

Nationwide Public Safety Broadband Network

Final Programmatic Environmental Impact Statement

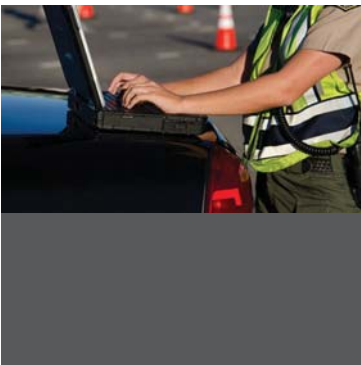
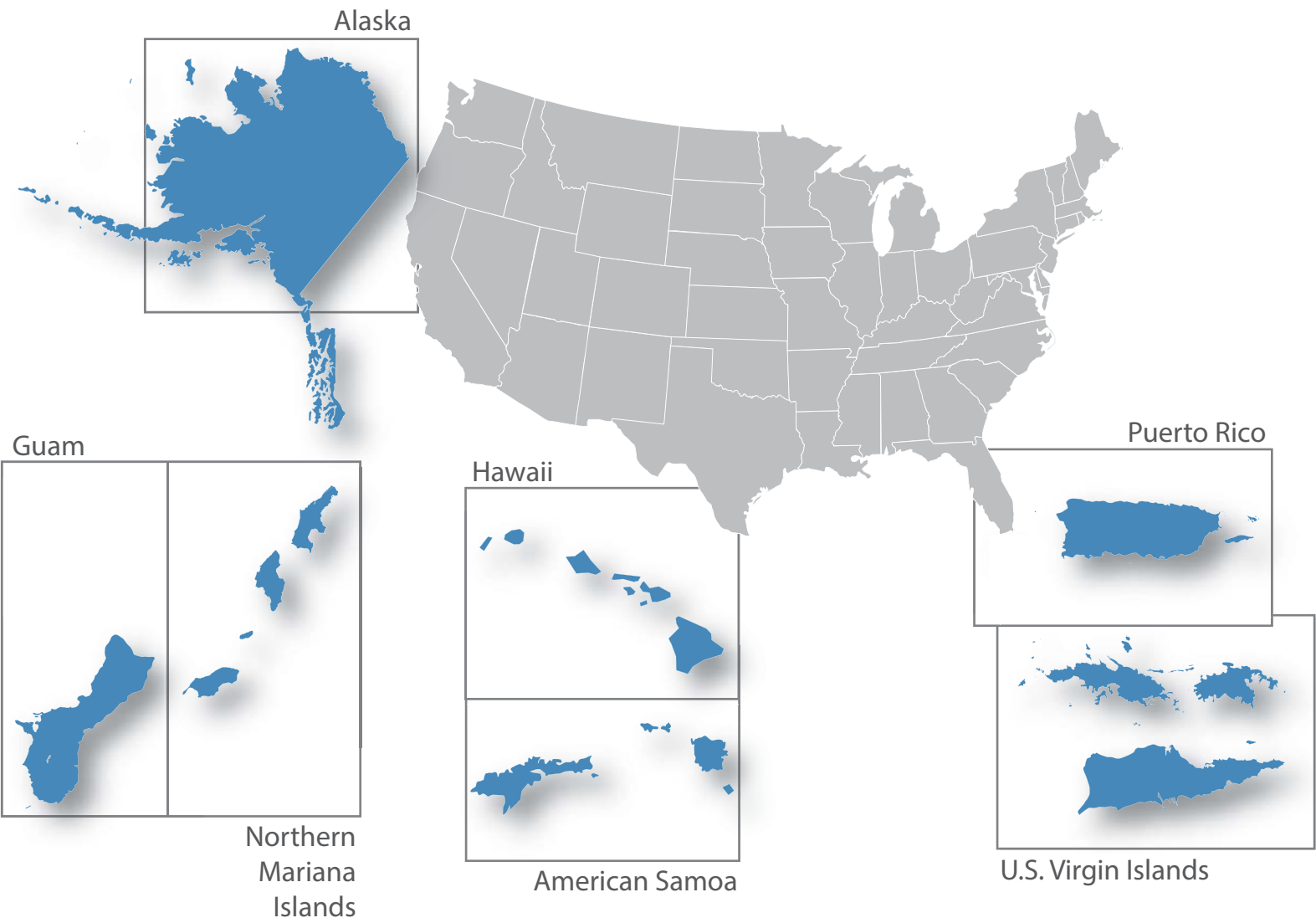
for the Non-Contiguous United States



