

2017

*Supplementary information package for the
EIAs of the Rumichaca–Pasto second roadway
construction project, Nariño, Colombia*



www.uniondelsur.co

Carrera 30 A # 12A-24

Barrio San Ignacio

Contact: (2) 736 4584

Pasto - Nariño - Colombia

Content

INTRODUCTION	2
BACKGROUND	2
SUPPLEMENTARY INFORMATION OBJECTIVES	2
SUPPLEMENTARY INFORMATION STRUCTURE	2
INFORMATION REQUIREMENTS RELATED TO IFC AND OTHER STANDARDS.....	3
BIODIVERSITY ASSESSMENT	3
ENVIRONMENTAL ASSESSMENT OF THE OPERATIONAL PHASE	5
COMMUNITY HEALTH AND SAFETY ASSESSMENT	10
Community's health and safety requirements	10
Infrastructure and equipment design and safety.....	10
Management and safety of hazardous materials	10
Services provided by ecosystems.....	10
Community exposure to diseases	11
Preparation for and response to emergencies	11
EVALUATION OF THE RESETTLEMENT ACTION FRAMEWORK	11
EVALUATION OF CUMULATIVE IMPACTS.....	38
Paso 1: Definition of spatial and temporal boundaries	39
Paso 2: Preliminary evaluation Phase II – Other activities and external factors	41
Paso 3: Establishing the present conditions of the VEC.....	42
Paso 4: Evaluation of cumulative impacts on VEC	47
Paso 5: Evaluation of the importance of foreseen cumulative impacts	48
EVALUATION OF THE ETHNIC POPULATION FRAMEWORK.....	50
EVALUATION OF RESILIENCE TO CLIMATE CHANGE	67
REFERENCES	1

INTRODUCTION

BACKGROUND

As part of the importance attached today to responsible environmental actions in the implementation of the different activities of humans, especially those that due to their dimensions carry considerable changes on the environment, and that for the same reason includes as stakeholders a series of players that go beyond the local and national scope, the regulatory and legal framework that seeks the protection of natural resources and the environment is no longer limited to the national order of the different states where projects are developed, but adopts international standards in an effort to ensuring that all stakeholders have clear elements of judgment, for decision-making on investment and involvement in the projects of which they are part.

Thus, the project for the construction of the second roadway Rumichaca-Pasto has delivered at the national level the formulation of environmental impact studies (EIS) in order to obtain the environmental license of the different sections that are part of the project, issued by the competent national authority, in order to be able to execute. Notwithstanding the above, the investment that will provide the necessary resources to carry it out comes from external sources, which base their decisions on international standards that advocate environmental sustainability and use as tools information standards such as the International Finance Corporation's performance standards.

Therefore, this supplementary information to the Environmental Impact Studies aimed at obtaining the environmental licenses for the project at the national level, is designed to articulate the issues raised in these studies with IFC's performance standards.

SUPPLEMENTARY INFORMATION OBJECTIVES

- To provide information on the achievement of the environmental and social sustainability goals, within the context of IFC standards.
- To assess past, present and future cumulative impacts in the area of influence of the project.

SUPPLEMENTARY INFORMATION STRUCTURE

Supplementary information has been agreed upon as an appropriate structure for additional information and analysis with the IFC and its consultants, OPIC and others, in November 2017. The structure reflects what are seen as top priority environmental and social issues that need clarification or further data and analysis.

Supplementary information is divided into seven main sections related to physical environment, biodiversity and social aspects, each with the framework provided by IFC within its performance standards.

INFORMATION REQUIREMENTS RELATED TO IFC STANDARDS AND OTHERS

In order to meet the information requirements related to environmental and social sustainability within the framework of IFC standards, the following report presents an analysis and evaluation of the following elements:

BIODIVERSITY ASSESSMENT

According to Performance Standard 6. Conservation of biodiversity and sustainable management of living natural resources, particularly concerning critical habitats considered as areas with a high biodiversity value, such as (i) significant habitats for the survival of critically endangered species or threatened species; (ii) significant habitats for the survival of endemic species or species restricted to certain areas; (iii) habitats sustaining the survival of globally significant concentrations of migratory species or congregating species; (iv) highly threatened or unique ecosystems, or (v) areas associated with key evolutionary processes. It is necessary to consider the certifications on the existence or not of Protected Areas of the SINAP, and their location in the area of project intervention.

In this regard, the Office of Management and Handling of Protected Areas, National Natural Parks of Colombia (NPSC), has indicated that the area of interest for the project **DOES NOT** overlap with other categories recognized by the different environmental authorities in the Single National Registry of Protected Areas (RUNAP). The relevant areas of ecosystemic interest are outside the area of influence of the project. Approximately 400 m from the civil society reservation “El Rincón” and 3 km from the Regional Natural Park “Paramo de Paja Blanca Territorio Sagrado del Pueblo de los Pastos”.

With regard to fauna species with restricted distribution (endemic), rare species and umbrella species, the environmental impact studies have recorded a group of amphibians of the Hemiphractidae family, represented by the endemic species *Gastrotheca argenteovirens*, distributed through the south of the Cordillera Occidental, the central and southern part of the western slopes of the Cordillera Central and the Massif Central specifically in the departments of Cauca, Nariño, Quindío, Tolima and Valle del Cauca between 1650 and 3300 m.a.s.l. (Bolívar-G., Galvis, Motta, & González-Colorado, 2015; Acosta-Galvis A. R., 2016) and nearly endemic species *Gastrotheca espeletia*, located in the Andean valleys of southern Colombia reaching down central Ecuador. In Colombia, this species is found in the departments of Nariño and Putumayo, between 1500 and 3230 m.a.s.l. On the other hand, the Craugastoridae family, with three species: *Pristimantis passerina*, *Pristimantis unistrigatus* and *Thymelensis pristimantis*, all of them near-endemic because they are distributed in both Colombia and Ecuador (2017 Geocol).

Within the area of influence and also internationally there is one endangered species (EN), *G. espeletia*, according to the criteria established by the IUCN Red List (2016). The remaining species of amphibians are included in the category of Least Concern (LC), because they are abundant and for their most part generalists, adaptable to disturbed areas, and with a large population

presumed (Ramírez Pinilla et al. 2004), predominant characteristics in the area of project intervention. At the national level, *G. espeletia* is categorized as endangered (EN), according to the Red Book of Amphibians in Colombia and Resolution 192 of 2014 of the Ministry of Environment and Sustainable Development.

As to reptilian species, five species endemic to Colombia were reported in the area of influence of the road project: *Anolis heterodermus*, *Pholidobolus montium*, *Riama simotera*, *Stenocercus angel* and *Stenocercus guentheri*. The remaining reptiles are widely distributed in northern South America (Geocol 2017).

With respect to bird species, of the species listed in the environmental impact studies, four are categorized as near-endemic; "calzoncito piernioscuro" (*Eriocnemis derbyi*), "tangara rastrojera" (*Tangara vitriolina*), "saltador alinegro" (*Saltator atripennis*), and "gorrión montés cabeciblanco" (*Atlapetes pallidinucha*) (Chaparro-Herrera et al. 2013). In terms of umbrella species, no species meeting this requirement has been identified. The presence of the hummingbird "calzoncito piernioscuro" (*E. derbyi*) is highlighted among rare species, because there was just one record within the area of intervention. This is a near-endemic species in Colombia and is categorized as near-endangered worldwide (IUCN), although it is not found in any endangered category in Colombia (Geocol 2017).

Concerning mammals, one endemic species, a squirrel (*Sciurus pucheranii*), and an almost endemic species, a mouse (*Caenolestes fuliginosus*) were reported. Both species are classified under some endangered category nationally and/or globally (Geocol 2017).

It should be noted that the degree of endemism in the study area is very low, as a result of the high degree of fragmentation and accelerated loss of natural covers, where there is constant evidence of great extensions of mosaics of pastures and crops, clean pastures and forest plantations of exotic species such as eucalyptus (*Eucalyptus globulus*), cypress (*Cupressus lusitanica*) and pine (*Pinus patula*) (Géminis 2016).

However, although in the area of intervention of the divided highway Rumichaca - Pasto project there is no evidence of critical habitats considered as areas with a high biodiversity value, the existence of passages of fauna has been established, the first in the municipality of Tangua, between the rural settlements of Chaves and Cebadal 1.104281 N-77.38233 (W), on the basis of semi-natural forests and coverage areas which housed the largest proportion of species and individuals of all studied groups (amphibians, reptiles, birds and mammals) (Géminis 2016). The vegetation found at this point is riparian, with predominance of medium- and low-height grasslands. The second is located between the rural settlements Villa Cruz and Infantas Alto y Bajo (1.070537 N-77.427608 (W). Like the animal passage 1, this one is based on forest coverage and semi-natural areas that housed the largest proportion of faunal species and individuals found in the area of influence of the road corridor. The vegetation found at this point is riparian, with predominance of medium-height grassland, in a better state of conservation and with the greatest density of top-height grasslands (Géminis 2016); Municipality of Contadero, Vereda La Providencia (PK18+900), composed of secondary low secondary vegetation and forest plantation; Municipality of Contadero, Vereda Las Cuevas (PK25+000) composed of high secondary vegetation; Municipality of Iles, Vereda Tablón Alto (PK36+500), composed of gallery forest and riparian forest; Municipality of Iles, Vereda El Rosario (PK37+200), composed of gallery forest. In addition, nine fauna passages parallel to sewers and Box Culverts (2017) are proposed, to ensure that all faunal groups obtain food resources, foraging area, nesting and mating areas, and an area

of passage between surrounding covers, which ensures the flow of genes and the ecosystemic dynamics of the area.

ENVIRONMENTAL ASSESSMENT OF THE OPERATION PHASE

The installation of two tolls is planned as structural elements for the financial and technical support model: Toll Station El Placer (extension of the existing Toll Station) and Toll Station Ipiales.

However, for the assessment of environmental impact expected during the operation phase and with the presence of the two above-said tolls on elements such as atmospheric conditions (i.e., aspects such as the quality of air and noise) the Average Daily Traffic (AADT) projection has been used for each of the toll stations for the years of the concession, as shown in the following tables (Table 1 and Table 2).

Table 1. TPDA projection for the El Placer Toll Station (two directions), baseline year

AÑO	CAT I	CAT II	CAT III	CAT IV	CAT V	TOTAL
2017	4.621	1.491	101	59	173	6.446
2018	4.815	1.576	107	62	183	6.743
2019	5.009	1.661	113	66	193	7.041
2020	5.203	1.746	118	69	203	7.339
2021	5.442	1.850	126	73	215	7.706
2022	5.084	1.950	132	77	226	7.470
2023	5.299	2.055	139	81	238	7.813
2024	5.515	2.159	146	85	251	8.157
2025	5.730	2.264	154	90	263	8.500
2026	5.923	2.354	160	93	273	8.803
2027	6.116	2.443	166	97	283	9.105
2028	6.309	2.533	172	100	294	9.408
2029	6.502	2.623	178	104	304	9.711
2030	6.695	2.712	184	107	315	10.013
2031	6.826	2.789	189	110	324	10.238
2032	6.958	2.866	194	113	333	10.464
2033	7.089	2.943	200	116	341	10.689
2034	7.220	3.020	205	119	350	10.914
2035	7.352	3.096	210	122	359	11.140
2036	7.499	3.158	214	125	366	11.363
2037	7.649	3.222	219	127	374	11.590
2038	7.802	3.286	223	130	381	11.822
2039	7.958	3.352	227	133	389	12.058
2040	8.117	3.419	232	135	397	12.299

Source: Stear Davies Gleave

Table 2. TDPA projection for the Ipiales Toll Station (two directions), baseline year

AÑO	CAT I	CAT II	CAT III	CAT IV	CAT V	TOTAL
2017	7.733	1.897	63	37	109	9.839
2018	8.057	2.009	67	39	115	10.287
2019	8.382	2.120	71	41	121	10.735
2020	8.707	2.232	74	43	127	11.183
2021	9.119	2.368	79	46	135	11.746
2022	8.231	2.406	82	48	141	10.908
2023	8.593	2.543	87	50	148	11.422
2024	8.955	2.680	91	53	156	11.935
2025	9.318	2.816	95	56	163	12.448
2026	9.632	2.934	99	58	170	12.893
2027	9.947	3.051	103	60	176	13.338
2028	10.262	3.169	107	62	183	13.783
2029	10.577	3.287	111	65	190	14.228
2030	10.891	3.404	115	67	196	14.673
2031	11.141	3.505	118	69	202	15.034
2032	11.391	3.606	121	71	207	15.396
2033	11.640	3.707	125	73	213	15.757
2034	11.890	3.808	128	75	219	16.119
2035	12.139	3.909	131	76	224	16.480
2036	12.382	3.987	134	78	229	16.810
2037	12.630	4.067	136	80	233	17.146
2038	12.883	4.148	139	81	238	17.489
2039	13.140	4.231	142	83	243	17.839
2040	13.403	4.316	145	84	248	18.195

Source: Stear Davies Gleave

With this information, and using the international vehicle emissions (IVE) model, rates of pollutant emissions have been established that allow to determine, kilometer-by-kilometer, based on the type of vehicle, the amount of pollutants generated from carbon dioxide (CO₂), volatile organic compounds (VOC), carbon monoxide (CO) and particulate matter (PM), as can be seen below (Table 3)

Table 3. Typical Emission Rates

Type of vehicle	EF (g/km)			
	CO ₂	VOC	CO	PM
Light	165.5	0.086	0.533	0.003
Heavy	650.2	0.013	0.087	0.016

Source: International Vehicle Emission Model, 2008

Based on the characterization of transport in Colombia developed by the Ministry of Transport in 2002, the Colombian fleet is comprised of 88% light vehicles, and 12% heavy vehicles; therefore, it is estimated that according to the projections above, number of vehicles passing through each one of the Toll Stations of the Rumichaca – Pasto project for each year of the concession are shown below, discriminated between light and heavy vehicles (Table 4).

