

Appendix T. Surface Disturbance and Reasonable Foreseeable Actions

This appendix includes information on surface disturbance and reasonable foreseeable actions within the planning area. Table T.1, “Summary of Projected Acres of Surface Disturbance by Resource” (p. 1642) provides projected acres of surface disturbance by resource. Table T.2, “Oil and Gas Reasonable Foreseeable Development Assumptions” (p. 1649) provides foreseeable development assumptions for oil and gas; the projected surface disturbances for oil and gas in Table T.1, “Summary of Projected Acres of Surface Disturbance by Resource” (p. 1642) are based on the project assumptions in Table T.2, “Oil and Gas Reasonable Foreseeable Development Assumptions” (p. 1649). Assumptions for all other resources are provided in each resource section in Table T.1, “Summary of Projected Acres of Surface Disturbance by Resource” (p. 1642).

Table T.1. Summary of Projected Acres of Surface Disturbance by Resource

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
Mineral Resources – Leasable Oil and Gas (includes CBNG)				
Acres Short-Term Disturbance from BLM Actions	15,405	10,720	15,473	14,473
Acres Reclaimed from BLM Actions	7,410	5,242	7,441	6,978
Acres Long-Term Disturbance from BLM Actions	7,995	5,478	8,032	7,495
Acres Short-Term Disturbance from Non-BLM Actions	7,070	7,060	7,070	7,060
Acres Reclaimed from Non-BLM Actions	3,359	3,354	3,359	3,354
Acres Long-Term Disturbance from Non-BLM Actions	3,711	3,706	3,711	3,706
Mineral Resources - Locatable				
Acres Short-Term Disturbance from BLM Actions	2,169.2	2,169.2	2,169.2	2,169.2
Assumptions	Assumes that historical use will continue for the 20 years of the plan. Notice level activities: assumes 13.46 acres of surface disturbance per year over the 20 years of the plan, based upon 282 acres total over the period 1989-2009. Plan of Operations level activities: Assumes 95 acres of surface disturbance per year based on 1,995.3 total acres over the last 21 years.			
Acres Reclaimed from BLM Actions	269.2	269.2	269.2	269.2
Assumptions	Assumes that the 13.46 acres per year of short-term disturbance from actions under a Notice are reclaimed within two years.			
Acres Long-Term Disturbance from BLM Actions	1,900	1,900	1,900	1,900
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Assumptions	BLM manages almost all locatable minerals (see Chapter 3) and it is speculative as to how much development will occur.			
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Mineral Resources – Mineral Material Disposals				
Acres Short-Term Disturbance from BLM Actions	3,660	3,660	3,660	3,660
Acres Reclaimed from BLM Actions	3,660	3,660	3,660	3,660
Assumptions	Assumes that historical averages of 183 acres per year will continue at past rate, which reflects the use of mineral materials for extensive AML reclamation. Assumes that area will be reclaimed upon completion of the removal of the material.			
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Assumptions	Assumes demand for mineral material is flat. Therefore, either there will be no mineral materials disposals on state and private land or if there are, the federal disturbance would be reduced by an equal amount.			
Acres Short-Term Disturbance from Non-BLM Actions	0	0	0	0
Acres Reclaimed from Non-BLM Actions	0	0	0	0