First Responder Network Authority

Volume 8 - Chapters 10-18 & Appendices

- Alaska
- Hawaii
- American Samoa
- Guam
- Northern Mariana Islands
- Puerto Rico
- U.S. Virgin Islands



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First Responder Network Authority



Nationwide Public Safety Broadband Network Final Programmatic Environmental Impact Statement for the Non-Contiguous United States

Volume 8

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Cooperating Agencies

Federal Communications Commission
General Services Administration
U.S. Department of Agriculture—Natural Resource Conservation Service
U.S. Department of Agriculture—Rural Utilities Service
U.S. Department of Agriculture—U.S. Forest Service
U.S. Department of Commerce—National Telecommunications and
Information Administration
U.S. Department of Defense—Department of the Air Force
U.S. Department of Energy
U.S. Department of Homeland Security

May 2017

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ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit	ASPA	American Samoa Power Authority
°N	degrees north	ATO	Air Traffic Organization
µg/m ³	microgram(s) per cubic meter	ATWC	Alaska Tsunami Warning Center
µPa	micro Pascal	AURORA	Alaska Uniform Response Online Reporting Access
%	percent	BACT	best available control technology
A	attained	BCE	before Common Era
AAC	Alaska Administrative Code	BCR	Bird Conservation Regions
AAFIS	Alaska Public Safety Identification System	BGEPA	Bald and Golden Eagle Protection Act
AAQS	Ambient Air Quality Standards	BLM	Bureau of Land Management
ACHP	Advisory Council on Historic Preservation	BLS	U.S. Bureau of Labor Statistics
ACS	American Community Survey (U.S. Census Bureau)	BMP	best management practice
ADEC	Alaska Department of Environmental Conservation	BRFSS	Behavioral Risk Factor Surveillance System
ADFG	Alaska Department of Fish and Game	BSAI	Bering Sea/Aleutian Island
AGL	above ground level	BWG	BioInitiative Working Group
AIRFA	American Indian Religious Freedom Act	CAA	Clean Air Act
AJRCCM	American Journal of Respiratory and Critical Care Medicine	CAB	Clean Air Branch
AKNHP	Alaska National Heritage Program	CARB	California Air Resources Board
AKOSH	Alaska Occupational Safety and Health	CBIA	Coastal Barrier Improvement Act of 1990
AKWAS	Alaska Warning System	CBRA	Coastal Barrier Resources Act of 1982
ALMR	Alaska Land Mobile Radio	CCP	Comprehensive Conservation Plan
ANCSA	Alaska Native Claims Settlement Act	CDC	Center for Disease Control
ANFIRS	Alaska Fire Incident Reporting System	CDLNR	Commonwealth Department of Lands and Natural Resources
ANSI	American National Standards Institute	CE	Common Era
APE	Area of Potential Effect	CELCP	Coastal and Estuarine Land Conservation Program
APLIC	Avian Power Line Interaction Committee	CEPD	Caribbean Environmental Protection Division
APSIN	Alaska Public Safety Information Network	CEQ	Council on Environmental Quality
AQCR	air quality control region	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ARFF	Aircraft Rescue and Firefighting	CFMC	Caribbean Fisheries Management Council
ARMS	Alaska Records Management System	CFR	Code of Federal Regulations
ARPA	Archaeological Resources Protection Act of 1979	cfs	cubic feet per second
AS	Alaska Statute	CH ₄	methane
ASAC	American Samoa Administrative Code	CHC	Commonwealth Health Center
ASCA	American Samoa Code Annotated	CIA	Central Intelligence Agency
ASCMP	American Samoa Coastal Management Program	CMIP3	Coupled Model Intercomparison Project phase 3
ASDHS	American Samoa Department of Homeland Security	CNMI	Commonwealth of Northern Mariana Islands
ASDMWR	American Samoa Department of Marine and Wildlife Resources	CNMIAC	Commonwealth of Northern Mariana Islands Administrative Code
ASEPA	American Samoa Environmental Protection Agency	CO	carbon monoxide
ASHPO	American Samoa Historic Preservation Office	CO ₂	carbon dioxide
		CO ₂ e	carbon dioxide equivalents
		COMAR	Committee on Man and Radiation