Table 4. Light and heavy vehicles per year of concession; El Placer and Ipiales Toll Stations

Year	Light Placer	EL	Heavy Placer	EL	TOTAL PLACER	EL	Light Ipiales	Heavy Ipiales	TOTAL IPIALES
2017	5672.48		773.52		6446		8658.32	1180.68	9839
2018	5933.84		809.16		6743		9052.56	1234.44	10287
2019	6196.08		844.92		7041		9446.8	1288.2	10735
2020	6458.32		880.68		7339		9841.04	1341.96	11183
2021	6781.28		924.72		7706		10336.48	1409.52	11746
2022	6573.6		896.4		7470		9599.04	1308.96	10908
2023	6875.44		937.56		7813		10051.36	1370.64	11422
2024	7178.16		978.84		8157		10502.8	1432.2	11935
2025	7480		1020		8500		10954.24	1493.76	12448
2026	7746.64		1056.36		8803		11345.84	1547.16	12893
2027	8012.4		1092.6		9105		11737.44	1600.56	13338
2028	8279.04		1128.96		9408		12129.04	1653.96	13783
2029	8545.68		1165.32		9711		12520.64	1707.36	14228
2030	8811.44		1201.56		10013		12912.24	1760.76	14673
2031	9009.44		1228.56		10238		13229.92	1804.08	15034
2032	9030.56		1231.44		10262		13548.48	1847.52	15396
2033	9406.32		1282.68		10689		13866.16	1890.84	15757
2034	9604.32		1309.68		10914		14184.72	1934.28	16119
2035	9803.2		1336.8		11140		14502.4	1977.6	16480
2036	9999.44		1363.56		11363		14792.8	2017.2	16810
2037	10199.2		1390.8		11590		15088.48	2057.52	17146
2038	10403.36		1418.64		11822		15390.32	2098.68	17489
2039	10611.04		1446.96		12058		15698.32	2140.68	17839
2040	10823.12		1475.88		12299		16011.6	2183.4	18195

Source: Prepared in-house, based on data from MinTransporte and Stear Davies Gleave

With the information available, it can be established that the pollution levels generated by each toll station and for each type of vehicle in the concession years, increase as shown below for each one of the toll stations, for light and heavy vehicles expected to transit and for each type of pollutant (Table 5 and Table 6).

Table 5. Emission of pollutants per Km projected by the years of concession El Placer Toll Station

Year	CO2 (g/km)		VOC (g/km)		CO (g/km)		PM (g/km)	
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
2017	938,795.44	502,942.70	487.83	10.06	3,023.43	67.30	17.02	12.38
2018	982,050.52	526,115.83	510.31	10.52	3,162.74	70.40	17.80	12.95
2019	1,025,451.24	549,366.98	532.86	10.98	3,302.51	73.51	18.59	13.52

Year	CO2 (g/km)		VOC (g/km)		CO (g/km)		PM (g/km)	
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
2020	1,068,851.96	572,618.14	555.42	11.45	3,442.28	76.62	19.37	14.09
2021	1,122,301.84	601,252.94	583.19	12.02	3,614.42	80.45	20.34	14.80
2022	1,087,930.80	582,839.28	565.33	11.65	3,503.73	77.99	19.72	14.34
2023	1,137,885.32	609,601.51	591.29	12.19	3,664.61	81.57	20.63	15.00
2024	1,187,985.48	636,441.77	617.32	12.72	3,825.96	85.16	21.53	60
2025	1,237,940.00	663,204.00	643.28	13.26	3,986.84	88.74	2244	1632
2026	1,282,068.92	686,845.27	666.21	13.73	4,128.96	91.90	23.24	16.90
2027	1,326,052.20	710,408.52	689.07	14.20	4,270.61	95.06	24.04	1748
2028	1,370,181.12	734,049.79	712.00	14.68	4,412.73	98.22	24.84	18.06
2029	1,414,310.04	757,691.06	734.93	15.15	4,554.85	101.38	25.64	18.65
2030	1,458,293.32	781,254.31	757.78	15.62	4,696.50	104.54	26.43	19.22
2031	1,491,062.32	798,809.71	774.81	15.97	4,802.03	106.18	27.03	19.66
2032	1,494,557.68	800,682.29	776.63	16.01	4,813.29	107.14	27.09	19.70
2033	1,556,745.96	833,998.54	808.94	16.67	5,013.57	111.59	28.22	20.52
2034	1,589,514.96	851,553.94	825.97	17.03	5,119.10	113.94	28.81	20.95
2035	1,622,429.60	869,187.36	843.08	17.38	5,225.11	116.30	29.41	21.39
2036	1,654,907.32	886,586.71	859.95	17.73	5,329.70	118.63	30.00	21.82
2037	1,687,967.60	904,298.16	877.13	18.08	5,436.17	121.00	30.60	2225
2038	1,721,756.08	922,399.73	894.69	18.44	5,544.99	123.42	31.21	22.70
2039	1,756,127.12	940,813.39	912.55	18.81	5,655.68	125.89	31.83	2315
2040	1,791,226.36	959,617.18	930.79	19.19	5,768.72	128.40	29.97	23.61
SUBTOTAL	33,006,393.20	17,682,579.12	17,151.36	353.54	106,298.54	2,366.02	598.30	435.13
TOTAL	50,688,972.32		17,504.90		108,664.55		1,033.43	

Source: Prepared in-house, based on data from MinTransporte and Stear Davies Gleave

Table 6. Emission of pollutants per Km projected by the years of concession Ipiales Toll Station

Year	CO2		VOC		CO		PM	
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
2017	1,432,951.96	767,678.14	744.62	3.35	4,614.88	102.72	23.97	18.89
2018	1,498,198.68	802,632.89	778.52	1605	4,825.01	107.40	27.16	19.75
2019	1,563,445.40	837,587.64	812.42	16.75	5,035.14	112.07	28.34	20.61
2020	1,628,692.12	872,542.39	846.33	1745	5,245.27	116.75	29.52	21.47
2021	1,710,687.44	916,469.90	888.94	18.32	5,509.34	122.63	31.01	2255
2022	1,588,641.12	851,085.79	825.52	17.02	5,116.29	113.88	28.80	20.94
2023	1,663,500.08	891,190.13	864.42	17.82	5,357.37	119.25	30.15	21.93
2024	1,738,213.40	931,216.44	903.24	18.62	5,597.99	124.60	31.51	22.92
2025	1,812,926.72	971,242.75	942.06	19.42	5,838.61	129.96	32.86	23.90

Year	CO2		VOC		CO		PM	
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
2026	1,877,736.52	1,005,963.43	975.74	20.11	6,047.33	134.60	34.04	24.75
2027	1,942,546.32	1,040,684.11	1,009.42	20.81	6,256.06	139.25	35.21	25.61
2028	2,007,356.12	1,075,404.79	1,043.10	2150	6,464.78	143.89	36.39	26.46
2029	2,072,165.92	1,110,125.47	1,076.78	2220	6,673.50	148.54	37.56	27.32
2030	2,136,975.72	1,144,846.15	1,110.45	22.89	6,882.22	153.19	38.74	28.17
2031	2,189,551.76	1,173,012.82	1,137.77	2345	7,051.55	156.95	39.69	28.87
2032	2,242,273.44	1,201,257.50	1,165.17	24.02	7,221.34	160.73	40.65	29.56
2033	2,294,849.48	1,229,424.17	1,192.49	24.58	7,390.66	164.50	41.60	30.25
2034	2,347,571.16	1,257,668.86	1,219.89	25.15	7,560.46	168.28	42.55	30.95
2035	2,400,147.20	1,285,835.52	1,247.21	25.71	7,729.78	172.05	43.51	31.64
2036	2,448,208.40	1,311,583.44	1,272.18	26.22	7,884.56	175.50	44.38	32.28
2037	2,497,143.44	1,337,799.50	1,297.61	26.75	8,042.16	179.00	45.27	32.92
2038	2,547,097.96	1,364,561.74	1,323.57	27.28	8,203.04	182.59	46.17	33.58
2039	2,598,071.96	1,391,870.14	1,350.06	27.83	8,367.20	186.24	47.09	34.25
2040	2,649,919.80	1,419,646.68	1,377.00	28.38	8,534.18	189.96	48.03	34.93
SUBTOTAL	48,888,872.12	26,191,330.39	25,404.49	523.67	157,448.75	3,504.53	886.20	644.51
TOTAL	75,080,202.51		25,928.15		160,953.28		1,530.71	

Source: Prepared in-house, based on data from MinTransporte and Stear Davies Gleave

From the information available, the greater mobility of vehicle traffic will occur at the Ipiales Toll Station, so this will represent a greater environmental impact on air quality.

The projection of emissions by pollutant in the final year of the concession, i.e., 25 years after year zero, states that the four variables analyzed for both light and heavy vehicles are expected to double, which will lead to a significant decrease in the current air quality.

The pollutant with the highest level of emission is carbon dioxide (CO2), the main greenhouse gas, with an emission 1,432,951.96 g/km in 2017 at the busiest toll station, and with the highest reception potential, at 2,649,919.80 g/km in 2040.

On the other hand, the largest contributors of pollutants to the atmosphere are evidently light vehicles, especially concerning CO and VOC. Since heavy vehicles represent a lower percentage of the fleet, they are expected to contribute less to the emission of pollutants. This fact notwithstanding, it is worth noting that the source that estimates the transit of light and heavy vehicles is domestic, so this projection does not take into account that we are in the border area, so that the percentage of heavy vs light vehicles could be greater than the estimated 12%.

As to potential recipients, the TDPA evidences that the location of the Ipiales Toll Station presents the highest proximity to potential recipients, because while the population density in the sector is not urban, there are settlements along the sides of the road similar to those in urban peripheries, in this case of Ipiales.

COMMUNITY HEALTH AND SAFETY ASSESSMENT

Community health and safety requirements

Through the EIA, the project established that construction activities likely to generate health problems on the populations adjacent to the areas of intervention of the Project are spills on bodies of water and emissions generated by processing plants. However, for the first case primary and secondary treatments for domestic and industrial waste prior to discharge into surface or ground water sources are planned, as determined by the conditions of the moment, which will reduce the load of chemical and physical pollutants, in compliance with the permissible boundaries established by the regulations, which ensure the resilience of bodies of water receiving waste discharges.

As to the emissions of crushing and asphalt plants, models of dispersion of pollutants such as PST, PM10, PM5, CO, NOX, SOX have been generated, which account for contaminating plumes that do not exceed the thresholds allowed by the regulations on the populations, in addition to measures of mitigation at the source, such as sleeve filters, among others.

In addition, a risk management plan it has developed that evaluates the threat of natural, socio-natural, intentional anthropic, operational or technological elements, in addition to the definition of the elements at risk and the likelihood of occurrence of an event of this nature, in order to define actions for the management of contingencies, depending on the nature of each one.

Design and safety of infrastructure and equipment

For this performance requirement, currently the Concessionaire is in a process of readiness to become certified in ISO standards Nos. 18,000, 14,001 and 9,000. Additionally, the Concessionaire has a strategic road safety plan, which includes maintenance, management indicators and the Road Management Plan, which provides the elements for the attention of incidents on the road.

Management and security of hazardous materials

The construction of storage sites for fuels is planned. In addition, the EIS has a data sheet for the use of explosives in construction sites, which sets out the measures to take into account for the verification of permits for the use, transport and storage of explosives, handling of explosives, together with the respective indicators for follow-up.

Services provided by ecosystems

The EIS provides for the establishment of ecosystemic goods and services and their evaluation in Chapter 5, classifying them in those which serve as support, provisioning, regulating, and culture.

At the same time, the dependence of current users and potentially of the project on such services has been determined. Finally, the impact of the development of the project on the ecosystemic services provided has been evaluated.

Community exposure to diseases

Through the EIA, the project has established that construction activities more likely to generate health problems on the population adjacent to the areas of intervention of the Project are spills on bodies of water and emissions generated by processing plants. However, in the first case, primary and secondary treatments for domestic and industrial waste prior to discharge into surface or ground water source are planned, as determined in accordance with the conditions of the moment, which will reduce the chemical and physical load of pollutants, in compliance with the permissible boundaries established by the regulations, which ensures the resilience of the bodies of water receiving waste discharges.

With regard to the emissions caused by crushing and asphalt plants, dispersion models of the pollutants PST, PM10, PM5, CO, NOX, SOX have been generated, which account for contaminating plumes that do not exceed the thresholds allowed by the regulations on the populations, in addition to mitigation measures at the source, such as sleeve filters, among others.

