expected to vary much between regulatory alternatives, there would be little difference in salable mineral development between the regulatory alternatives.

### **Agency Costs**

This section discusses the potential for relative changes in agency costs and revenues, across regulatory alternatives, for activities related to roadless area designations. The proposed rule does not prescribe project-level or site-specific activities. As a consequence, agency costs and differences in program costs across regulatory alternatives have not been quantified.

The Forest Service also incurs costs associated with planning, preparation, and administration of treatment projects and timber sales. On average, the Forest Service spent approximately \$12.5 million per year to administer Tongass National Forest timber sales from 2005-2014, excluding road building costs, and received approximately \$1.1 million in revenue per year (GAO 2016). The proportion of funds allocated to projects in roadless areas may increase or decrease as a function of the amount of treatment (e.g., cutting) and road maintenance projected to occur under each regulatory alternative, but costs cannot exceed program budgets that have remained relatively flat. Budgetary constraints may limit prospects for increasing overall timber harvest levels, separate from considerations regarding future amendments to the Forest Plan.

Regardless, small incremental changes in cost associated with conducting compliance reviews in roadless areas may occur but cannot be quantified. This proposed rule and the regulatory alternatives establish direction and allowable activities for broad land areas, rather than schedule specific activities in specific locations. None of the alternatives authorize any site-specific projects or other ground-disturbing activities and, therefore, it is not possible to estimate future activities and subsequent marginal changes in environmental activities. Additional cost to the agency from timber management and road maintenance are quantified and detailed below.

As stated previously, timber harvest levels do not vary under the alternatives and the potential timber sale quantity of 46 MMBF is examined alongside a lower estimate of volume of 23 MMBF (one standard deviation below the average annual level of Tongass National Forest harvest from Table 5) to address uncertainty in harvest levels. Associated costs to the agency

from timber program administration and road maintenance (for roads that are not decommissioned following a sale) are not included in the benefit and cost analysis since harvest levels do not vary from the current baseline Alaska Roadless Rule. The analysis below covers road maintenance costs from changes in harvest activities from roadless area designations.

Road maintenance costs may increase under the regulatory alternatives. Road construction and decommissioning costs are not considered since it is unlikely they would be paid by the agency given the influence of the limited export policy. In 2007, the Forest Service approved a Limited Export Policy in an effort to boost appraised values and provide purchasers economical sale opportunities and additional processing options. The policy was again expanded in November 2009 to apply to all contracts and allowed export of unprocessed Sitka spruce and hemlock logs, up to 50 percent of the total sale sawtimber volume, upon Regional Office approval. The Limited Export Policy is discussed in detail in Appendix H of the Tongass Forest Plan FEIS (USDA Forest Service 2016a). This boost in appraised value has made the construction of roads by the agency in advance of timber sales rare.

While road construction and decommissioning costs are covered by the purchaser, some roads may remain open following completion of harvest activities. The number of new road miles estimated beyond the current forest plan in the FEIS for the 2020 Alaska Roadless Rule range from 0 to 49 miles total. The proposed rule would result in a 20 percent increase in new roads over the existing forest plan; none of the other regulatory alternatives would increase this value more than 1 percent (i.e., 21 percent). Information from the FEIS for the 2020 Alaska Roadless Rule (see Table 3.3-21 in USDA Forest Service 2020) is included in Table 11 below and show the proposed rule and Alternative 2 would have about the same amount of total road miles, with Alternative 3 a slight increase over the proposed rule and Alternative 2. Alternatives 4, 5 and the baseline exemption have similar totals with slightly more road miles than Alternative 3. In addition to new road construction, roads built over decommission roads would occur on less than half a mile under Alternatives 3 and 4 (zero miles under the baseline 2001 Roadless Rule and Alternative 2) and less than a mile under Alternative 5 and the baseline exemption. Also, road reconstruction would occur on less than half a mile under Alternative 3 (zero miles under the baseline 2001 Roadless Rule and Alternative 2) and less than a mile under Alternative 4, 5 and the baseline exemption (USDA Forest Service 2020). It is estimated that 5 percent of roads built for timber sales are left open and maintained as part of the Tongass National Forest road system. Not all of these roads are maintained at the same frequency or level as other roads, however it is helpful to assume that they receive some maintenance for consideration of costs.