CPA	Commonwealth Ports Authority	FirstNet	First Responder Network Authority
CRMP	Coastal Resources Management Program	FMP	Fishery Management Plan
CSP	Central South Pacific	FPPA	Farmland Protection Policy Act of 1981
CUC	Commonwealth Utilities Corporation	FR	Federal Register
CWA	Clean Water Act	ft	feet
CZMA	Coastal Zone Management Act	g/hp-hr	grams per horsepower-hour
CZMP	Coastal Zone Management Program	g/mi	grams per mile
DACA	Deployable Airborne Communications Architecture	GAP	Gap Analysis Program
DAR	Division of Aquatic Resources (Hawaii)	GCA	Guam Code Annotated
DAWR	Division of Aquatic and Wildlife Resources (Guam)	GDA	Guam Department of Agriculture
dB	decibel(s)	GEPA	Guam Environmental Protection Agency
dba	A-weighted decibel(s)	GHG	greenhouse gas
DBCP	1,2-dibromo-3-chloropropane	GIS	geographic information system
dBZ	Z-weighted decibel(s)	GMP	General Management Plan
DCP	1,2-dichloropropane	GOA	Gulf of Alaska
DEC	Department of Environmental Conservation	GRHP	Guam Register of Historic Places
DHHL	Department of Hawaiian Homelands	GWP	global warming potential
DLNR	Department of Land and Natural Resources (Hawaii)	H ₂ S	hydrogen sulfide
DMA	Disaster Mitigation Act of 2000	HDOH	Hawaii Department of Health
DNER	Department of Natural and Environmental Resources of Puerto Rico	HEI	Health Effects Institute
DOA	Department of Agriculture	HHCA	Hawaiian Homes Commission Act of 1920
DOD	Department of Defense	HI-EMA	Hawaii Emergency Management Agency
DOE	U.S. Department of Energy	HIANG	Hawaii Air National Guard
DOH	Department of Health	HIARNG	Hawaii Army National Guard
DOH-CAB	Hawaii Department of Health, Clean Air Branch	HIHWNMS	Hawaiian Islands Humpback Whale National Marine Sanctuary
DOT	U.S. Department of Transportation	HIOSH	Hawaii Occupational Safety and Health Division
DPNR	Department of Planning and Natural Resources (U.S. Virgin Islands)	hp	horsepower
DPS	Department of Public Safety	HRD	(Guam) Historic Resources Division
EA	Environmental Assessment	HRHP	Hawaii Register of Historic Places
EAS	Emergency Alert System	HRS	Hawaii Administrative Rules, Revised Statute
EBS	Emergency Broadcast System	HTA	Hawai'i Tourism Authority
EDB	ethylene dibromide	HUC	hydrologic unit code
EFH	essential fish habitat	I/M	Inspection/Maintenance
EMS	emergency medical services	IARC	International Agency for Research on Cancer
ENSO	El Niño/Southern Oscillation	IBA	Important Bird Area
EO	Executive Order	IEEE	Institute of Electrical and Electronics Engineers
EPCRA	Emergency Planning and Community Right-to-Know Act	IFC	International Finance Corporation
ERP	effective radiated power	in	inches
ESA	Endangered Species Act	IPCC	Intergovernmental Panel on Climate Change
ESI	Environmental Sensitivity Index	IR	ionizing radiation
FAA	Federal Aviation Administration	ITCZ	Intertropical Convergence Zone
FAD	Fish Aggregating Device	IUCN	International Union for Conservation of Nature
FCC	Federal Communications Commission	kg/gal	kilograms per gallon
FEMA	Federal Emergency Management Agency	KIRC	Kaho'olawe Island Reserve Commission