Preparedness for and response to emergencies

In addition, a risk management plan that evaluates the threat of natural, socio-natural, intentional anthropic, operational or technological elements has been developed, in addition to the definition of the elements at risk and the likelihood of occurrence of an event of this nature, to define actions for the management of contingencies, depending on the nature of each one.

RESETTLEMENT ACTION FRAMEWORK ASSESSMENT

The objective of the Concession Agreement under scheme APP No. 15 of September 11, 2015 signed between the National Infrastructure Agency (ANI) and the Concesionaria Vial Unión del Sur, is to "finance, construct, rehabilitate, improve, operate and maintain and reverse the Rumichaca - Pasto corridor, according to Technical Appendix 1 and other Contract Technical Appendices"¹

For such end, 687 properties must be purchased to develop the construction works of functional units 4 and 5.1, which are licensed by the National Environmental Licensing Authority ANLA by Resolution 1279 of October 11, 2017.

The land acquisition process refers to all legal, technical and social activities that allow an optimal purchasing, compensation and assistance process to the families or productive activities to be relocated due to execution of the works.

¹Contract under scheme APP No. 15 of September 11, 2015, special part numeral 3.2 page 9

Performance Standard No. 5 called "Land Acquisition and Involuntary Resettlement", which is part of the set of Performance Standards on Environmental and Social Sustainability of the International Finance Corporation - IFC², generally defines the physical and economic displacement of persons or families resulting from land acquisition for development of a project, such as *Involuntary Resettlement*. However, within Colombian law established for infrastructure projects by institutions attached to the Ministry of Transport, as is the National Infrastructure Agency, the term resettlement is defined for cases in which individuals do not hold title to the property to be acquired³. In this regard and in order to avoid confusions in the land acquisition process for the Rumichaca – Pasto Road Concession Project, hereinafter and for the Project, the term *Involuntary Relocation or Transfer* will be used when referring to the change of place of residence or development of productive activity that families or social units are forced to make because of Project development. In this regard, respecting the parameters of Performance Standard No. 5 while adapting it to specific national regulations, this document is called the Relocation Action Plan.

This *Relocation Action Plan* describes the measures and activities that the Concesionaria Vial Unión del Sur initiates to minimize adverse socioeconomic impacts that could be generated on Resident Social and/or Production Units that are located on properties required for project development, thereby performing a transfer process which, although involuntary, respects the determinations of the National Political Constitution and allows ensuring the maintenance or improvement of decent living conditions of related individuals and families.

Topics such as scope, project description, objectives and goals, regulatory framework, valuation methodology and compensation activities social-land, evaluation and monitoring indicators, among others, related to compliance of this Relocation Action Plan, are developed hereunder.

Scope

The scope of this Relocation Action Plan is the social resident and/or productive units identified in the properties required for execution of construction works in functional units 4 and 5.1. of the Rumichaca – Pasto Road Concession Project.

According to Performance Standard No. 5 of the IFC, the Resettlement Action Plan or, in our case, the Relocation Action Plan is required in situations where, for development of the project, land is acquired by: a) agreements negotiated with the owners or those with legal rights to the land, in those cases where negotiations fail, leading therefore to expropriation or b) in cases where the land must be acquired through expropriation in accordance with national legislation; in neither case the owners have the option to refuse to sell their property or land.

In this sense, this Plan will be implemented with all Social Units identified in the required land areas, regardless if their acquisition occurs through voluntary alienation or judicial expropriation.

However, it is clear that in the latter case, the purchase price of the property will respect the commercial values considered within the Valuation, and equitable conditions for recognition and

² For its acronym in English

³ See Resolution 077 of 2012 of the National Infrastructure Agency.

payment of social compensations will remain, paying special attention to psychosocial support and productive strengthening activities aimed at the social units there identified.

Project Description

The "Rumichaca - Pasto" Road Project is located in the central-east and central-south area of the department of Nariño (Colombia) approximately parallel to the existing Rumichaca - Pasto road, which is part of the Panamerican Highway and national highway 25. This road corridor is the international hub linking Colombia with Ecuador and is also a connecting axis of nucleus of development in the south.

The Rumichaca - Pasto road has an Origin – Destination length of approximately eighty-two point ninety-one kilometers (82.91 Km.), of which, the northern area is part of this Relocation Action Plan consisting of thirty-two point seven kilometers (32.7 Km.) which run between the towns of Pedregal and Catambuco.

The primary purpose of the Rumichaca – Pasto Dual Carriageway Project, Pedregal - Catambuco Section is to improve mobility conditions transforming the existing infrastructure in a dual carriageway with better traffic specifications, contributing to improving communications throughout the southwest, mainly between Cali, Popayan, Pasto and Ecuador. At present, the road has pronounced longitudinal slopes, small bending radii and poor visibility, which is detrimental to circulation speed and increasing the risk of accidents.

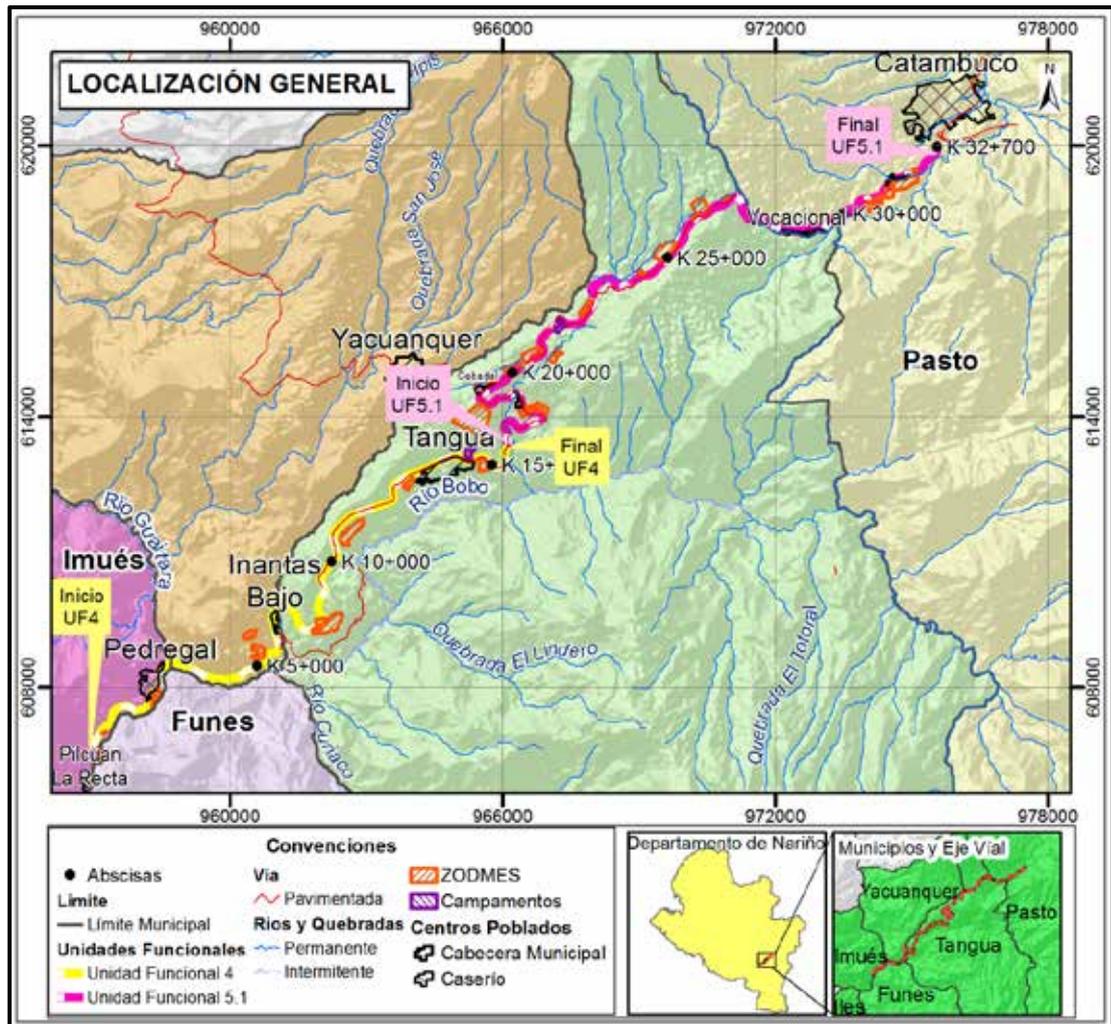
The section between the towns of Pedregal and Catambuco is divided into Functional Unit⁴ 4 (FU-4) and one subsector 1 of Functional Unit 5 (FU-5-1), covering the following lengths:

- UF-4: Pedregal - Tangua, with a length of 15.76 km.
- UF-5.1: Tangua - Catambuco, with a length of 16.94 km.

Figure 1 shows the location of the project, differentiating aforementioned Functional Units and municipalities crossed by the road.

⁴Term given in the Concession Agreement, General Part, to Project divisions corresponding to a set of engineering structures and facilities necessary to provide services with functional independent.

Figura 1. General location map for the Rumichaca-Pasto road project



Source: Géminis Consultores Ambientales S.A.S., 2016

Functional Unit FU-4: Pedregal -Tangua

Corridor UF-4, Pedregal-Tangua, is between PR43+217 to PR60+020 of National Highway 2501, for a total of 15.76 km. of road (k0+000 to k15+760) for the project, which runs along noticeable topography with longitudinal and transverse slopes given the natural geological formations.

K0+000 of this Functional Unit is located approximately 1.6 km. before crossing the populated center of Pedregal, Municipality of Imués, and ends at K15+760 in the municipality of Tangua. The following remarkable works are also considered in addition to the conventional roadway:

- Pedregal exchanger in the Pedregal city between Abscissa (k1+750 to k2+300) and underpass Intersection roundabout type (k2+150) to access the Pedregal city and road bypass to Imués, Túquerres and the southwestern region.
- Bridge over the river Guaitara between abscissa k2+780 and k3+080.
- El Placer toll on abscissa K6+200.
- Step structure for the La Magdalena Stream in K7+000.
- Connection overpass on abscissa k8+600.

- Returns between abscissa k12+600 - k13+000 and k14+050 - k14+500 in the access and exit of the Tangua city.

Municipal entities

The municipalities of Imués, Yacuanquer and Tangua are Functional Unit FU4 municipal entities, where the counties of Pilcuán and Pedregal are located in the municipality of Imués, the Inantas Alto and Inantas Bajo counties in the municipality of Yacuanquer and the municipality of Tangua that belongs to the Cocha Verde, el Tablón Obraje, San Pedro Obraje, El Vergel, Buena Esperanza counties; the Tangua Corazón de Jesus, Fatima and Bolivar neighborhoods.

The following Table lists major territorial units (municipalities) and minor units (counties) that are part of functional unit 4.

Tabla 7. Major and minor territorial units functional unit 4

FUNCTIONAL UNIT 4		
Item	MAJOR TERRITORIAL UNITS	MINOR TERRITORIAL UNITS
1	Imués	V / Pilcuan
2		V / Pedregal
3	Yacuanquer	V / Inantas Alto
4		V / Inantas bAJO
5	Tangua	V / Cocha Verde
6		V / El Tablón Obraje
7		V / San Pedro Obraje
8		Corazón de Jesus neighborhood Tangua
9		Fatima neighborhood Tangua
10		Bolivar neighborhood Tangua
11		V / El Vergel
12		V / Buena Esperanza

Source: Géminis Consultores Ambientales S.A.S., 2016

FU-5 Sub-Sector 1 Tangua-Catambuco

- FU-5 Sub-sector 1, Tangua-Catambuco corridor, is between PR60+020 and PR77+750 of National Highway 2501 and in reference point for the project between K15+760 to K32+700 for a total of 16.94 km. of road, running along a topography with high longitudinal slopes, but soft transverse developments allowing several relatively flat sectors. The end point is the province of Catambuco in the municipality of Pasto.

In the layout of functional unit 5 sub-sector 1, in addition to the second conventional road, the following works are foreseen:

- Alberto Quijano relief road between K22+600 - K23+800
- Oval type operating return between K19+000 - K20+000 Yacuanquer and Cebadal access
- Bowtie type operating return between K26+500 - K26+900
- Bowtie type operating return between K28+800 - K29+400
- Bavaria footbridge K31+300

Municipal entities

Tangua and Pasto are municipal entities of Functional Unit FU 5.1, while minor or county units are: El Cebadal Chavez, El Tambor, El Paramo, La Palizada, Marquesa Bajo, Los Ajos and Marquesa Alto belonging to the municipality of Tangua, and Gualmatán Alto, Vocacional, Cubiján Alto, Cubiján Bajo, La Merced, San José de Catambuco, Catambuco and Huertecillas counties belonging to the municipality of Pasto.

The following Table and Figure list major and minor territorial units that are part of functional unit 5.