**Table 11.** Agency cost of road maintenance

Industry	Alternatives					
	Proposed Rule	2	3	4	5	Baseline Exemption
	2001 Roadless Rule	Roaded Roadless Alternative	Logical Extension Alternative	Partial Dev LUDs Alternative	All Dev LUDs Alternative	Full Exemption Alternative
New Road Construction (miles) <sup>1</sup>	994	994	1,012	1,029	1,039	1,043
Road Construction over Decommissioned Roadbeds (miles) <sup>1</sup>	527	527	532	535	539	541
Road Reconstruction (miles) <sup>1</sup>	1,104	1,104	1,111	1,119	1,123	1,123
Total	2,625	2,625	2,655	2,683	2,701	2,707
5 percent of total (left open and maintained)	131	131	133	134	135	135
Cost of maintenance	\$8,005,000	\$8,005,000	\$8,097,000	\$8,182,000	\$8,237,000	\$8,255,000
Net cost from baseline	-\$250,000	-\$250,000	-\$158,000	-\$73,000	-\$18,000	\$0

<sup>1</sup> From Table 3.3-21 in USDA Forest Service 2020

This analysis assumes a cost of \$50,000 per mile for maintenance from the 2008 Tongass Land Management Plan Appendix B (USDA Forest Service 2008). Adjusting for inflation provides an average annual road construction cost for the Tongass National Forest of approximately \$58,000 per mile. This cost is applied to 5 percent of road mile changes under the alternatives, discounted (over a 20-year period at a 3 and 7 percent discount rate) and included in Table 12. Revenue and cost savings are reported as positive numbers and costs and forgone benefits are reported as negative numbers in Table 12.

**Table 12.** Benefits and costs (annual values in 2020 dollars) and net-present value under the regulatory alternatives

Industry	Alternatives					
	Proposed Rule	2	3	4	5	Baseline Exemption
	2001 Roadless Rule	Roaded Roadless Alternative	Logical Extension Alternative	Partial Dev LUDs Alternative	All Dev LUDs Alternative	Full Exemption Alternative
<b>Stumpage Value Loss</b> <sup>1</sup>						
High estimate— Stumpage value	-\$922,000	\$0	\$0	\$0	\$0	\$0
Low estimate – Stumpage value	-\$460,000	\$0	\$0	\$0	\$0	\$0
<b>Recreation/Tourism</b> <sup>2</sup>						
High estimate - Avoided lost revenue outfitter/guide recreation	\$224,000	\$206,000	\$181,000	\$10,000	\$3,000	\$0
Low estimate - Avoided lost revenue outfitter/guide recreation	\$68,000	\$51,000	\$26,000	\$3,000	\$0	\$0
Avoided loss of value for non-outfitter guide recreation access	\$80,000	\$67,000	\$38,000	\$5,000	\$1,000	\$0
<b>Conservation Value</b> <sup>3</sup>						
Old growth conservation benefits	\$287,000	\$253,000	\$142,000	\$12,000	\$0	\$0
<b>Agency Costs</b>						
Avoided Road maintenance <sup>4</sup>	\$250,000	\$250,000	\$159,000	\$73,000	\$18,000	\$0
<b>Net-Present Value</b> <sup>5</sup>						
Upper-bound (3 % discount rate)	\$5,676,000	\$11,549,000	\$7,725,000	\$1,493,000	\$337,000	\$0
Lower-bound (3 % discount rate)	-\$3,513,000	\$9,243,000	\$5,419,000	\$1,389,000	\$292,000	\$0
Upper-bound (7 % discount rate)	\$4,041,000	\$8,223,000	\$5,501,000	\$1,063,000	\$241,000	\$0
Lower-bound (7 % discount rate)	-\$2,503,000	\$6,581,000	\$3,858,000	\$989,000	\$209,000	\$0

<sup>1</sup> High and low estimates of stumpage value decrease are bounded by 46 MMBF harvest estimate and at 23 MMBF (one standard deviation below the 16-year average Tongass National Forest harvest from Table 5).