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0
Fire and Fuels Management ¹				
<i>Prescribed Fire</i>				
Acres Short-Term Disturbance from BLM Actions	6,000	20,000	6,000	10,000
Assumptions	Assumes 300 acres per year for 20 years.	Assumes 1,000 acres per year for 20 years.	Assumes 300 acres per year for 20 years.	Assumes 500 acres per year for 20 years.
Acres Reclaimed from BLM Actions	6,000	20,000	6,000	10,000
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Assumptions	BLM considers this too speculative to quantify.			
<i>Mechanical Fuels Treatment</i>				
Acres Short-Term Disturbance from BLM Actions	10,000	30,000	10,000	10,000
Assumptions	Assumes 500 acres per year.	Assumes 1,500 acres per year.	Assumes 500 acres per year.	Assumes 500 acres per year.
Acres Reclaimed from BLM Actions	10,000	30,000	10,000	10,000
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions ²	8,500	8,500	8,500	8,500
Assumptions	Assumes 425 acres per year.	Assumes 425 acres per year.	Assumes 425 acres per year.	Assumes 425 acres per year.
Acres Reclaimed from Non-BLM Actions	8,500	8,500	8,500	8,500
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0
Assumptions	The number of acres of treatment may be low as it includes estimates from USFS which may increase in the future as pine beetle damaged areas are treated. In addition, WGFD and private parties conduct treatments which have short-term disturbance but limited long-term disturbance.			
Forest, Woodlands, and Forest Products				
Acres Short-Term Disturbance from BLM Actions	375	550	550	600
Assumptions	Assumes historic patterns will continue.	Assumes small increase because of beetle kill.	Assumes small increase because of beetle kill.	Assumes small increase because of beetle kill plus more cutting for safety.
Acres Reclaimed from BLM Actions	375	550	550	600
Assumptions	Assumes all acres will be reclaimed.			
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
Assumptions	BLM considers this too speculative to quantify. Substantial potential exists for forest product removal from the Shoshone National Forest. In Fiscal Year 2010, the Shoshone National Forest had American Recovery and Reinvestment Act related stimulus funds and treated approximately 5,000 acres. Generally, this number is very low.			
Invasive Species				
Acres Short-Term Disturbance from BLM Actions	0	0	0	0
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	10,000	10,000	10,000	10,000
Assumptions	Assumes 500 acres per year.	Assumes 500 acres per year.	Assumes 500 acres per year.	Assumes 500 acres per year.
Acres Reclaimed from Non-BLM Actions	10,000	10,000	10,000	10,000
Acres Long-Term Disturbance from Non-BLM Actions	0	0	0	0
Assumptions	Assumes consistent treatment by WGFD on non-BLM surface, treatment by Firewise, and private services. Assumes brush-type treatments which are fully reclaimed.			
Renewable Energy - Wind-Energy Development				
Acres Short-Term Disturbance from BLM Actions	2,250	0	108,000	2,250
Assumptions	1 project with 50 turbines over 20 years	No projects	2,400 turbines, averaged to 5,400 acres per year	1 project with 50 turbines over 20 years
Acres Reclaimed from BLM Actions	1,250	0	60,000	1,250
Assumptions	Assumes that 25 acres/turbine will be reclaimed within 2 years and that 20 acres/turbine will be long-term surface disturbance.			
Acres Long-Term Disturbance from BLM Actions	1,000	0	48,000	1,000
Rights-of-Way (ROW)				
<i>Telephone and Fiber Optics</i>				
Acres Short-Term Disturbance from BLM Actions	269	54	277	144
Assumptions	13.43 per year (historic trend)	2.68 per year (historic trend reduced by percent based on areas excluded to ROW)	13.83 per year (historic trend increased by percentage reduced areas excluded to ROW)	7.22 per year (historic trend reduced by percentage areas excluded to ROW)
Acres Reclaimed from BLM Actions	269	54	277	144
Assumptions	Assumes that any disturbance is reclaimed within 2 years.			
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
<i>Pipelines (oil and gas)</i>				
Acres Short-Term Disturbance from BLM Actions	8,950	7,017	9,208	8,555
Assumptions	Assumes historic average will continue.	Assumes historic average reduced by percent fewer wells.	Assumes historic average increased by percent more wells.	Assumes historic average reduced by percent fewer wells.
Acres Reclaimed from BLM Actions	8,950	7,017	9,208	8,555
Assumptions	Assumes pipelines will be reclaimed within 2 years.			
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Roads²</i>				
Acres Short-Term Disturbance from BLM Actions	231.80	36.36	237.93	115.5
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	231.80	36.36	237.93	115.5
Assumptions	Assumes historic average will continue.	Assumes historic average reduced by percent excluded to ROW.	Assumes historic average increased by percent open to ROW.	Assumes historic average reduced by percent excluded to ROW.
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Powerlines (power and telephone)</i>				
Acres Short-Term Disturbance from BLM Actions	1,969.2	393.84	2,028	984.6
Assumptions	Assumes historic average will continue.	Assumes historic average reduced by percent excluded to ROW.	Assumes historic average increased by percent open to ROW.	Assumes historic average reduced by percent excluded to ROW.
Acres Reclaimed from BLM Actions	1,969.2	393.84	2,028	984.6
Acres Long-Term Disturbance from BLM Actions	0	0	0	0
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Communication Sites</i>				
Acres Short-Term Disturbance from BLM Actions	412.8	15	425.18	57.84