Tabla 8. Major and minor territorial units Functional unit 5

FUNCTIONAL UNIT 5		
Item	MUNICIPALITY (major territorial units)	COUNTY (minor territorial units)
1	Tangua	El Cebadal
2		Chávez
3		El Tambor
4		El Paramo
5		La Palizada
6		Marquesa Bajo
7		Los Altos
8		Marquesa Alto
9	Pasto	Gualmatán Alto
10		Vocacional
11		Cubijan Alto Bajo
12		Cubijan
13		La Merced

14	San José de Catambuco
15	Catambuco
16	Huertecillas

Source: Géminis Consultores Ambientales S.A.S., 2016

Potential Impacts

The Rumichaca – Pasto Road Project, Functional Units 4 and 5.1, needs to purchase approximately 687 properties during its preconstruction and construction phases. Buying land and thus the relocation of resident social and/or productive units located therein, generate in communities neighboring the project both positive and negative impacts involving a substantial change in the socio-economic dynamics of the sector.

Among the major impacts caused by land acquisition are as follows:

Tabla 9. Potential impacts from the land acquisition process

ISSUE	IMPACT
ADAPTIVE AND SOCIOCULTURAL CONDITIONS	Misinformation and false expectations about the land acquisition process
	Changing expectations on land value
	Changing expectations on revenues from sale of goods and services from identified US
	Changes in everyday life, customs and lifestyles
	Changes in the dynamics of social networks: family, neighborhood and community
	Changes in access to social services and institutional
INFRASTRUCTURE OF GOODS AND PUBLIC AND SOCIAL SERVICES	Impairment of social and economic infrastructure
	Changes in existing road infrastructure
	Changes in mobility conditions
ECONOMY	Changes in supply and demand for goods and services
	Changes in economic activities of identified US
	Changes in employment dynamics

Source: Area Predial, 2017.

In this regard, the Concesionaria Vial Unión del Sur implements actions seeking to minimize adverse impacts that can generate the land acquisition process on identified resident social and/or productive units. These actions are listed below:

- a. Choosing the best road design alternative affecting thereby the smallest possible number of dwellings and/or buildings and thus to the social units that inhabit or develop productive activities therein.
- b. Characterization of residents and productive SU identified on the premises to be acquired.
- c. Preparing the Socioeconomic Compensations Plan Estimate.
- d. Community information and participation activities.
- e. Attention and Resolution of Petitions, Complaints, Complaints and Suggestions - PQRS.
- f. Preparing and disseminating the real state offer.
- g. Commercial valuation of the properties to be acquired by duly accredited real state guilds.
- h. Constant search for negotiated agreements to avoid expropriation processes.
- i. Recognizing and paying socioeconomic compensation to social units in concordance with the parameters and requirements set out in Resolutions 545 of 2008, 2684 of 2015 and 1776 of 2015
- j. Psychosocial support to social units subject to relocation to verify the restoration of their socioeconomic conditions.

Objectives And Goals

General purpose

To provide social and land support during the process of adaptation and appropriation of new dwelling places or development of a productive activity of social units subject to involuntary relocation that are located on lands to be acquired by the Project, ensuring maintenance or improvement of their socio-economic conditions and quality of life.

Specific objectives

- Generate appropriate accompanying measures to mitigate adverse socioeconomic impacts caused by involuntary relocation on the living conditions of identified social units and host communities.
- Identify and characterize resident and/or productive social units that must be relocated due to project development.
- Provide clear and timely information on the land management process given the concerns and expectations of identified social units and their communities.
- Disseminate information on the real estate offer in the sector to facilitate the search of land for the social units subject to relocation.
- Persist in obtaining negotiated agreements for land acquisition to avoid judicial expropriation processes.

- Recognize and pay socio-economic compensation, in any case following the guidelines contained in Resolution 545 of 2008, 2684 of 2015 and 1776 of 2015.
- Ensure the restoration of socioeconomic conditions of social units subject to relocation.
- Monitor living conditions and restoration of basic and social services of relocated social unit.

Goals

- Identify and characterize 100% of the residents and productive social units subject to involuntary relocation that are located on land to be acquired.
- Attention and response of 100% of PQRS submitted by the Social Units subject to involuntary relocation in relation to the land acquisition process.
- Inform 100% of residents SU as owners or *improvers* subject of relocation on the real estate offer of the sector.
- Obtain 90% of the land acquisition through voluntary alienation.
- Apply socio-economic compensations according to the guidelines of Resolutions 545 of 2008 of INCO now ANI and 1776 of 2015 when applicable to resident and productive social units for project required lands.
- Provide social support to 100% of resident and productive social units subject of involuntary relocation by being in land subject to acquisition, ensuring that they are established in equal or better living conditions.

Regulatory Framework

The subject to materialize in a road infrastructure project is to acquire actual assets required for public intent or interest as a purpose adhering to a legal framework that foresees reorganization and progress plans of general mobility structures of the regions futhering their harmonious development, curtailing social inequality gaps and lack of economic sustainability through projects whose magnitude is focused on promoting effective measures to address the problems facing the various areas of the country.

Consequently, in the case of topics involving the organization of the Colombia urban territory, even in the National Development Plans, their prioritization in the design of economic, social and environmental policies adopted by administrative authorities is observed, in compliance with constitutional purposes that aspire to the Social Rule of Law, provided in Article 2 of the Constitution, under the premise of "*serve the community, promote general prosperity and guarantee the effectiveness of the principles, rights and duties enshrined in the Constitution*" .

By virtue of the aforesaid, the State is entitled to ensure a social purpose leading to improving the quality of life of its inhabitants that may well lead to balancing fundamental rights to achieve their goals, in this case, namely the one supported in the Right to private property enshrined in Article 58 of the Political Constitution of Colombia, which provides that:

"(...) private property and other rights acquired under civil law is guaranteed, which cannot be ignored or violated by subsequent legislation. When a law issued for reasons of public or social interest is in conflict with the rights of individuals with the need recognized thereby, private interest must yield to the public or social interest.

(...)

*For reasons of public or social interest defined by the legislator, **there may be expropriation by court ruling and prior compensation.** This will be determined consulting the interests of the community and the affected party. In the cases determined by the legislature, such expropriation may be administratively, subject to subsequent contentious-administrative action, including on the price (...) ". (Underlined outside the original text)*

Likewise, our ultimate closure court in two rulings, ensuring the prevalence of our supreme law, has assumed the current postulate whereby the rights of individuals, as private interest, may yield to the public and social interest. In this regard, the Honorable Constitutional Court in Ruling C-1074 of December 4, 2002, Reference: Docket D-4062, presented by Judge Dr. MANUEL JOSÉ CEPEDA ESPINOSA, determined:

"(...) expropriation can be defined "as an operation of public law whereby the State requires an individual to fulfill the tradition of private domain to the public domain of an asset, for the benefit of the community and with prior compensation.

(...)

Expropriation generally requires the intervention of the three branches of government: (i) the legislator that defines the grounds of public or social interest which justifies the expropriation; ii) the administration stating for a specific case the grounds for public or social interest and furthers the expropriation process; and (iii) the justice that controls compliance with legal and constitutional requirements, guarantees respect for the rights of those affected, fixes compensation and decides whether to decree or not the expropriation.

(...)

the reference to the interests of the community and the affected party, clearly corresponds to the constitutional requirement of fairness of the compensation. So noted: "This sentence means that compensation must be fair, thus making this high value enshrined in the Preamble of the Charter, which also corresponds to Article 21 of the Pact of San José", according to which "no person may be deprived of his property except upon payment of just compensation, for reasons of public or social interest in the cases and according to the procedures established by law.

(...)

In cases of expropriation, international law obligates the expropriating State to pay a "fair", "appropriate" or "adequate" compensation. However, there is no obligation to

recognize full and comprehensive compensation. Nor is a duty denoted in international law, related to the time of compensation payment, or the instruments with which it can be paid (...)”.

Likewise, in another of its decisions the Constitutional Court in Ruling C-306 of May 22, 2013 Reference: Docket D-9331, presented by Justice Dr. Nilson Pinilla Pinilla, in relation to the current concept of private property law, argued that:

“(...) In modern law, property is recognized as a relative and not an absolute right, as a result of the evolution of philosophical and political order principles that have influenced the process of legal consolidation, which have helped to largely limit attributes or exorbitant powers granted to owners. The relative and not absolute nature of property rights that has been recognized by this Court in different rulings (C-428/94 and T-431/94), enables the legislator and exceptionally administrative authorities to impose restrictions on this right when there are reasons of general interest that reasonably justify them. (Ruling T-45 of 1997. R.P. Fabio Morón Díaz). The private property regime in the new constitutional order is decidedly removed from individualistic right tendencies, which only have them as subjective legal prerogative source, to incline to the right-duty vision, wherein its exercise is only legitimized when it pursues the promotion of social welfare (...)”.

As stated truthfully and reiterated by our Constitutional Court, the preexistence of a body of restrictive regulations to the absolute guarantee that the State and its authorities may give to the private interest of individuals, in this case, a road infrastructure project that envisages a common good, in the interest whereby special natures regulations are issued, adhering to specific procedures focused on achieving such objective. Such is the case of Law 9 issued on January 11, 1989, *“Whereby rules are established on municipal development plans, purchase and expropriation of assets and other provisions are adopted”*, which, in Chapter III, regulates the acquisition of assets by voluntary alienation and expropriation, specifying in Article 10, that: *“(...) for the purpose of decreeing expropriation and in addition to the motives determined in other current laws, the acquisition of urban or suburban property for the following purposes is declared of public or social interest: (n) Development or priority construction projects in the terms envisaged in the development plans and simplified development plans (...)”.*

Aforesaid Law 9 of 1989, subsequently amended by Law 388 of July 18, 1997, in Article 1, paragraph 1, determined: *“Harmonize and update the provisions contained in Law 9 of 1989 with the new provisions set out in the Political Constitution, the Organic Law of the Development Plan, the Organic Law on Metropolitan Areas and the Law whereby the National Environmental System is created”*, established in Chapter VII, the procedure to develop the acquisition of real estate along the lines set out for the voluntary transfer or expropriation, as applicable.

Thus, with enactment of Law 1682 of November 22, 2013, *“measures and arrangements for projects of transport infrastructure are adopted and extraordinary powers are granted”* in its Article 2 specifies the definition and rationale of road projects under the following postulate, *“Transport infrastructure is a mobility system composed of a set of tangible, intangible assets and those that are related thereto, which is under the supervision and control of the State, and is organized in a stable manner to allow the transport of people, goods and services, the access and*

integration of the different areas of the country and aims for growth, competitiveness and improving the quality of life of citizens". Said law in turn regulates automatic sanitation measures vis-à-vis the acquisition of property for reasons of public and social interest regarding defects concerning their titling or tradition; special administrative procedures for updating place and boundaries; the figure of voluntary intervention permit; early delivery of assets in the process of forfeiture, vacant lots and under CISA management and consolidation of the land management process.

Moreover, within the parameters set in Law 388 of 1997, relating to appraisals, Decree 24 - 1420 of 1998 is issued, defining the rules, procedures, parameters and criteria for developing valuations whereby the market value of real property subject to land acquisition is determined, which complements with Resolution 620 of September 23, 2008 of the Agustín Codazzi Geographic Institute that establishes the applicable valuation methods. The aforesaid from the perspective of the existence of a fair and imminent compensation in the process of property acquisition for public use.

Finally, the specificities that guide the scope of the instruments of social content applicable to land management are found as a transversal axis, established in the regulations contained in Resolutions 545 of 2008, that with full immediacy allows the elements that integrate the Socioeconomic Compensations plans that, within international, constitutional and legal standards of sustainable development, focus on meeting social needs emerging from the implementation of these processes; likewise, Resolution 077 of 2012 and 2684 of 2015 specifies aspects approaching the prerogatives arising from Performance Standard No. 5, because, although Resolution 2684 of 2015 regulates the recognition criteria for loss of profits resulting from the acquisitions vis-a-vis productive units, abovementioned Resolution 077 of 2012, intrudes on development and implementation of involuntary population resettlement plans, provided they are social units with irregular occupants of land required for infrastructure projects.

In conclusion, while Performance Standard No. 5, in an attempt to address the issue of land acquisition and involuntary resettlement, establishes two separate requirements for verifying compliance with its standards, to be noted that the project, within the national legal framework used and even in expanding complementation to contractual obligations, has a sustained regime called "Accompanying the involuntary relocation" that in the Colombian context covers the event where the requirements involve the figure of involuntary resettlement developed by aforementioned Standard Performance, especially in relation to those cases where the affected social units are occupying or exercising their productive activity on lands that belong to the nation, public assets which by their legal nature would not be susceptible to actions in favor of individuals, fully and totally enshrines the possibility of resettlement that, although in principle is involuntary, from the unforeseen point of view, bearing in mind the absence of existing legal alternatives for the occupied social units involved, has mechanisms to protect and guarantee against the negative impacts, this time from project activities based on accompanying strategies to said involuntary transfer.

Applicable Definitions

Follows the definition of some concepts used in this Relocation Action Plan.

Construction: refers to the joining of materials permanently attached to the terrain, whatever the constituent elements.

Socioeconomic compensation: recognition of the social units to be made by the Concessionary and to be awarded in accordance with Resolution 545 of 2008 issued by the INCO (now ANI) -and any substituting, modifying or complementing standards - to mitigate the specific socioeconomic impacts caused by reason of project land acquisitions.

Consequential Damage: economic loss associated to the land acquisition process considering only certain and consolidated damage.