LAER	lowest achievable emission rate	NOAA	National Oceanic and Atmospheric Administration
lb/day	pounds per day	NOx	nitrogen oxides
lb/hp-hr	pounds per horsepower-hour	NP	National Park
LBJ	Lyndon B. Johnson	NPDES	National Pollutant Discharge Elimination System
Ldn	day-night average sound level	NPL	National Priorities List
Leq	equivalent noise levels	NPS	National Park Service
LNG	liquefied natural gas	NPSBN	nationwide public safety broadband network
LTE	Long Term Evolution	NRCS	Natural Resources Conservation Service
µg/m ³	microgram(s) per cubic meter	NRHP	National Register of Historic Places
µPa	micro Pascal	NSPS	New Source Performance Standards
m/s	meter per second	NTIA	National Telecommunications and Information Administration
MBTA	Migratory Bird Treaty Act	NVSR	National Vital Statistics Report
mg/m ³	Milligram(s) per cubic meter	NWI	National Wetland Inventory
mgd	million gallons per day	NWR	National Wildlife Refuge
MHz	megahertz	NWWS	National Weather Wire Satellite System
MLRA	Major Land Resource Area	OHA	Office of History and Archaeology
mm/s	millimeters per second	OIA	Office of Insular Affairs (USDI)
MMPA	Marine Mammal Protection Act	OSHA	Occupational Safety and Health Administration
MOA	Memorandum of Agreement	PA	Programmatic Agreement
MPA	Marine Protected Area	PAG	Port Authority of Guam
mph	miles per hour	PAHO	Pan American Health Organization
MSA	Magnuson-Stevens Fishery Conservation and Management Act	PCB	polychlorinated biphenyl
MTR	Military Training Route	PCP	pentachlorophenol
MUID	Map Unit Identification Data	PCS	Personal Communications Service
MW	megawatt	PDO	Pacific Decadal Oscillation
mW/cm ²	milliwatts per centimeter squared	PEIS	Programmatic Environmental Impact Statement
N	north; not attained	PL	Public Law
N ₂ O	nitrous oxide	PM	particulate matter
NA	not applicable; not assessed	PM ₁₀	particulate matter up to 10 micrometers in diameter
NAAQS	National Ambient Air Quality Standards	PM _{2.5}	particulate matter up to 2.5 micrometers in diameter
NAGPRA	Native American Graves Protection and Repatriation Act	POPs	points of presence
NANSR	Nonattainment New Source Review	ppm	parts per million
NAWAS	National Warning System	PRDNER	Puerto Rico Department of Natural and Environmental Resources
NCA	National Climate Assessment	PREQB	Puerto Rico Environmental Quality Board
NCD	non-communicable disease	PR OSHA	The Puerto Rico Occupational Safety and Health Administration
NCDC	National Climatic Data Center	PRASA	Puerto Rico Aqueduct and Sewer Authority
NCN	no common name	PREPA	Puerto Rico Electric Power Authority
NCRP	National Council on Radiation Protection and Measurements	PRSHPO	Puerto Rico State Historic Preservation Office
ND	no data	PSD	Prevention of Significant Deterioration
NE	northeast	PUAG	Public Utility Agency of Guam
NEPA	National Environmental Policy Act	Pub. L.	Public Law
NESHAP	National Emission Standards for Hazardous Air Pollutants		
NFIP	National Flood Insurance Program		
NFIRS	National Fire Incident Reporting System		
NHPA	National Historic Preservation Act		
NIR	non-ionizing radiation		
NMFS	National Marine Fisheries Service		
NMHC	non-methane hydrocarbon compounds		
NMOG	non-methane organic compounds		
NNE	north-northeast		