<sup>2</sup> High and low estimates of Recreation/Tourism are bounded by expenditures per displaced client days; respectively \$711 and \$15,370 per trip (Dugan et al. 2009).

<sup>3</sup> Conservation value is based on annual harvest levels (see Table 7 above) times an estimate of willingness to pay for old growth conservation benefits discounted over the 20-year period.

<sup>4</sup> Road maintenance costs are based on \$50,000 cost per mile (USDA Forest Service 2008).

<sup>5</sup> The Upper-bound NPV is the sum (discounted over 20 years and discounted at both 3 and 7 percent per OMB Circular A-4 - Regulatory Analysis (Sep 17, 2003)) of the low estimate of stumpage value, the high estimate of avoided lost revenue, the avoided loss of value for non-outfitter guide recreation access, old-growth conservation benefits, and agency road maintenance cost; and the lower bound NPV is the opposite summing the high estimate of stumpage value, the low estimate of avoided lost revenue, the avoided loss of value for non-outfitter guide recreation access, old-growth conservation benefits, and agency road maintenance cost. The intent is to provide the widest range of possible net present value outcomes by considering the high and low estimates of revenue and costs to 'bound' the NPV range within the realm of plausible outcomes. The lower bound includes minimum avoided lost revenue to outfitter/guides (based on a projection of harvest and not total suitability acres) alongside the low estimate of timber stumpage value since this is possible and the lowest possible absolute value. In the discussion above, the analysis explains that displacement is focused on outfitter/guide use areas where conflict is likely to occur (15 and 7 outfitter/guide use areas identified above) and not based on volume of timber removed. There is no implied correlation between low recreation displacement and low harvest levels; and are summed in order to provide the lower bound of possible NPV outcomes. This is the lowest possible NPV value and a plausible 'worst case scenario'. Similarly, the upper bound represents a set of plausible outcomes under the regulatory alternatives and is the highest possible NPV. Further, there is no implied correlation between high recreation displacement and high harvest levels; and these are summed in order to provide the upper bound of possible NPV outcomes.

## **DISTRIBUTIONAL EFFECTS**

The Tongass National Forest comprises approximately 80 percent of the land area in Southeast Alaska and therefore plays a critical role in supporting local and regional economy, promoting economic diversification, and also enhancing rural community well-being. The visitor industry, seafood industry, and resource extraction industries contribute to local jobs and income alongside public sector employment spanning federal, state, and local government. While the visitor and seafood industries are the largest private-sector employers across Southeast Alaska, resource extraction remains important in some rural communities where jobs are limited and unemployment is oftentimes high.

### **Civil Rights Impacts and Environmental Justice**

The reinstatement of the 2001 Roadless Rule on the Tongass National Forest and FEIS has been reviewed and analyzed to ensure compliance Departmental Regulation 4300-4 and 5600-002. This Civil Rights Impact Analysis (CRIA) has been undertaken to evaluate how the American public could be affected by the rule, particularly whether populations including (but not limited to) ethnic and racial minorities, people with disabilities, and women could receive potential adverse or disproportionate impacts from the rule. The civil rights implications of the proposed rule are expected to maintain the status quo. No adverse effects are expected through implementation and development of the rule with outreach and mitigation strategies. For more information see the CRIA prepared in support of the proposed rule (USDA Forest Service 2021).

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires each federal agency to make the achievement of environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. The Order further stipulates that the agencies conduct their programs and activities in a manner that does not have the effect of excluding persons from participating in, denying persons the benefits of, or subjecting persons to discrimination under such programs, policies, and activities because of their race, color, or national origin. The FEIS provides detailed information on the race, ethnicity, income and poverty status of boroughs and census areas in Southeast Alaska (USDA Forest Service 2020).