Socioeconomic Compensation Factors: also called social factors and correspond to Socio-Economic Recognitions with specific destination, granted to social units to mitigate the socio-economic impacts when conditions and requirements set forth in this resolution are met.

Property or Land: being understood as the physical unit consisting of land and/or improvements. When there is no title deed on the land, be it understood as the notion of property limited to improvements attached thereto.

Socioeconomic Impact: corresponds to the change in living conditions of social units who hold real rights, reside or develop their productive activities in a property, because of project execution.

A socioeconomic impact generates vulnerability susceptible of applying Social Factors, when it involves a decrease in the ability of the social unity to face, assimilate or manage altered living conditions related to issues such as homelessness, impairment of basic social services, suspension of production activities, among others, according to the analysis of variables such as roots, manageability, adaptability, total or partial allocation of income, etc.

Loss of Profit: demonstrable gain or profit forgone, for a period of six (6) months maximum, for the actual yield of the property required for the transport infrastructure works.

Other Social Units: for purposes of this Resolution, owners, especially those from areas to be purchased whose value is less than three (3) monthly legal minimum salaries are also social units, as well as owners and *improvers* who, whether residents or not, earn income from the lease of part or all of the property for dwelling or development of productive activities.

Involuntary Relocation: physical relocation (displacement or loss of housing) and economic displacement (loss of assets or access to assets leading to loss of income sources or other means of livelihood) as a result of project land acquisition.

Relocation is considered involuntary when affected individuals or communities do not have the right to refuse the land acquisition or restrictions on land use resulting in physical or economic displacement. This situation arises in cases of i) lawful expropriation or temporary or permanent restrictions on land use and ii) negotiated settlements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations fail with the seller.

Social unit: Social Unit is understood as the people who have a relationship of physical or economic dependency in relation to a building, which may be the subject of a population relocation process according to the particular conditions encountered at the time of data gathering for the inventory of housing and population census.

Productive Social Unit: corresponds to the natural or legal person who permanently develops productive activities in an improvement, being understood as those related to production and/or marketing of goods and revenue-generating services, having minimum an operating infrastructure such as equipment or shelves.

Social Unit Resident: is a single person or those related or not by kinship, as determined in implementing the relevant Social Sheet, living in areas required by the National Infrastructure Agency for implementation of concession projects. Residence is understood as the permanent residence that satisfies the basic needs such as housing and consumption of at least one meal. By tenure status relative to housing or construction, the Social Resident Unit may be resident, if their dwelling was purchased or built at their expense and risk; or dweller if living in any capacity in a house, or is tenant or occupant.

Housing: the concept of housing refers specifically to the building structurally suitable for use as a dwelling place, houses or apartments. When a portion of the housing is found suitable for the development of other uses, it is understood that these structures are a part thereof.

Relocation Extension

Quantitative relocation extension identification

In order to identify the Social Units subject to relocation in the land acquisition process for Project development, the following activities were carried out:

- a) Choosing the best design alternative of the new road to affect the least amount of SUs.
- b) Inventory of land to be purchased.
- c) Identifying inhabited buildings or used for development of productive activities, located in identified properties.
- d) Characterizing Residents Social and/or Productive Units found in homes and/or buildings.

These activities allowed identifying the number and amount of surface properties required for Project development as well as the number of individuals and families (social units) subject to relocation.

The results are shown in the following table:

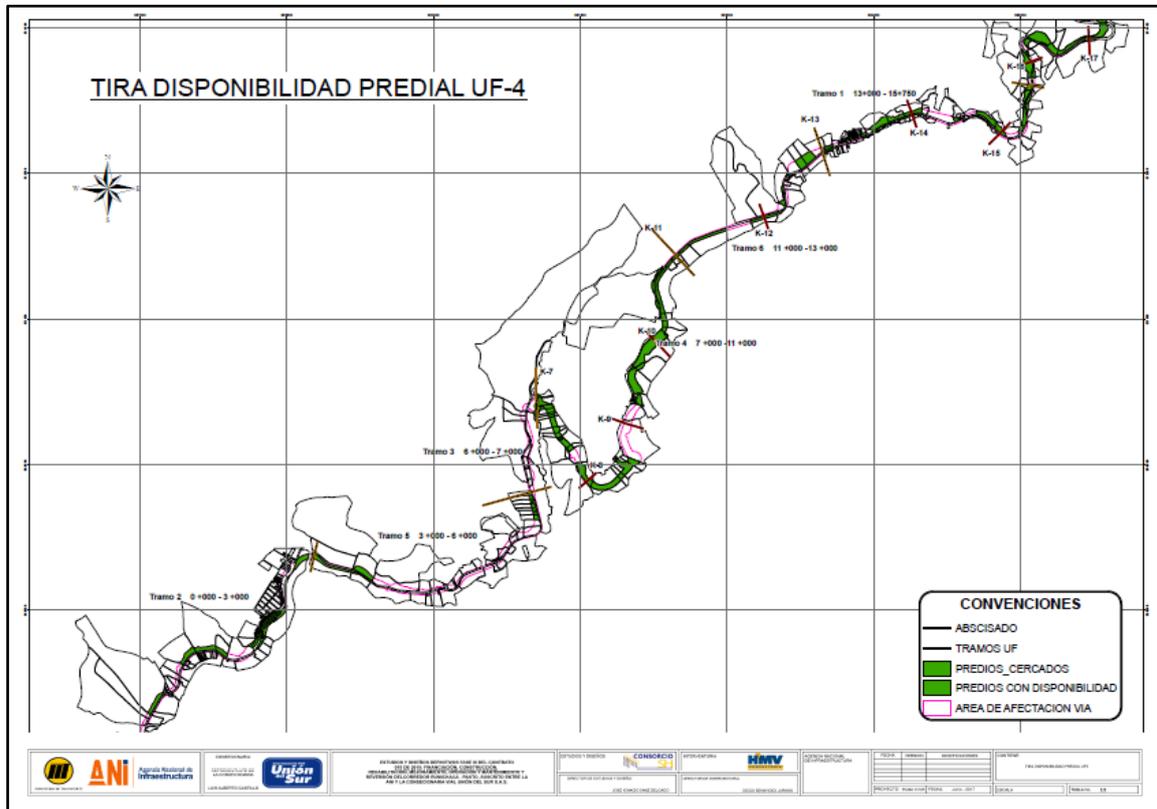
Tabla 10. Quantitative relocation extension identification

Category	UF 4	UF5	TOTAL
Number of properties required	423	264	678
Required surface (Has)	71,93	66,05	137,98
Number of persons subject to relocation	465	525	990
Number of residents SU subject to relocation	151	140	291
Productive SU subject to relocation	53	53	106
SUs subject to relocation	28	10	38

Source: Área Predial. 2017

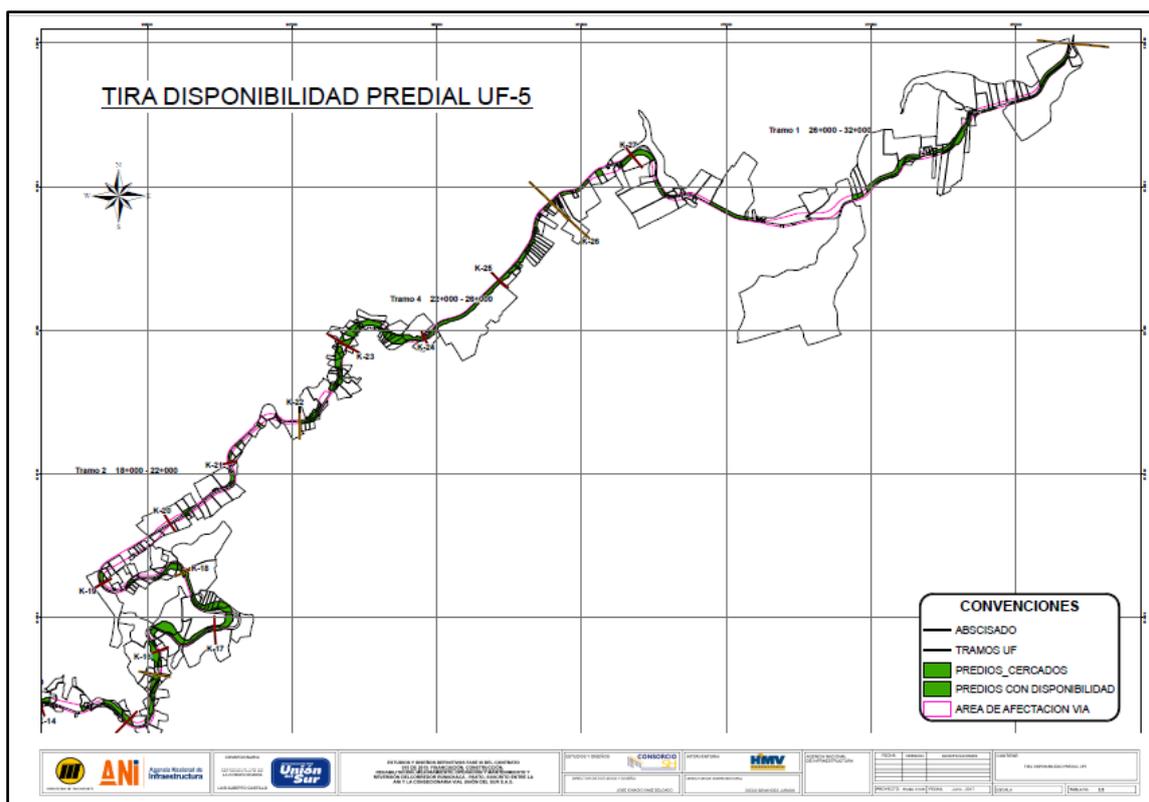
Follows images on strips on land availability in the process of acquisition:

Figura 2. Land availability strips Functional Unit 4



Source: Área Predial. 2017

Figura 3. Land availability strips Functional Unit 5



Source: Área Predial. 2017

Social Units subject to relocation estimate

According to the categories of Social Units defined in Resolution 545 of 2008 and as a result of the socioeconomic characterization performed, the following types of Social Units were classified:

Tabla 11. Identified types of social units

Social Unit Type	Condition	Quantity		Total
		FU 4	FU 5.1	
Residents Social Units	Owners	71	69	140
	Improvers	14	15	29
	Dwellers	53	16	69
	Tenants	13	40	53
Productive Social Units	Owners	20	26	46
	Improvers	8	6	14
	Dwellers	9	10	19
	Tenants	16	11	27

Other Social Units	Owners	28	10	38
TOTAL		232	203	435

Source: Área Predial. 2017

According to above data, this Action Plan will be applied to the relocation process support of a total of 435 Social Units of functional units 4 and 5.1.

The land acquisition process will be developed with these Social Units as detailed in numeral 9, and payment of social compensations within a process of voluntary alienation wherein broad and sufficient information will be provided in addition to necessary participation spaces so that project land acquisition is held within an agreed to process.

However, it is estimated that, despite all efforts, there will be cases without a negotiated agreement and the land will necessarily go through a judicial expropriation process.

Estimated Social Units subject to expropriation processes

The number of estimated social units that could reach expropriation mode for land acquisition is calculated as follows:

- a) The amount of land to be acquired is established.
- b) An estimated 10% of lands with which cannot go through voluntary alienation is calculated and must be legally expropriated in accordance with structuring documents of 4G projects.
- c) Of this 10%, a 30% is estimated to belong to land with buildings and/or houses.
- d) The result of this percentage yields a number of possible housing required through an expropriation process.

Thus, the following results are presented:

Table 12 Estimated number of houses or buildings located on land subject to expropriation

FU	Number of land to be acquired by FU	Estimated number of premises in expropriation (10%)	Number of buildings and/or houses located on land subject to expropriation (30%)
4	423	42	13
5	264	26	8
TOTAL	678	68	21

Source: Área Predial. 2017

Considering an amount of 21 dwellings and/or buildings subject to the expropriation process as an estimated result, and according to the statistics resulting from progress in the land acquisition process of the project and socioeconomic information gathering of affected SUs, the following estimates can be considered.

- a. Of the 21 dwellings to be required, 80% thereof have Resident Social Units as owners or *improvers*.
- b. In 40% of these dwellings at least one Dweller Resident Social Unit can be found.
- c. In 80% of these dwellings at least one Productive Resident Social Unit can be found.
- d. In 10% of these dwellings at least Other types of Social Units can be found, most of which are landlord owners.

In keeping with the above, the following number of Social Units according to their typology is estimated:

Tabla 13. Estimated number of social units classified by type, subject to involuntary relocation

Type of Social Units	%	Estimated amount of SUs in process of expropriation
Residents Social Units as Owners and/or <i>Improvers</i>	80%	16
Residents Social Units as Dwellers	40%	8
Productive Social Units	80%	16
Other Social Units (Owners and Lessors)	10%	2
TOTAL		42

Source: Área Predial. 2017

However, while these social units were to be found on land in a legal expropriation process, the socio-land accompanying the relocation process will remain as developed in the voluntary alienation process to avoid generating higher affectations or negative impacts on the social units that are identified in these lands.

Land Management Process

Land management refers to the process leading to obtaining ownership and availability of the land required for project development on behalf of the State headed by the National Infrastructure Agency - ANI.