PV	photovoltaic	UVA	University of Virginia
RAN	radio access network	VdB	vibration decibel(s)
RCP	Representative Concentration Pathway	VIC	Virgin Islands Code
RCRA	Resource Conservation and Recovery Act	VIPA	Virgin Islands Port Authority
RF	radio frequency	VISHPO	Virgin Islands State Historic Preservation Office
RIN	Regulation Identification Number	VOC	volatile organic compound
rms	root mean square	vog	volcanic smog
ROW	right-of-way	VRM	Visual Resource Management
SAAQS	State Air Quality Standards	W	watt(s)
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users	W/m ²	watts per meters squared
SARA	Superfund Amendments and Reauthorization Act of 1986	WAPA	Water and Power Authority
SE	Standard of Error	WHO	World Health Organization
SHPO	State Historic Preservation Office	WIMARCS	West Indies Marine Animal Research and Conservation Science
SIP	State Implementation Plan	WNP	Western North Pacific
SLR	sea level rise	WNW	west-northwest
SMA	Special Management Area	WPC	watts per channel
SMS	Scenery Management System	WPRFMC	Western Pacific Regional Fishery Management Council
SO ₂	sulfur dioxide		
SO _x	sulfur oxides		
SPCC	Spill Prevention, Control, and Countermeasure		
SPCZ	South Pacific Convergence Zone		
SPOC	State Single Point of Contact		
SRES	Special Report on Emission Scenarios		
SSA	sole source aquifer		
STATSGO2	State Soil Geographic [Database]		
SW	southwest		
TAAQS	Territory Ambient Air Quality Standards		
TCP	traditional cultural property		
TEMCO	Territorial Emergency Management Coordinating Office		
TMDL	Total Maximum Daily Load		
TOC	total organic compound		
tpy	tons per year		
TRI	Toxic Release Inventory		
TSCA	Toxic Substances Control Act		
U.S.	United States		
UAMES	University of Alaska Museum Earth Sciences		
USACE	U.S. Army Corps of Engineers		
USC	United States Code		
USDA	U.S. Department of Agriculture		
USDI	U.S. Department of the Interior		
USEPA	U.S. Environmental Protection Agency		
USFWS	U.S. Fish and Wildlife Service		
USGCRP	U.S. Global Climate Change Research Program		
USGS	U.S. Geological Survey		
USVIDOH	U.S. Virgin Islands Department of Health		
USVIPD	U.S. Virgin Islands Police Department		

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12. COMPARISON OF ALTERNATIVES

12.1. INTRODUCTION

This chapter presents, in summary form, impact ratings for the Preferred Alternative, as well as each of the remaining alternatives outlined in Section 2.2, Description of Alternatives.

Under the Preferred Alternative, FirstNet and/or their partners would construct a nationwide broadband LTE network using a combination of the wired, wireless, deployable, and satellite technologies. There is currently a wide range of technologies that FirstNet may use to implement and deploy the Nationwide Public Safety Broadband Network (NPSBN). Full descriptions of wired, wireless and deployable projects that FirstNet may consider are explained in Section 2.1.2, Proposed Action Infrastructure.

Under the Deployable Technologies Alternative, FirstNet and/or their partners would procure, deploy, and maintain a nationwide fleet of mobile communications systems, including ground-based and aerial deployable technologies, to provide temporary coverage in areas not covered by existing, usable infrastructure. There would be no collocation of equipment and no new construction associated with wired or wireless projects discussed above under the Preferred Alternative. Some limited construction could be associated with implementation such as land clearing or paving for parking or staging areas. Generally, these units would be deployed at times of an incident to the affected area for either planned or unplanned incidents or events. Equipment would be stationed in every state and territory, often at multiple locations in each state or territory, to facilitate suitable response. These mobile communication units would be temporarily installed and may use existing satellite, microwave, or radio systems for backhaul.

Under the No Action Alternative, the NPSBN would not be constructed; there would be no nationwide, coordinated system dedicated to public safety interoperable communications. The existing multiplicity of communications networks would remain in place, as would the current, known limitations and problems of existing communication networks during times of emergency or disaster. This alternative would require an act of Congress to revise the Act, which currently requires the NPSBN.

This Final Programmatic Environmental Impact Statement contains seven stand-alone chapters devoted to each of the seven states or territories in the Non-Contiguous U.S. region (see Chapters 3 through 9). Each of these chapters discusses fifteen separate resource areas, such as biological resources, land use, air quality, etc. and discusses the potential impacts of (or to) the Proposed Action in an Environmental Consequences section.

Through the programmatic approach, FirstNet has identified four categories of potential impacts at the programmatic level to these resources:

1. *Potentially significant*
2. *Less than significant with best management practices (BMPs) and mitigation measures incorporated*
3. *Less than significant*
4. *No impact*

Two exceptions exist to this categorization of potential impacts based on applicable, resource-specific regulations. For threatened and endangered species and species of conservation concern, categories of potential impacts are defined as: *may affect, likely to adversely affect; may affect, not likely to adversely affect; and no effect*. These impact categories are comparable to those defined in the *Endangered Species Consultation Handbook (USFWS and NMFS 1998)*. In Table 12.2-1, the following numeric values have been assigned for the purpose of equivalency:

1. *May affect, likely to adversely affect*¹
2. *May affect, not likely to adversely affect*
4. *No effect*

For cultural resources, categories of potential impacts are defined as an *adverse effect; mitigated adverse effect; effect, but not adverse; and no effect*. These impact categories are comparable to those defined in *36 CFR § 800, Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (NPS 1983)*, and the U.S. National Park Service's *National Register Bulletin: How to Apply the National Register Criteria for Evaluation (NPS 2002)*. In Table 12.2-1, the following numeric values have been assigned for the purpose of equivalency:

1. *Adverse effect*
2. *Mitigated adverse effect*
3. *Effect, but not adverse*
4. *No effect*

12.2. COMPARISON OF ALTERNATIVES

Table 12.2-1 below presents impact ratings at the programmatic level of the preferred and remaining alternatives in summary form. Numerical ratings represent whole number averages of ratings across states and territories, rounded conservatively to err on the side of greater potential impact significance.

¹ For all impact ratings where a potential affect is found, full and effective implementation of mitigation is assumed.

Evaluation of potential impacts was determined by the nature of both the deployment and operation of the infrastructure associated with each project alternative considered, the Preferred Alternative and the Deployable Technologies Alternative. The specific infrastructure associated with the Deployable Technologies Alternative would be the same as the deployable technologies implemented as part of the Preferred Alternative but would likely be implemented in greater numbers, over a larger geographic extent, and used with greater frequency and duration. It would not include fixed infrastructure such as towers or buried or aerial fiber.

As a result, potential impacts associated with the two project alternatives are generally similar. For most resources, impact ratings are identical, although some differences exist for some resource areas. For example, the Preferred Alternative would have somewhat greater potential impacts than the Deployable Technologies Alternative to water resources, wildlife, and visual resources. Conversely, the Deployable Technologies Alternative would have somewhat greater potential impacts than the Preferred Alternative to air resources.

The No Action Alternative would have no impacts, since by definition no system would be deployed and existing conditions would not change. As required by the National Environmental Policy Act, this alternative is used as a baseline against which the potential impacts of the action alternatives are compared. However, the No Action Alternative would not achieve the Proposed Action's stated purpose or meet the project need as required by the Middle Class Tax Relief and Job Creation Act of 2012 (*Pub. L. No. 112-96, Title VI, 126 Stat. 156 codified at 47 USC § 1401 et seq.*), and as such it would require an act of Congress in order for the No Action Alternative to take place.

Although Table 12.2-1 below focuses primarily on potential adverse impacts at the programmatic level, it is important to note that the ultimate outcome of the NPSBN would provide first responders with the tools they need to do their jobs more effectively and minimize the loss of life in the event of any future natural or manmade emergencies or disasters. In addition, likely substantial beneficial impacts associated with the NPSBN could occur as a result of the creation of direct, indirect, and induced employment. This could occur through new jobs associated with Proposed Action (direct), its contractors and subcontractors (indirect), and other business that serve the Proposed Action employees, contractors, or subcontractors (induced). The Proposed Action could also positively affect economic conditions through equipment purchases and changes in tax revenue, wages, and spending.

Table 12.2-1: Comparison of Alternatives by Resource Area and Type of Effect²

Resource Area/Type of Effect	Preferred Alternative		Deployable Technologies Alternative		No Action Alternative
	Deployment	Operations	Deployment	Operations	
Infrastructure					
Transportation system capacity and safety	3	3	3	3	4
Strain on capacity of local health, public safety, and emergency response services	3	3	3	3	4
Modifies existing public safety response telecommunication practices, physical infrastructure, or level of service in a manner that directly affects public safety communication capabilities and response times	3	3	3	3	4
Effects to commercial telecommunication systems, communications, or level of service	3	3	3	3	4
Effects to utilities, including electric power transmission facilities and water and sewer facilities	3	3	3	3	4
Soils					
Soil erosion	3	3	3	3	4
Topsoil mixing	3	3	3	3	4
Soil compaction and rutting	3	3	3	3	4
Geology					
Potential Impacts of the Project					
Surface geology, bedrock, topography, physiography, and geomorphology	3	3	3	3	4
Mineral and fossil fuel resource impacts	3	3	3	3	4
Paleontological resources impacts	3	3	3	3	4

² While the analysis indicates that certain locations could have higher or lower impact ratings, this table is evaluating the potential regional impacts (not state- or territory-specific) associated with the Proposed Action. Site-specific analysis may be required depending on the site conditions, the type of deployment, or any other permits or permissions necessary to perform the work.