As discussed elsewhere, the FEIS and proposed rule are programmatic and, as such, examines direction and allowable activities for broad land areas, rather than schedules specific activities in specific locations. The action alternatives would increase the acres available for timber harvest, but harvest levels are expected to remain the same across all regulatory alternatives. In addition, while there may be some variation by alternative, the amount of new or reconstructed road miles is expected to be broadly similar across all alternatives. Similarly, the distribution of harvest is likely to vary by alternative, but it is difficult to predict this variation with any degree of accuracy because it depends on the specific projects proposed, economic conditions, and many other factors. This makes it difficult to evaluate the effects of the alternatives on particular communities or populations.

Overall, small increases in risk to cultural resources may occur under all action alternatives (with the baseline Alaska Roadless Rule and Alternatives 4 and 5 having the highest risk) because of slightly greater road lengths and activities in areas currently protected from development,

associated with harvest activities. Areas designated as Roadless Priority and Community Priority ARAs would explicitly allow the cutting, utilization, customary trade, and removal of trees for the purposes of Alaska Native customary and traditional uses, as well as road construction deemed necessary by a federally recognized Tribe for access to Alaska Native cultural sites. This type of use would also be allowed in Timber Priority ARAs, which allow timber harvest and road construction.

### **Forest Products**

Timber program output levels are expected to remain constant between the baseline Alaska Roadless Rule, the proposed rule, and remaining regulatory alternatives. The alternatives under review involve a similar number of acres available for timber harvest, but the location of harvest may vary. None of the regulatory alternatives propose changes to the projected timber sale quantity or timber demand projections from the Tongass Land and Resource Management Plan. The Tongass National Forest, in compliance with the Tongass Timber Reform Act (1990), seeks to provide an annual supply of timber to meet market demand to the extent consistent with providing for multiple use and sustained use of all renewable forest resources, and other requirements, including NFMA. Thus, the proportion of harvest occurring within versus outside of roadless areas would vary by regulatory alternative, but overall economic impacts are assumed to remain constant. These impacts were estimated for the first decade following implementation in the 2016 Forest Plan FEIS (USDA Forest Service 2016a) and are based on an annual average harvest of 46 MMBF. All regulatory alternatives, including the proposed rule, are assumed to support a similar range of direct jobs and income. Based on the 2016 Forest Plan FEIS assessment, all of the regulatory alternatives would support an estimated 92 jobs in logging, 49 to 100 jobs in sawmilling, and 29 to 46 jobs related to transportation and other services, with direct income ranging from \$9.8 million to \$10.4 million. Thus, no change in timber related employment or income is expected as a result of the proposed rule or other regulatory alternatives.

The local logging, sawmilling and transportation-related employment estimates (from the 2016 Forest Plan FEIS) were based on a range, from maximum possible shipment out of state (export of all Alaska yellow-cedar and western redcedar plus hemlock and Sitka spruce export equal to 50 percent of total sale net sawlog volume), to no shipment of western redcedar, hemlock, or Sitka spruce, and export of 100 percent Alaska yellow cedar. Transportation and other services include water transportation, independent trucking, stevedoring, scaling, and export marking and sort yard employment for export volume, and water transportation, scaling, and independent trucking for locally sawn volume. Export employs more workers in transportation and other services per million board feet harvested than domestic production, which is reflected in the range of values estimated for transportation and related services.

Actual employment and income in Southeast Alaska would depend on choices made by purchasers; those choices may change as markets and prices shift. Under current market conditions, purchasers are likely to export as much as they can while processing enough material locally to keep manufacturing facilities open and take advantage of opportunities to produce high-value sawn material in Southeast Alaska. In addition, the Regional Forester has allowed increased export on a case-by-case basis, as discussed above and explained in Appendix H of the Tongass Forest Plan (USDA Forest Service 2016). If purchasers were allowed on a case-by-case basis to export a larger share of a particular sale in unprocessed form, there would be a

commensurate reduction in sawmilling jobs and an increase in transportation-related jobs while logging jobs remain unchanged.