Within this process, technical, legal, physical and socio-economic research is carried out identifying the buildings affected by the public interest work, its owners and other property related social units.

Among the main activities are:

- a) Technical data sheet gathering and land plan.
Technical and legal information of the Land is recorded such as owner identification, property location, required area determination and inventory summary.
- b) Social data sheet gathering
The information related with social units identified in the property is recorded indicating the type and condition of social unity, vulnerable conditions if any, potential impacts

caused by the project and land acquisition; the aforesaid for the socioeconomic diagnosis where recognition of applicable socio-economic compensation will be determined in accordance with provisions of Resolutions 545 of 2008, 1776 of 2015 and 2684 of 2015.

c) Title Study Preparation

This study verifies the tradition of the past 20 years, in order to determine who the owner and the recipient is of a formal purchase offer.

Owner details such as name, land area according to the titles, liens and limitations that will further determine whether the property purchase is viable are recorded.

Document where the ownership of the property is determined and whether the purchase thereof is feasible.

d) Development of the commercial appraisal by accredited real state guild

Professionals belonging to an accredited real state guild determine the commercial value of the area to be purchased and valuation of loss of profits and consequential damages of the property.

e) Formal purchase offer

With above information, the formal purchase offer is prepared and notified. This is where the legal and social team accompanies resident social units as owners or *improvers* in order to fully explain the purchase offer and seek to obtain the negotiated agreement.

Likewise, the social team informs the social units identified on the land the social compensations that can be recognized according to their type and eligibility or vulnerability conditions.

Valuation And Compensation

To determine the market value of the properties required for the project, provisions of Decree No. 1420 of July 24, 1998 and Regulatory Resolution No. 620 2008, issued by the Agustín Codazzi Geographic Institute "IGAC" are applied.

Land valuation

The land value is estimated based on market offers available in the sector for properties with similar conditions of location, size, shape, availability of services, access roads and permitted use as established by Resolution 620 of 2008 in its article 1 "*COMPARISON OR MARKET METHOD*", which consists of establishing the market value of the property, based on the study of offers or recent transactions of similar and comparable assets to the valuation subject matter. Such offers or transactions are verified in the field or by telephone, are adjusted by negotiation percentages, are classified according to the characteristics of the valued property, and finally analyzed and interpreted to reach the estimated market value taking into account provisions of Article 11. "*OF STATISTICAL MATHEMATICAL CALCULATIONS AND ALLOCATION OF VALUES*", which restricts dispersion of market values in reliability ranges to assign therein the final value adopted in the valuation liquidation.

If market offers cannot be obtained, or lease offers or transactions of assets comparable to the estimation object, the survey method as set out in Resolution 620 of 2008 Article 9 applies: "*CONSULT EXPERT APPRAISERS O SURVEYS*" where the land value is determined by consulting

with experts on the most likely value for the property subject matter of the study prior knowledge of its physical characteristics and its legal specificities; these surveys are also subjected to mathematical and statistical analysis established in article 11.

In the event the valuation is supported only on surveys, the expert leaves written evidence under oath in the report that this method was used because at the time of completing the appraisal there were no sales or lease offers, or transactions comparable to the estimation subject matter.

Valuation of buildings

The values of the main and ancillary buildings are estimated as set out in Resolution 620 of 2008 in its article 3. "REPLACEMENT COST METHOD", which seeks to establish the total construction value as the sum of direct costs, indirect costs, financial costs and those of project management, which must be incurred to carry out the work to finally subtract the accumulated depreciation.

Direct costs are estimated by preparing work budgets based on prices of construction materials and labor in the area; indirect, financial and management costs are included depending on the characteristics of the work and are estimated as a percentage of total direct costs.

The Fitto and Corvini table is used to calculate depreciation as recommended in resolution 620 in its article 3, which establishes depreciation coefficients according to age, useful life and condition.

Crop valuation

Variety, planting density, age and phytosanitary status are considered when valuating crops as set out in Resolution 620 of 2008 Article 29 thereof. Their value is estimated based on the present value of future production, discounting maintenance and operation costs thereof. (Net cash flow), as indicated in article 31, prior research in the municipality or region with respective trade unions on core crop aspects, such as productivity, vegetative cycle, varieties and optimum planting densities as indicated in Article 32.

Crops are valued during the development stage by the investment cost, during the production stage by profitability and during the period of decline, with values similar to those of the development stage.

For purposes of the valuation of plant species, fruit trees, shade trees, lumber and native species of spontaneous birth, the real state guilds conduct researches that include data on unit sales, planting costs, maintenance and demerits regarding plant health taken from trade unions, associations, nurseries, Umatas, experts and data known or field gathered in respect of each one thereof within the required area as indicated in Article 32 of resolution 620 of 2008.

For both crops and species, pricing tables are generated which are included as support to the valuation reports.

Compensation calculations

To determine compensation calculations for consequential damage and loss of profit, current regulations are taken into account in particular resolutions 898 of 2014, 1044 pf 2014 and 2684 of August 6, 2015. Furthermore, in accordance with Article 5 of the latter, consequential damages take into account notary and registration expenses and well as those for clearing, packing, transportation and installation of movables (industry hauls).

Standards, methods, criteria, parameters and procedures set out in Articles 10 to 14 of Resolution 898 of 2014 are applied to the calculation; the process begins with a visit to the property prior

documentation analysis provided by the concessionary to verify urban regulations, economic destination of the asset and other important aspects for compensation calculation, in addition to determining whether additional documentation is required to the one initially submitted. The appraiser if necessary may also consult the information from government agencies on statistics relating to derived income and profits developed in the respective property.

Quotes from natural or appropriate legal entities must be requested in order to calculate the compensation and to define the value of its constituting components and will be left as support in the valuation. Market information used for such valuation should be verified, compared and adjusted in accordance with the procedures referred to in resolution 620 of 2008, also when surveys have been used.

The appraiser must specify in its report the methodology used and compare it with the information reported to tax authorities to determine if any limitation applies to calculated value as provided for in Article 11 of Resolution 898 of 2014.

To clarify that the compensation calculation is performed only on income proportional to the useful productive area affected by the road project up to a term of 6 months as required by Article 6 of Resolution 2684 of 2015.

Conditions For Eligibility And Granting Of Social Compensations

In addition to payment for the land and buildings according to market values and the recognition of indemnities subject matter of inclusion in the Commercial Land Valuation, Social Units identified in the properties are also offered payment of socioeconomic compensation as determined by Resolution 545 of 2008. However, SUs must meet certain conditions to be recipients of such compensation as follows:

Tabla 14. SU eligibility conditions to recognize the socio-economic compensation

Compensation	Terms
<p>Housing reestablishment</p> <p>Residents Social Units as Owners or <i>Improvers</i></p> <p>Value given: VISP value - (value of the building constituting the home + value of the land area, if applicable)</p>	<p>Be US owner holding real estate domain.</p> <p>Be USR <i>improver</i> demonstrating having built the dwelling and that this is their only asset and having resided therein for more than 2 years.</p> <p>That the value of the land to be required + buildings in the case of owners, or the value of the improvement is less than the value of the Priority Social Interest Housing of the Municipality.</p> <p>Prove not being the owner of the property other than that required for project execution, or if having a different property, equity conditions do not allow the beneficiary to replacement the housing in said property.</p>
<p>Dwellers support</p> <p>Residents Dwellers Social Units</p> <p>Value given: 3 Minimum current legal monthly salary ((SMLMV for its acronym in Spanish) to Resident Dweller Social Units constituted by one person or 6 SMLMV if constituted by two or more persons.</p>	<p>Prove they have resided in the home for more than one (1) year by submitting a lease, use, dwelling contract or any equivalent document that accounts for authorized habitation conditions.</p> <p>Prove the impossibility of restoring initial dwelling conditions by not having sufficient income to pay rent at market conditions.</p>

<p>Mobilizing support</p> <p>Value given: 1 Minimum current legal monthly salary (SMLMV)</p>	<p>Prove they have lived in the house, or developed their productive activities in the property, as appropriate, for a term exceeding six (6) months</p> <p>Prove that combined income of the members of the social unit does not exceed three (3) minimum legal monthly salaries.</p>
<p>Support to restore basic social services</p> <p>Value given: the equivalent of all the costs borne by provision of services from a term not exceeding 12 months and not exceeding one (1) minimum current legal monthly salary</p>	<p>Prove they must be moved outside the town, county or municipality where they live and as a result they cannot render any of the following services</p> <p>Prove they have lived in the house for more than one (1) year</p> <p>Prove, at least by out-of-court statement that the income of the members of the social unit does not exceed six (6) minimum monthly legal salaries</p> <p>The service has been rendered by a legally recognized institution</p>
<p>Support for formalities</p> <p>Value given: 1 Minimum legal monthly salary</p>	<p>The total value of the area to acquire is less than or equal to three (3) monthly legal minimum salaries or if owners beneficiaries of the housing restoring support factor</p>
<p>Support for restoring economic means</p> <p>Value given: up to six (6) times the average net monthly income for permanent suspension, and up to three (3) times the average net monthly income in case of temporary suspension of the productive activity.</p>	<p>Submit the following documents to determine the formality condition of productive activity</p> <p>Prove the development time of productive activity</p>
<p>Lessors support</p> <p>Value given: value established in the compensation clause for early termination or the sum of the leases pending for contract termination in any case not exceeding three (3) times the monthly lease fee agreed to.</p>	<p>It is a written lease that has been signed no less than six (6) months.</p> <p>The acquisition of required area for project implementation prevents definitively continuing with the lease contract.</p> <p>That the voluntary alienation process is moved forward ensuring handover without tenants, occupants and residents.</p>

Source: Área Predial. 2017

According to the amount and type of identified social units and the type of compensation that would apply thereto according to their characteristics and compliance with eligibility, an estimate of payable amounts was made for reasons of socio-economic compensation, as follows:

Tabla 15. Value estimate payable as socio-economic compensation

TYPE OF COMPENSATION GIVEN	FU 4	FU 5
Housing reinstatement support	\$ 321,434 955.52	\$ 220,307 846.04
Dwellers support	\$ 289,571 100.00	\$ 308,186 385.00
Mobilization support	\$ 96,523 700.00	\$ 93,076 425.00
Social Ss reinstatement support	\$ 0.00	\$ 0.00
Paperwork payment support	\$ 21,373 105.00	\$ 185.00 4826

Reinstatement economic means support	\$ 318,528 230.00	\$ 372,305 700.00
Lessors support	\$ 4,230 000.00	\$ 2,250 000.00
TOTAL	\$ 1,051,661 090.52	\$ 1,000,952 541.04

Source: Área Predial. 2017

Needless to say, these amounts are estimated according to field gathered information, which allowed preparing the document entitled Socioeconomic Compensations Estimate Plan updated monthly as data gathering visits are made for the social sheets that gather the necessary information for the socio-economic diagnostic that determines compensations to be granted to each social unit.

Actions For Support In The Involuntary Relocation Process

Information and disclosure

Socialization activities are carried out with the authorities of the municipalities of Imués, Yacuanquer, Tangua and San Juan de Pasto and the communities of the counties of Pedregal, Inantas Bajo, Cubijan Bajo, Marqueza Bajo, El Tambor, Los Ajos, Pilcuan, El Vergel, La Palizada, Marqueza Alta, Vocacional, Catambuco, and Huertecillas, as well as with the Corazon de Jesus and Bolivar neighborhoods, belonging to the population center of the municipality of Tangua to ensure the information concerning the following aspects:

- Land acquisition and involuntary population relocation. Mobility (crosswalks, interconnections, returns, access to counties)
- Regulations on the land acquisition process and socio-economic compensation.
- Possible effect on public infrastructure, utilities and others (water, sewer, housing, schools, chapels, courts, etc.)

Attention to Requests, Complaints, Claims and Suggestions

The following resources and procedures are implemented to resolve concerns, requests, complaints, claims or suggestions from the SUs subject to relocation due to land acquisition:

Reception

Process whereby the user is received and invited to appear before the Concessionary; this is the first contact with the user, the on-going project is informed, fostering a friendly atmosphere.

This process seeks to know and precisely understand their concerns regarding the project and the land acquisition process, which is recorded in the respective ANI formats.

Recording

Process whereby citizen statements are recorded clearly and legibly, filling out the PQRS GCSP-F-134 reception form.

Classification

This process refers to the action of organizing or positioning the PQRS according to parameters established for such end. According to their classification, legally established response times vary as follows:

- Fifteen (15) days to answer complaints, claims and statements.
- Ten (10) days to answer general information requests.
- Thirty (30) days to respond to consultation requests.
(Articles 6, 22 and 25 of the Administrative Code)

Formalities

Is the process that involves the steps taken to resolve the PQRS arriving at the project in relation to the land acquisition process and involuntary relocation.

Once Petitions, Complaints, Claims and Suggestions (PQRS) presented have been filed and classified, form GCSP-F-135 is filled out. This form applies to all PQRS cases and the request formalities and close-out is explained therein.

Follow-up: The person responsible for this program will follow-up PQRS or requests with the appropriate concessionary areas. For such end, Form ANI GCSP-F-135 "Follow-up of requests, complaints, claims and/or requests" will be filled out, to also verify the implementation of the joint project and defined initiatives.