Resource Area/Type of Effect	Preferred Alternative		Deployable Technologies Alternative		No Action Alternative
	Deployment	Operations	Deployment	Operations	
Potential Impacts to the Project					
Seismic hazard	3	3	3	3	4
Volcanic activity	3	3	3	3	4
Landslide	3	3	3	3	4
Land subsidence	3	3	3	3	4
Water Resources					
Water Quality (groundwater and surface water) - sedimentation, pollutants, water temperature	3	3	3	3	4
Floodplain degradation ^a	3	3	3	4	4
Drainage pattern alteration	3	3	3	4	4
Flow alteration	4	4	4	4	4
Changes in groundwater or aquifer characteristics	3	3	3	4	4
Wetlands ³					
Direct wetland loss (fill or conversion to non-wetland), other direct and indirect effects ^b	3	3	3	3	4
Biological Resources					
Vegetation					
Vegetation and habitat loss, alteration, or fragmentation	3	3	3	3	4
Invasive species effects	3	3	3	3	4
Wildlife					
Amphibians and reptiles	3	3	3	3	4
Terrestrial mammals	3	3	3	3	4
Marine mammals	3	3	3	3	4
Bats (radio frequency emissions)	3	2	3	3	4
Birds (radio frequency emissions, tower collisions)	3	2	3	3	4
Terrestrial invertebrates	3	3	3	3	4

³ Potential wetland impacts in American Samoa would be *less than significant with BMPs and mitigation measures incorporated* since wetlands comprise less than 1 percent of the area on American Samoa and are a rare habitat type.

Resource Area/Type of Effect	Preferred Alternative		Deployable Technologies Alternative		No Action Alternative
	Deployment	Operations	Deployment	Operations	
Fisheries					
Direct injury/mortality	3	3	3	3	4
Vegetation and habitat loss	3	3	3	3	4
Indirect injury	3	3	3	3	4
Migration effects	3	3	3	3	4
Reproductive effects	3	3	3	3	4
Effects of invasive species	3	3	3	3	4
Threatened and Endangered Species and Species of Conservation Concern ⁴					
Marine mammals	2	2	2	2	4
Terrestrial mammals	2	2	2	2	4
Birds	2	2	2	2	4
Reptiles	2	2	2	2	4
Fish	2	2	2	2	4
Invertebrates	2	2	2	2	4
Plants	2	2	2	2	4
Land Use, Airspace, and Recreation					
Direct land use change (site of FirstNet facility installation or deployable base)	3	3	4	3	4
Indirect land use change (site of FirstNet facility installation or deployable base)	3	3	4	3	4
Use of airspace (at and near site of FirstNet facility installation or deployable base)	3	3	3	3	4
Loss of access to public or private recreation land	3	3	4	3	4
Loss of enjoyment of public or private recreation land (due to visual, noise, or other impacts that make recreational activity less desirable)	3	3	4	3	4

⁴ Categories of impacts are defined as: *may affect*, *likely to adversely affect*; *may affect, not likely to adversely affect*; and *no effect*. These impact categories are comparable to those defined in the *Endangered Species Consultation Handbook* (USFWS and NMFS 1998).

Resource Area/Type of Effect	Preferred Alternative		Deployable Technologies Alternative		No Action Alternative
	Deployment	Operations	Deployment	Operations	
Visual Resources					
Adverse change in aesthetic character	3	3 ⁽⁵⁾	3	3	4
Nighttime lighting (overall)	3	3	3	3	4
Nighttime lighting (isolated rural areas or if sited near a national park)	3	2	3	3	4
Socioeconomics					
Potential impacts to real estate	3	3	4	3	4
Potential economic benefits or adverse impacts related to changes in tax revenues, wages, or direct spending (could be beneficial or adverse)	3	3	3	3	4
Employment	3	3	3	3	4
Increased pressure on existing public services	3	3	4	4	4
Diminished social cohesion/disruption related to influx	3	3	4	4	4
Reduced opportunities for subsistence practices	3	3	4	3	4
Environmental Justice					
Effects associated with other resource areas (e.g., cultural resources) that have environmental justice implications due to the affected parties (as defined by EO 12898).	3 ⁽⁶⁾	3	3	3	4

⁵ Additional BMPs and mitigation measures may be implemented for towers.