### Recreation and Tourism

Potential impacts to recreation and tourism are evaluated with respect to *Recreation Opportunity Spectrum* (ROS) settings, *Recreation Places* and *Visitor Use*. The Recreation discussion of the Regulatory Flexibility Analysis for the proposed rule (USDA Forest Service 2021) also assesses impacts to outfitter/guide businesses.

#### *Recreation Opportunity Spectrum*

Under the baseline 2001 Roadless Rule, most projected harvest is expected to occur in ROS settings where some modification of the natural environment is expected. Under the proposed rule less than 1 percent of the acres currently allocated to Primitive (P), Semi-Primitive Non-Motorized (SPNM), and Semi-Primitive Motorized (SPM) ROS settings would be harvested after 100 years, assuming the maximum allowable levels of harvest were to occur. Assuming that the estimated total number of acres harvested would be the same for each alternative and that harvest would be evenly distributed across the available suitable acres, Roaded Modified as a share of the estimated total harvest would decrease from the proposed rule and other regulatory alternatives, dropping from almost 91 percent under proposed rule to 71 percent under the baseline exemption and Alternatives 4 and 5. Much of this decrease would be made up by an increase in SPNM acres. SPNM as a share of the estimated total would range from about 4 to 5 percent under the proposed rule and Alternative 2 to 18 percent under the baseline exemption and Alternatives 4 and 5 (USDA Forest Service 2020).

#### *Recreation Places*

The pattern of use associated with known protected boat anchorages, boat landings, aircraft landing sites, and the limited road systems makes it possible to identify specific “recreation places” on the Tongass National Forest. A total of 1,436 recreation places, encompassing approximately 3.6 million acres, were identified as part of the planning process for 1997 Forest Plan Revision (USDA Forest Service 1997). Recreation places are classified in two basic ways. First, recognizing that access plays a key role in recreation in Southeast Alaska, “home ranges” were defined for each community. Inventoried recreation places were classified into two categories: those located within a radius of approximately 20 miles from communities (“home range”) and those farther than 20 miles from a community. Almost half (48 percent) of the identified recreation place acres are within a community home range. Second, recreation places were identified as either important or ordinary/common based on five categories: facilities, marine, hunting, fishing, and tourism. Recreation places may be important for one, several, or none of the identified categories. Important recreation places by category are summarized in Table 13.

**Table 13. Important Recreation Places by Category<sup>1</sup>**

	Number of Places	Percent of Total <sup>2</sup>	Acres (1,000s)	Percent of Total <sup>2</sup>
Facilities <sup>3</sup>	402	28	1,053	29
Marine <sup>4</sup>	617	43	1,089	30
Hunting <sup>5</sup>	373	26	1,452	40
Fishing <sup>6</sup>	187	13	472	13

Tourism	876	61	1,924	53
<b>Total</b>	<b>1,436</b>	<b>NA</b>	<b>3,630</b>	<b>na</b>

na = not applicable

<sup>1</sup> Recreation places are rated as either important or common/ordinary.

<sup>2</sup> The Percent of Total columns sum to more than 100 because a recreation place can be rated important in more than one category.

<sup>3</sup> All recreation places with facilities were rated as being important. In addition, other recreation places with some type of facility, such as a viewing platform, and facilities authorized by a special use permit for recreation purposes, were identified as important.

<sup>4</sup> The marine category identified here is different to the marine type identified in Table 3.15-6 of the Tongass Forest Plan (USDA Forest Service 2016). The marine category in this table only includes those recreation places that are truly unique or typify the Southeast Alaska marine experience.

<sup>5</sup> Important hunting areas were distinguished from ordinary hunting areas based on a number of factors, including heavy recurring use, hunter success, ease of access, opportunities for several species, and prized species, such as mountain goats and moose.

<sup>6</sup> Important fishing recreation places were identified using ADF&G ratings for recreational fishing.