Closing the PQRS

Once a final response to the request has been issued, the program manager will verify the received notice, closing-out the file with all supports, reflecting the situation in forms ANI GCSP-F-135 and GCSP-F- 136.

Used forms

- GCSP-F-134: Receiving PQRS
- GCSP-F-135: Following-up PQRS
- GCSP-F-136: Recording PQRS
- GCSP-F-137: Monthly schedule of mobile office location
- GCSP-F-132: Visitor Registration
- GCSP-F-133: Photographic Record

Physical media for customer attention

- Main customer service office PR 38+500
- Customer attention satellite offices
(Cebadal PR 64+600 - Tangua PR 58+800)
- Suggestion boxes - Toll/Home Office
- Mobile offices
Mobile 1 - Ipiales, Contadero, Iles, Imués
Mobile 2 - Pasto, Tangua, Yacuanquer

Electronic customer attention

- E-mail: atencionalusuario@uniondelsur.co
- Website: www.uniondelsur.co

- Call Center: 3173310921 - 3174042366 - 3174275839 - # 446

Real estate offer definition and dissemination

In order to facilitate obtaining target property where the transfer of Residents Social Units as owners or *improvers* will be relocated, the following activities will be undertaken:

- a) Consult land use regulations applicable to the municipalities of Direct Influence of the Project Area.
- b) Evaluate real estate supply and demand in the municipality of Direct Influence of the Project Area or surrounding municipalities.
- c) Define a Portfolio of real estate services containing at least the following: identified Properties (lots, land areas, houses or apartments identified in the AID), location, property characteristics, owner and data costs.
- d) Deliver and support when each resident social units as owners or *improvers* subject to involuntary relocation consult the Real State Portfolio Bulletin.

Socio-economic compensation payments

After gathering socioeconomic information through the forms established by the National Infrastructure Agency, based on information collected and verification of supporting documents, land social professionals prepare a SOCIOECONOMIC DIAGNOSIS for each related Social Unit wherein potential socioeconomic impacts faced by the social unit because of project implementation are identified and recommend applying one, several or no social factor according to the eligibility conditions set out in Resolution 545 of 2008.

Based on the Socioeconomic Diagnosis recommendations, the Concessionary will sign a comprehensive agreement for recognition of the socio-economic compensation with the head of the relevant social unit, who will assume the following commitments as a minimum:

- Transfer or suspend their production activity, as appropriate, voluntarily and not relocate to areas required for execution thereof or other infrastructure project covered by this resolution.
- Allocate resources to specific purposes related to each socio-economic compensation for the overall benefit of the Social Unit.
- Take the necessary steps to satisfactorily achieve the purpose of each compensation, and provide the necessary documents, and facilitate verification required visits.

Strengthening economic means

In addition to paying the compensation for Restoration Support of economic conditions, the Concesionaria Vial Unión del Sur, will provide coaching and additional support for the restoration

and strengthening of the productive activities of social units subject of involuntary relocation. Among the main productive strengthening activities are:

- a. Competent public and private entities that contribute to strengthening or formulating and developing productive projects of social units subject of relocation will be identified.
- b. Productive projects and initiatives existing in each functional unit that can be supported by any public or private institution will be identified, contributing to improving the quality of life and the environment of social units subject matter of this program.
- c. Coordinate with public and private institutions, civic and community organizations for training, strengthening and development of initiatives and projects that contribute to improving the environment and quality of life of social units subject matter of involuntary transfer.
- d. Initiatives that respond to the changes brought about by project implementation will be promoted, strengthening the commercial, craft, agricultural and livestock vocation, among others, of the social productive units identified in the properties to be acquired through partnership mechanisms and community organization.

Socio-land accompaniment of SUs subject to relocation

As previously mentioned, in a permanent and transverse manner to the acquisition process of areas required for project development, social units subject to involuntary transfer will be accompanied from the moment they are identified and characterized until they receive their compensation payments and their socioeconomic conditions are re-established. For such end, the following accompanying socio-land activities are developed:

- a) Identify the social units subject to socio-land accompanying and the type of support required (technical, legal or social).
- b) Make sufficient visits and accompanying actions in accordance with the needs of each social unit.
- c) Perform the social accompaniment to identify the interest and needs in relation to the new location of social units to be relocated.
- d) Design and implement strategies that facilitate change and adaptation to the new dwelling site or development of productive activities. (Consider collective or individual actions such as lectures, workshops or talks to facilitate the grieving process for the loss of the place.)
- e) Implement and ensure the effective and applicable socioeconomic compensation payment in accordance with provisions of Resolution 545 of 2008 of INCO now ANI and 1776 of 2015.

Implementation Schedule

Schedules or work plans for the land acquisition process and involuntary relocation of social units FU 4 and 5.1. are attached hereto in Excel form (see annex 1)

Costs And Budget

The amount of one hundred and twenty-two thousand seven hundred and ninety million nine hundred and fifty-one thousand eight hundred and fourteen pesos (\$122,790,951,814) are allocated for land acquisition and payment of socio-economic compensation, which are available in the Land subaccount of the Project's Autonomous Equity according to Chapter IV, numeral 4.5, paragraph (a) of the Special Part of Concession Contract No. 15 of 2015.

According to the latest update of the Socioeconomic Compensations Plan Estimate, the amount of \$1,045,695,068.10 is estimated for FU4 and \$792,060,589.00 for FU 5.

Follow-Up And Monitoring

Following-up and monitoring the Relocation Action Plan will allow verifying the relocation progress of Social Units subject to relocation, psychosocial support and effective payment of socio-economic compensation as applicable. It will also allow identifying the problems and/or positive aspects of this PAT, to timely adjust its implementation provisions.

In particular, in the case of Resident Social Units as owners or *improvers* with land and/or buildings with appraised values below the value of the Social Interest Priority Housing established by the respective Municipality, the adaptation process to the new environment will be permanently followed-up allowing recording if living conditions were maintained or improved. For such end and for a period of one year, minimum three follow-up visits every four months will be made to the new property, once the social unit is installed therein and the forms defined by the National Infrastructure Agency for such visits are filled-out.

Follows the monitoring indicators for this Relocation Action Plan.

Tabla 16 Relocation Action Plan follow-up and monitoring indicators

INDICATOR	INDICATOR DESCRIPTION	EVALUATION FREQUENCY	COMPLIANCE RECORD
Land acquisition process briefings (SU relocation)	Number of briefings conducted / No. of briefings scheduled x 100	Quarterly	ANI forms
SU characterization subject to relocation	No. of social units characterized / No. of SUs subject to relocation x 100		
Attention to concerns and requests	No. of SUs handled / No. of SUs subject to relocation requests x 100		
Real estate availability information in the AI.	No. of SUs informed / No. of SUs subject to relocation x 100		
SUs relocated and compensated	No. of SUs relocated and/or compensated / No. of SUs subject to relocation		

Socio-economic compensation payments	No of payments made / No of compensation payments established		
Follow-up visits to RUS owners	No. of follow-up visits / No. of follow-up scheduled visits to SUs		
Social support to SUs in the relocation process	No. of SUs accompanied / No. of SUs subject to relocation x 100		
Productive initiatives strengthened	No. of productive SUs strengthened / No. of productive SUs chosen for productive strengthening		

Source: Área Predial. 2017

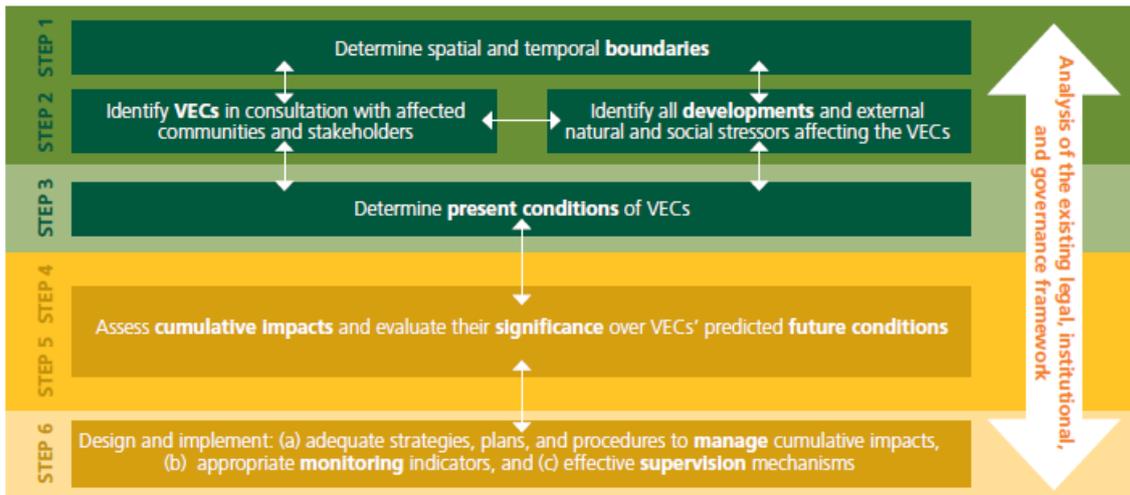
ASSESSMENT OF CUMULATIVE IMPACTS

In the process to assess and manage environmental and social risks and impacts it is recognized that the Cumulative Impact Assessment and Management is essential for risk management, due to the increasing pressures of systemic risk factors such as climate change, water scarcity, decline in the biodiversity of species, degradation of ecosystemic services, and modification of socioeconomic and population dynamics, among others (IFC, 2015).

Based on the above, and assuming that cumulative impacts occur primarily by the implementation of large-scale projects such as this one, meaning that they can cause serious deterioration of renewable natural resources or the environment, or introduce significant or notable changes in the landscape, therefore, according to the Colombian law, they will require an Environmental License. This cumulative impact analysis, understood as the result of “the impact on the environment resulting from the incremental impact of the action when added to the actions of the past, the present and the reasonably foreseeable future, regardless of the agency (Federal or non-Federal) or person that makes such other action” (US Council on Environmental Quality, 1995), shall be limited to other projects intersecting with the area of influence and that are, have been, or will be the required to obtain environmental licenses by the relevant authorities.

However, the cumulative impact analysis stems out of the methodological proposal made by the IFC in 2015 through the Good Practices Handbook, Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets, which proposes a rapid six-step assessment approach, as illustrated in Figure 2, which states the logical framework for a rapid CIA (RCIA), representing an iterative six-step process: Scoping (Steps 1 and 2), VEC baseline determination (Step 3), assessment of the contribution of the development under evaluation to the predicted cumulative impacts (Step 4), evaluation of the significance of predicted cumulative impacts to the viability or sustainability of the affected VECs (Step 5), and design and implementation of mitigation measures to manage the development’s contribution to the cumulative impacts and risks (Step 6). (IFC, 2015).

Figure 4. Cumulative Impact Assessment and Management: A six-step approach.



Source: IFC, 2015

Step 1: Definition of spatial and temporal boundaries

In accordance with the definition and criteria that establishes the methodology for the establishment of the spatial boundaries of the cumulative impact analysis: "The boundaries can be extended to the point where the VEC is no longer affected significantly or the effects are no longer scientifically relevant or of interest to the affected communities," and by their agreement with the concept of the area of influence established in the terms of reference for the elaboration of the EIAs for road infrastructure projects, which states: An area where significant environmental impacts caused by the development of the project, work or activity, manifest themselves on the abiotic, biotic and socioeconomic development, in each component of such media; the manifestation of these impacts must as objective and quantifiable as possible, according to the methodologies available. The areas of influence defined in each EIA projected are established as spatial boundaries for this analysis, as follows:

For the project stretch going from Pedregal to Catambuco, the spatial boundaries are those appearing in Figure 3.

For to the project stretch going from San Juan to Pedregal, the spatial boundaries are those appearing in Figure 4.

Figure 5. Spatial boundaries for the Pedregal – Catambuco stretch.