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
Assumptions	Assumes historic average of 20.64 acres per year will continue.	Assumes minor expansion of designated sites will be disturbed at a rate lower than historical average.	Assumes historic average increased by percent open to ROW.	Assumes minor expansion of designated sites will be disturbed at a rate lower than historical average.
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	412.8	57.84	425.18	57.84
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Other Facilities³</i>				
Acres Short-Term Disturbance from BLM Actions	39	30.6	40	37.32
Assumptions	Assumes historic average of 1.95 acres per year will continue.	Assumes 1.53 acres (historic average reduced by percent fewer wells).	Assumes 2 acres per year acres (historic average increased by percent more wells).	Assumes 1.87 acres (historic average reduced by percent fewer wells).
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	39	30.6	40	37.32
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Livestock Grazing				
<i>Spring Development</i>				
Acres Short-Term Disturbance from BLM Actions	82.4	0	88.4	45.76
Assumptions	Assumes 4.12 acres per year.	Assumes 0 acres per year.	Assumes 4.42 acres per year.	Assumes 2.29 acres per year.
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	82.4	0	88.4	45.76
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Reservoir/Pit Development</i>				
Acres Short-Term Disturbance from BLM Actions	220	0	240	121
Assumptions	Assumes 11 acres per year.	Assumes 0 acres per year.	Assumes 12 acres per year.	Assumes 6 acres per year.
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	220	0	240	121
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Fence Development</i>				
Acres Short-Term Disturbance from BLM Actions	443.8	0	1,432	620
Assumptions	Assumes 22.19 acres per year.	Assumes no fences.	Assumes 71.6 acres per year.	Assumes 31 acres per year.
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	443.8	0	1,432	620
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
<i>Well Development</i>				
Acres Short-Term Disturbance from BLM Actions	113.8	0	236	60.4
Assumptions	Assumes 5.69 acres per year.	Assumes no wells.	Assumes 11.80 per year.	Assumes 3.02 acres per year.
Acres Reclaimed from BLM Actions	0	0	0	0
Acres Long-Term Disturbance from BLM Actions	113.8	0	236	60.4
Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Cumulative Disturbance				
Total Acres Short-Term Disturbance from BLM Actions	52,591	74,689	160,065	53,894
Total Acres Reclaimed from BLM Actions	40,152	67,186	99,433	42,441
Total Acres Long-Term Disturbance from BLM Actions	12,439	7,502	60,631	11,453
Total Acres Short-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Total Acres Reclaimed from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown
Total Acres Long-Term Disturbance from Non-BLM Actions	Unknown	Unknown	Unknown	Unknown