Source: USDA Forest Service 2016, Table 3.15-7

As discussed with respect to ROS settings, although the regulatory alternatives would vary in terms of the amount and location of acres suitable for timber harvest, the total volumes expected to be harvested would be the same under the proposed rule and each regulatory alternative. The following analysis assumes that the estimated total number of acres harvested over 100 years would be the same for each alternative and that harvest would be evenly distributed across available suitable acres, including those that coincide with important recreation places. Based on these assumptions, the acres of old-growth acres harvested within four of the recreation place categories (home range, facilities, marine, and hunting) would mostly decrease relative to the baseline 2001 Roadless Rule. This relative decrease would occur because old-growth acres in these recreation places would make up a smaller share of total Forest-wide suitable old-growth acres.

### *Visitor Use*

Based on the results of the NVUM program for 2010 to 2014 and coefficients developed by White and Stynes (2010), the Forest Service (2017) calculated a visitation estimate of 2,874,000 annual visits to the Tongass National Forest. The results of earlier surveys indicated that half of Alaska residents surveyed who live in Southeast Alaska reported using a boat or plane to access the national forest (White and Stynes 2010). Almost half (49.7 percent) of non-resident visits to the Tongass National Forest involved the use of a guide or outfitter at some point, with local cruises, wildlife viewing, and flightseeing reported most frequently. Alaska residents in contrast were found to very rarely use outfitters or guides (White and Stynes 2010).

Timber harvest and associated road construction in Primitive and Semi-Primitive (SPNM and SPM) ROS settings has the potential to affect recreation activities and users dependent on remote, natural settings with low to no evidence of human use. Harvest in these settings could affect the quality of the recreation experience and displace visitors to other parts of the Forest. These types of impacts are likely to occur in Primitive, SPNM, and SPM ROS settings in recreation places, especially in “home range” recreation places (i.e., those within approximately 20 miles of communities). Impacts are likely to be most acute in Primitive and Semi-Primitive areas where recreation use is already at or near capacity, including areas where competition already exists between resident recreationists, independent visitors, and commercial outfitter/guide operations.

Changes in roadless area protections could also indirectly affect nearby Primitive and Semi-Primitive ROS settings, as displaced recreationists seek other locations with similar qualities. In addition to long-term impacts in Primitive and Semi-Primitive settings, in the short term, resident and other recreationists could be displaced by logging operators in the nearby vicinity, with the presence of logging equipment potentially affecting access and the overall quality of the recreation experience. This type of short-term impact would potentially affect recreationists across all ROS settings.

The regulatory alternatives evaluated here could also result in different supply-induced changes in participation. In the past, supply-induced changes in participation on the Tongass National Forest have been mainly related to changes in road systems and road access. This type of change in participation appears to have occurred on Prince of Wales, Wrangell, and Mitkof Islands, for example. In these locations, road systems developed for timber harvesting created an opportunity for road-related access to previously inaccessible recreation settings and, therefore, an opportunity for recreation activities involving wheeled vehicles. In addition, new roads that provide easier access to a wider area may create new semi-primitive opportunities that increase the capacity of a recreation place or create a new recreation place. Over time, continuation of such new opportunities would be dependent on the availability of funds for road maintenance and other system management needs.

There would be some new road access in the long run under all regulatory alternatives. In addition, the Community Priority ARA (under Alternative 3) would allow road construction and reconstruction in conjunction with the construction, expansion, or maintenance of a developed recreation site. Nearly all new roads constructed under the regulatory alternatives would be closed following harvest. These roads would, therefore, not be available for use by highway vehicles or high-clearance vehicles. They may, however, be available for access by other methods and would, as a result, have the potential to affect existing recreation patterns. Any potential increase in recreational access may be limited by the extent to which road closures include restoring the roadbed to a more natural condition, possibly blocking or discouraging non-vehicle access as well. The current exemption and Alternatives 2 through 5 have more acres available for timber harvest than the proposed rule, but harvest levels are expected to remain the same across all regulatory alternatives. As a result, the amount of new or reconstructed road miles would be similar across the regulatory alternatives, but would be lowest under the proposed rule and Alternative 2 and highest under the baseline exemption and Alternatives 4 and 5. Alternative 3 would likely result in more roads than the proposed rule and Alternative 2, and fewer than the baseline exemption and Alternatives 4 and 5. In addition, based on the distribution of suitable acres, the baseline exemption and Alternatives 4 and 5 would be more likely to result in new road construction in Primitive or Semi-Primitive ROS settings.