⁶ Since environmental justice impacts occur at the site-specific level, site-specific analysis may be required depending on the site conditions, the type of deployment, or any other permits or permissions necessary to perform the work. BMPs and mitigation measures may be required to address potential impacts to environmental justice communities at the site-specific level.

Resource Area/Type of Effect	Preferred Alternative		Deployable Technologies Alternative		No Action Alternative
	Deployment	Operations	Deployment	Operations	
Cultural Resources ⁷					
Direct effects to historic properties ^c	3	3	3	3	4
Indirect effects to historic properties (i.e. visual, noise, vibration, atmospheric)	3	3	3	3	4
Loss of access to historic properties	3	3	3	3	4
Air Quality					
Increased air emissions	3	3	3	3	4
Noise and Vibrations					
Increased noise and vibration levels	3	3	3	3	4
Climate Change					
Contribution to climate change through GHG emissions	3	3	3	3	4
Effect of climate change on Proposed Action-related impacts	4	1-2	4	4	4
Human Health and Safety					
Potential exposure to hazardous materials	3	3	3	4	4
Accidents and Injuries	3	3	3	3	4
Exposure to Noise	3	3	3	3	4
Communicable Disease	3	3	3	3	4

EO = Executive Order; GHG = greenhouse gas

Note: Impact ratings and colors are as follows:

1. (Red) *Potentially significant*
- 1-2. (White) Range of *potentially significant* to *less than significant with BMPs and mitigations measures incorporated*
2. (Orange) *Less than significant with BMPs and mitigations measures incorporated*
3. (Yellow) *Less than significant*
4. (Green) *No impact*

Note: The impact ratings used for the evaluation of Threatened and Endangered Species and Species of Conservation Concern are as follows:

1. (Red) *May affect, likely to adversely affect*
2. (Orange) *May affect, not likely to adversely affect*
4. (Green) *No effect*

⁷ Categories of impacts defined as an *adverse effect*; *mitigated adverse effect*; *effect, but not adverse*; and *no effect* are comparable to those defined in 36 CFR § 800, Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (NPS 1983), and the U.S. National Park Service's *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (NPS 2002).

Note: Impact ratings for the evaluation of cultural resources are as follows:

1. (Red) *Adverse effect*
2. (Orange) *Mitigated adverse effect*
3. (Yellow) *Effect, but not adverse*
4. (Green) *No effect*

^a Because public safety infrastructure is considered a critical facility, Proposed Action activities should avoid the 500-year floodplain wherever practicable per the Executive Orders on Floodplain Management (*EO 11988 and EO 13690*).

^b Indirect effects are those resulting from direct effects, but they occur elsewhere in space and/or time.

^c Per the National Historic Preservation Act, an historic property is defined as any district, archaeological site, building, structure, or object that is either listed or eligible for listing in the National Register of Historic Places (NRHP). Cultural resources present within an individual project's Area of Potential Effect are not historic properties if they do not meet the eligibility requirements for listing in the NRHP. Sites of religious and/or cultural significance refer to areas of concern to Indian tribes and other consulting parties that, in consultation with the respective party or parties, may or may not be eligible for listing in the NRHP. These sites may also be considered traditional cultural property (TCP). Therefore, by definition, these significance criteria only apply to cultural resources that are historic properties, significant sites of religious and/or cultural significance, or TCPs. For the purposes of brevity, the term "historic property" is used here to refer to either historic properties, significant sites of religious and/or cultural significance, or TCPs.

12.3. REFERENCES

- NPS (U.S. National Park Service). 1983. *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines [As Amended and Annotated]* Accessed: September 24, 2015. Retrieved from: http://www.nps.gov/history/local-law/arch_stnds_0.htm
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- USFWS and NMFS (U.S. Fish and Wildlife Service and National Marine Fisheries Service). 1998. *Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act*. March 1998. Retrieved from: https://www.fws.gov/ENDANGERED/esa-library/pdf/esa_section7_handbook.pdf