Type of Disturbance	Alternative A	Alternative B	Alternative C	Alternative D
Cumulative Long-Term Acres of Disturbance	Unknown	Unknown	Unknown	Unknown
<p>¹ Areas disturbed by mechanical fuels treatment will naturally be reclaimed within 3 to 5 years; areas disturbed by prescribed fire will naturally be reclaimed within 3 to 5 years.</p> <p>² Approximately 50 percent of roads would be oil and gas related (based on the <i>Reasonable Foreseeable Development Scenario for Oil and Gas, Lander Field Office, Wyoming</i>).</p> <p>³ Historically, these facilities are oil and gas.</p> <p>AML abandoned mine land BLM Bureau of Land Management CBNG coalbed natural gas ROW right-of-way USFS United States Forest Service WGFD Wyoming Game and Fish Department</p>				

Table T.2. Oil and Gas Reasonable Foreseeable Development Assumptions

Well Projections	Alternative A	Alternative B	Alternative C	Alternative D
Well Projections on BLM-Administered Land for Existing Active Wells and All New Wells (short-term)				
Existing Wells (total)	887	887	887	887
Non-coalbed Exploratory	113	113	113	113
Non-coalbed Development	722	722	722	722
CBNG	5	5	5	5
Deep	47	47	47	47
New Wells (total)	2,274	1,528	2,284	2,125
Non-coalbed Exploratory	237	189	237	227
Non-coalbed Development	1,511	1,209	1,516	1,447
CBNG	480	93	484	406
Deep	46	37	47	45
Well Projections on BLM-Administered Land for All New Producing Wells and Existing Active Wells Less Abandonments (long-term)				
Existing Wells (total)	675	675	675	675
Non-coalbed Exploratory	85	85	85	85
Non-coalbed Development	545	545	545	545
CBNG	5	5	5	5
Deep	40	40	40	40
New Wells (total)	1,820	1,194	1,828	1,695
Non-coalbed Exploratory	142	113	142	136
Non-coalbed Development	1,209	967	1,213	1,158
CBNG	432	84	436	365
Deep	37	30	38	36
Well Projections on Non-BLM-Administered Land for Existing Active Wells and All New Wells (short-term)				
Existing Wells	1,377	1,377	1,377	1,377
Non-coalbed Exploratory	180	180	180	180
Non-coalbed Development	1,148	1,148	1,148	1,148
CBNG	23	23	23	23
Deep	26	26	26	26
New Wells	1,060	1,060	1,060	1,060
Non-coalbed Exploratory	94	94	94	94
Non-coalbed Development	596	597	596	597
CBNG	343	343	343	343
Deep	27	26	27	26
Well Projections on Non-BLM-Administered Land for All New Producing Wells and Existing Active Wells Less Abandonments (long-term)				
Existing Wells	1,102	1,102	1,102	1,102
Non-coalbed Exploratory	145	145	145	145

Well Projections	Alternative A	Alternative B	Alternative C	Alternative D
Non-coalbed Development	926	926	926	926
CBNG	11	11	11	11
Deep	20	20	20	20
New Wells	864	864	864	864
Non-coalbed Exploratory	56	56	56	56
Non-coalbed Development	477	478	477	478
CBNG	309	309	309	309
Deep	22	21	22	21
Assumptions	<p>Surface disturbance resulting from the well projections above assume the following acres of surface disturbance for each type of well from well pads, access roads, and flow lines:</p> <ul style="list-style-type: none"> ● Short-term well projections (new wells): <ul style="list-style-type: none"> ○ Non-coalbed exploratory (12.5 acres of surface disturbance per well) ○ Non-coalbed development (6 acres of surface disturbance per well) ○ CBNG (5.5 acres of surface disturbance per well) ○ Deep (16 acres of surface disturbance per well) ● Long-term well projections: <ul style="list-style-type: none"> ○ Non-coalbed exploratory (9 acres of surface disturbance per well) ○ Non-coalbed development (4 acres of surface disturbance per well) ○ CBNG (3.5 acres of surface disturbance per well) ○ Deep (10 acres of surface disturbance per well) 			
<p>Source: Reasonable Foreseeable Development Scenario for Oil and Gas, Lander Field Office, Wyoming (BLM 2009c)</p> <p>BLM Bureau of Land Management CBNG coalbed natural gas</p>				