### **Commercial Fisheries**

The proposed rule and other regulatory alternatives are not expected to have a significant change to the commercial fishing or fish-processing industries over the planning period provided that Forest Plan direction remains in place. Riparian Management standards and guidelines established in the Forest Plan (USDA Forest Service 2016) would remain in place under the proposed rule and all of the regulatory alternatives. While there would be some variation in the level of protection, these variations are not expected to affect the fishing industry. The future of the fishing industry in Southeast Alaska is more likely to depend upon occurrences outside of the

Tongass National Forest such as hatchery production, offshore harvest levels, and changes in ocean conditions.

The absence of an effect due to the proposed rule and regulatory alternatives is based on the conclusion from the 1997 FEIS (USDA Forest Service 1997); which noted that the amount of acreage of timber harvest was at most less than 20,000 acres per year, representing approximately 0.5 percent of the total remaining productive old growth (or 5 percent over the next decade) and less than 0.02 percent of the entire Forest. That FEIS concluded that this was not expected to result in a significant change to commercial fishing. The proposed rule and other regulatory alternatives would allow considerably less timber harvest and new road construction than the alternatives evaluated in the 1997 FEIS. Total annual old-growth harvest allowed over the 100-year planning period would be approximately 42,500 acres, substantially lower than the maximum proposed in the 1997 FEIS.

### **Mining and Mineral Development**

As noted above in the Cost-Benefit Analysis section the General Mining Law of 1872, as amended, grants every United States citizen the right to prospect and explore public domain lands open to mineral entry. The right of reasonable access is guaranteed and is not at the discretion of the Forest Service. Exploration, mining, and mineral processing activities, including road construction and reconstruction, would be allowed to the extent provided by statute in IRAs under the 2001 Roadless Rule and would be allowed under the proposed rule and all the other regulatory alternatives. Roadless management under the proposed rule is, therefore, not expected to affect existing or future locatable mineral exploration or mining activities on the Forest.

As noted above in the Cost-Benefit Analysis section roadbuilding is prohibited for any new leasable projects, including geothermal projects, within IRAs. For the proposed rule and Alternatives 2 through 5, this prohibition would continue in ARAs with watershed (Alternative 2) and LUD II priorities. Following project-specific analyses, roads could be approved for leasable projects within ARAs with timber (Alternative 4) or roadless priorities. Under the proposed rule roadbuilding would be prohibited for any new leasable projects, including geothermal projects, within roadless areas on the Tongass National Forest. The Tongass National Forest has no current leasable mineral activity and the anticipated demand for leasable minerals is expected to remain low (USDA Forest Service 2016). The Bureau of Land Management (BLM) conducted an assessment of mineral resource potential in support of a resource management plan for the Ring of Fire planning area, which includes Southeast Alaska. While there has been oil and gas exploration activity in the Yakutat area in the past, the resource development potential is considered low; therefore, the BLM expects no exploration or development activity within the Forest Plan period of analysis (10 to 15 years). Outside of the Yakutat area, oil and gas occurrence potential elsewhere in the Tongass National Forest is considered low to none. Occurrences of coal found at several locations in Southeast Alaska; however, the BLM considers development of these resources to be uneconomic in the near future, other than possibly for local use, and does not foresee associated exploration or development activity (USDA Forest Service 2016). As a result, changes in roadless management are expected to have limited impacts on related economic activity.

Salable minerals from the Forest are mainly used to construct NFS roads. Since road construction is not expected to vary much between regulatory alternatives, there would be little difference in salable mineral development between the regulatory alternatives.

## CONCLUSIONS

The proposed rule will restore 2001 Roadless Rule protections on the Tongass National Forest and would help conserve natural resources, enhance community resilience, and support a diverse economy in a way that builds on the region's private-sector economic drivers of tourism, fishing, and recreation and recognizes the importance of the Tongass as the world's largest remaining intact old growth temperate rainforest. In addition, the proposed rule is consistent with Tribal Nations, social, economic, and environmental priorities as part of the Department's implementation of its overall multiple-use, sustained-yield mission. Under the proposed rule all 9.4 million inventoried roadless acres on the Tongass National Forest would be provided regulatory protection (Table 2). These 9.4 million acres are more acres afforded regulatory protections than under any other alternative and provide the greatest protection of roadless characteristics and associated benefits amongst the regulatory alternatives.

Future cost savings from improved flexibility under the baseline Alaska Roadless Rule and other regulatory alternatives for the agency and timber industry would not accrue under the proposed rule however other benefits would be provided and are displayed in Table 6 and discussed above; including old growth conservation benefits, avoided loss of outfitter and guide revenue, avoided loss of value for recreation access, and less agency road maintenance cost. Upper bound estimates of net-benefits are positive for the proposed rule and regulatory alternatives. Lower agency road maintenance cost and avoided lost revenue to the recreation industry are based on projected road miles and timber suitability, respectively and vary across the regulatory alternatives. In addition, old growth conservation value is based on changes in suitable old-growth available for harvest. Negative net benefits are possible if lower bound estimates of these benefits correspond with high the larger levels of stumpage value loss; however, the upper and lower estimates of stumpage revenues, agency benefits, old growth conservation value and avoided lost recreation revenue are uncertain outcomes provided for a broad orders-of-magnitude comparison of costs and benefits. This quantified benefit cost analysis does not include many of the qualitative values discussed above. While the proposed rule does not maximize net present value, the administration made a discretionary policy judgment that included qualitative considerations similar to the decision rationale for applying the roadless rule to the Tongass National Forest in 2001. Then, and again now, in proposing this action, the agency considered the extraordinary ecological values of the Tongass National Forest and the cultural, social and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this proposed management approach best reflects those multiple values. From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass National Forest would help conserve natural resources by restoring roadless management on 9.34 million acres which protects 188,000 acres of forest from potential roadbuilding, and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass National Forest represent the world's largest remaining, intact, old growth temperate rainforest, which supports biodiversity and sequesters carbon. The proposed rule would reflect the Administration's priority on protecting those values while continuing to build on the region's

primary private sector economic drivers of tourism and fishing without significant adverse impacts to the timber and mining industries.

Annual harvest levels do not vary by regulatory alternative given the agency's responsibilities under the Tongass Timber Reform Act (which directs the Forest Service to seek to provide a supply of timber from the Tongass National Forest that meets annual market demand to the extent consistent with providing for the multiple-use and sustained-yield of all renewable resources and other applicable requirements, including NFMA). Potential decrease in stumpage value under the proposed rule reflects efficiency loss from just a portion of overall costs to purchasers covering just "stump to truck" from felling, yarding, and loading and assume transportation and towing costs remain constant. Harvest near existing roads and closer to markets may provide 'stump to truck' costs saving as readily available acres in areas formerly designated as IRAs are harvested first. As these acres are exhausted efficiency gains from lower "stump to truck" costs are likely to be offset by increased transportation and towing costs.

Where monetary expressions are not available, value and tradeoffs are considered in qualitative terms pursuant to Executive Order 13563. Thus, qualitative analysis of the proposed rule and regulatory alternatives is provided for Scenic Quality, Recreation Opportunities and Traditional Cultural Properties and Sacred Sites. As discussed in the section on *Analysis of Roadless Characteristics under the Proposed Rule*, the lowest effects on scenery would be associated with the proposed rule and Alternatives 2 and 3, less lands in the primitive Recreation Opportunity Spectrum class would be removed under the proposed rule and Alternatives 2 and 3, and less risk to cultural resources may occur under the proposed rule and Alternatives 2 and 3. Lastly, the proposed rule is not anticipated to alter output or employment in local economies associated with timber, recreation and tourism, commercial fisheries and mining related industries.

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