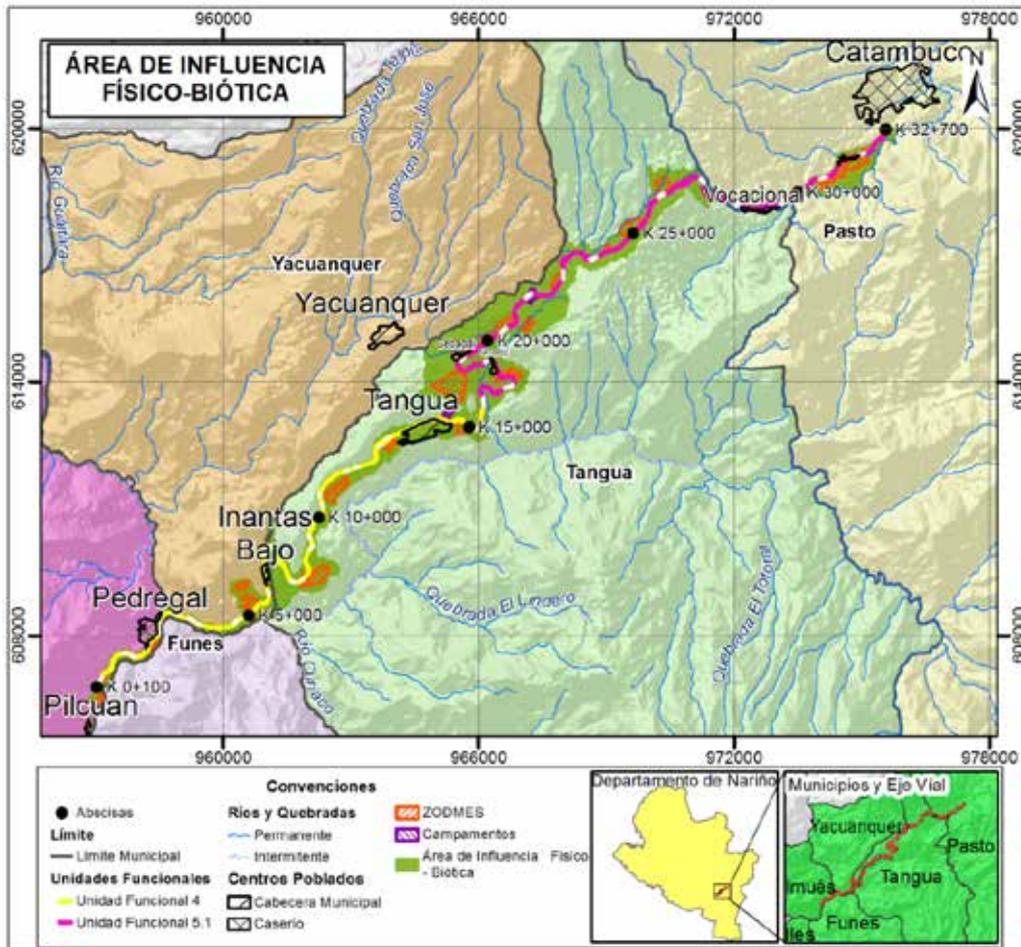
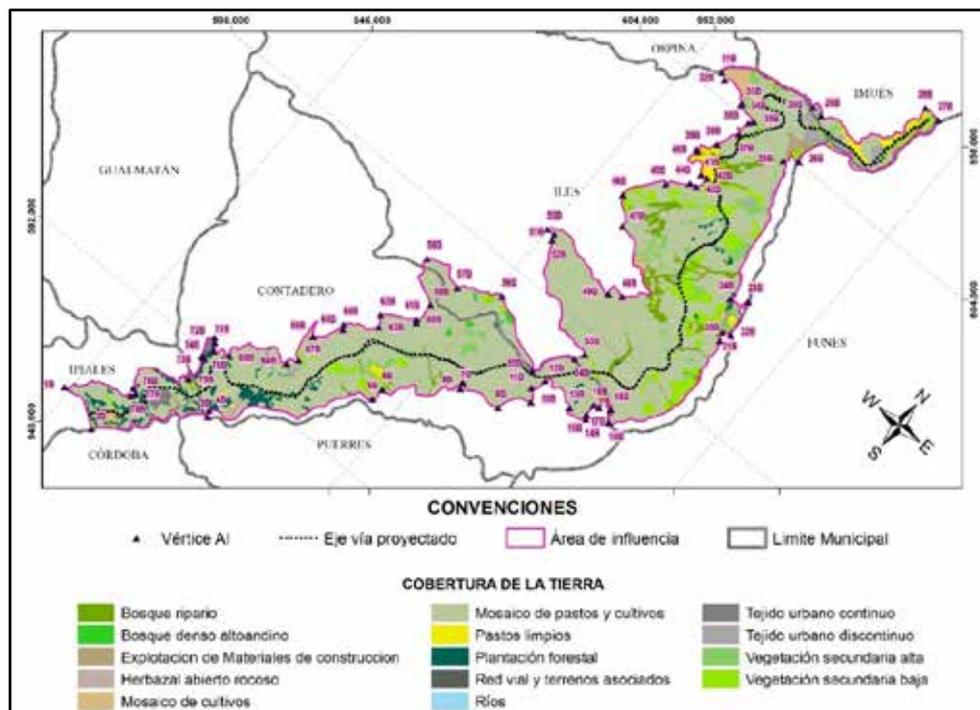


Figure 6. Spatial boundaries for the San Juan – Pedregal stretch.



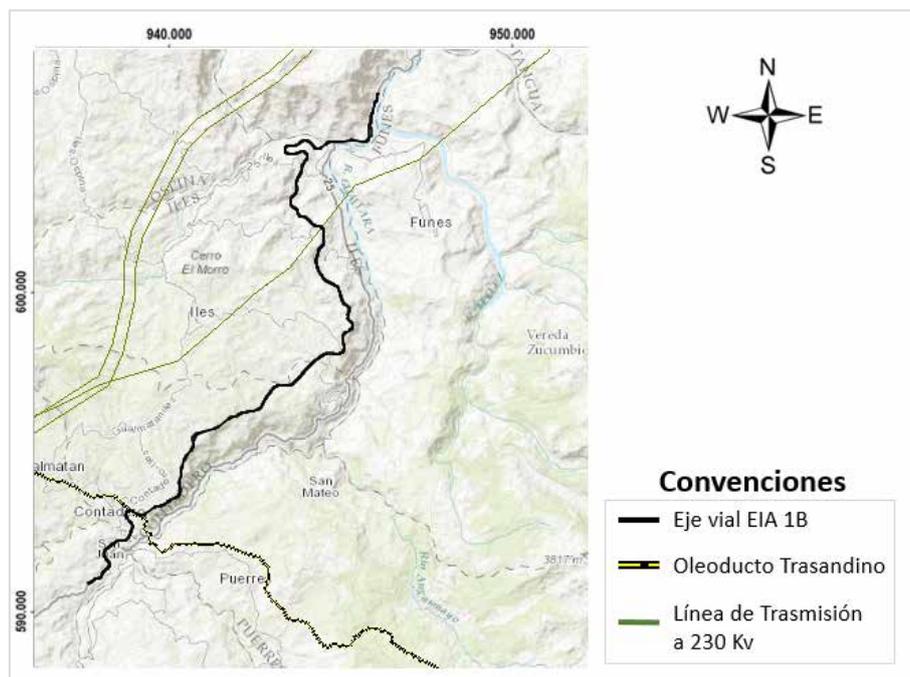
Concerning temporal boundaries, based on the criteria of the proposed methodology, specifically the one referring to the use the expected time frame for the entire life cycle of the development proposed, it is established that the concession period of 25 years is most consistent.

However, given the developments identified in the selected area of influence, the VECs selected for cumulative impact analysis will be the integrality of the landscape and the biodiversity, because of the impacts that could be the subject of accumulation in both developments.

Step 2: Preliminary Assessment Phase II – Other activities and external factors

In this case, upon consultation with the geographic viewer of the National Authority of Environmental Licenses (ANLA), ACIS <http://sig.anla.gov.co:8083/>, there are three projects of national importance that intersect the road project at hand, as follows: Transandean Pipeline Orito-Tumaco, File LAM 3518, which intersects with the project at the municipality of Contadero and is operated by Ecopetrol; electric interconnection Pasto-Tumaco, File LAM 0098, which intersects with the project in the rural settlement el Cebadal of the municipality of Tangua, and Double-circuit 230 KV Transmission Line Betania, Altamira, Mocoa, Pasto, File LAM 3323, Resolution 2268 of 11/22/2006, which intersects with the project in the Municipality of Iles and is operated by Empresa de Energía de Bogotá S.A. E.S.P.

Figure 7. Intersection of the Divided Highway Project Rumichaca-Pasto, San Juan-Pedregal stretch, with other projects in the area of intervention.



Source: 2017 GEOCOL Consultants Ltd..

The above are the activities that could cause pressure and stress from activities other than the proposed development, which could influence the conditions of the VECs.

Step 3: Determine present conditions of the VEC

The following information exists on the present conditions of the VECs selected:

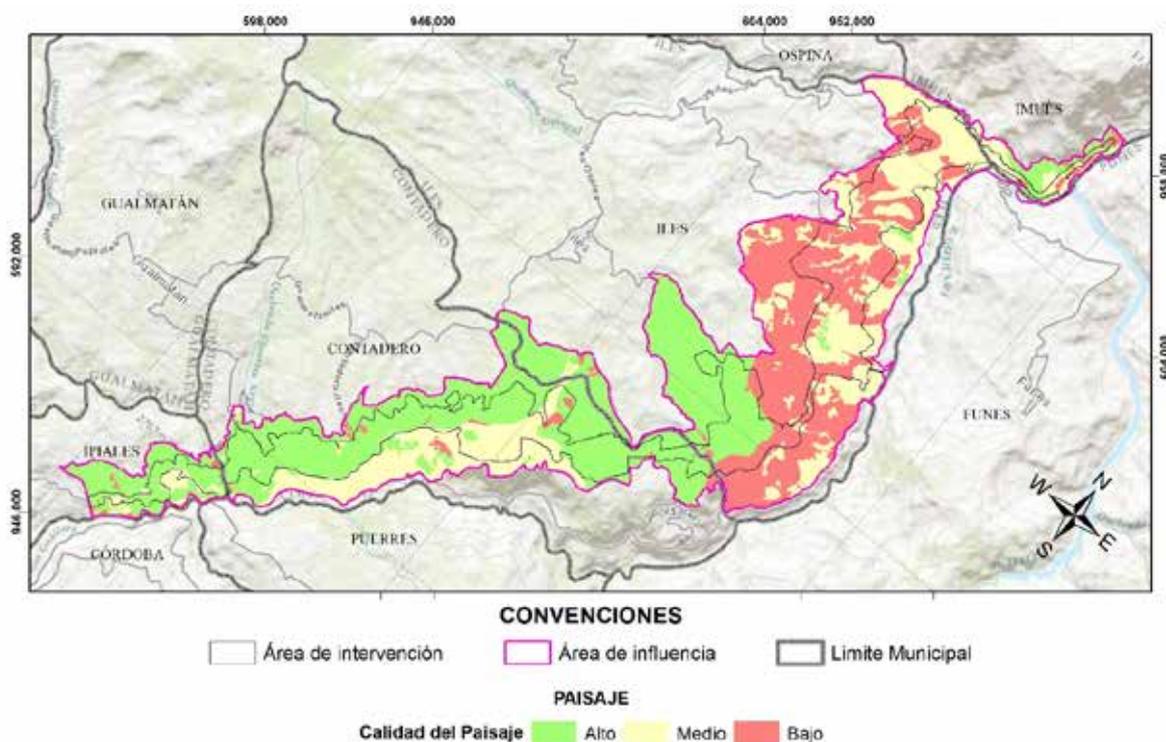
With respect to biodiversity, please refer to the Biodiversity Assessment section of this report, which presents an analysis of the current state of the most salient elements of the biodiversity of the area of study, with an emphasis on endemic species and almost endemic species.

Landscape integrity:

Landscape integrity refers to the degree of correspondence between landscape elements and color, as well as the level of anthropic intervention represented by the presence of discordant elements and their size. In this sense, the beauty of the landscape is translated into a chromatic correspondence typical of the landscape, with low levels of anthropic intervention and elements generating discord, keeping the typical form of the landscape. To this extent, the presence of cuts or abrupt changes in the natural shape of the landscape, and a dominance of artificial systems generates low landscape integrity, while low levels of intervention and anthropic transformation result in a high landscape integrity.

In accordance with the above, 26.67% of all landscape units (16 in total) were evaluated with a very high landscape integrity, because they preserve the natural elements with very low intervention, without the presence of discordant elements and with a high chromatic correspondence. These are the landscape units associated with forest covers including forest plantations, because they are the best preserved units in the area of influence analyzed. On the other hand, 38.33% (23 landscape units) were rated as having high landscape integrity (Table 7) because, despite slight discrepancies, elements such as vegetation are maintained, being amiable and consistent with the environment. Thus, units associated with mosaics of crops and pastures and crops, rivers, forest plantations, some areas of clean pastures with no presence of discordant elements, and patches of native vegetation close to areas intervened, were grouped in this category.

Figure 8. Spatial representation of the visual quality analysis of LUs in the area of influence



Source: GEOCOL Consultants Ltd., 2017.

Concerning units assessed with moderate landscape integrity, these accounted for 20% (12 landscape units), and correspond to areas with presence of discordant elements as some natural attributes of the landscape, which generate a medium visual impact with respect to the size of the discrepancies. Thus, units associated with clean pastures, discontinuous urban fabric, and some transformed covers located in the geofom of anthropic terrace were grouped in this category (Table 7. Landscape integrity analysis of LUs in the area of influence.).

Table 17. Landscape integrity analysis of LUs in the area of influence.

Landscape Unit		DISCORDANT ELEMENTS	DISCORDANCE SIZE	CHROMATIC CORRESPONDENCE	LANDSCAPE INTEGRITY
1	Ata - 111	0	0	1	Very Low
2	Ata - 112	0	0	1	Very Low
3	Ata - 1221	0	0	1	Very Low
4	Dlap - 1221	0	2	1	Low
5	Dlap - 231	1	2	2	Moderate
6	Dlap - 241	2	3	2	High
7	Dlap - 242	2	3	2	High
8	Dlap - 314	3	3	3	Very High
9	Dlap - 315	3	3	2	Very High
10	Dlap - 3231	3	3	3	Very High

Landscape Unit		DISCORDANT ELEMENTS	DISCORDANCE SIZE	CHROMATIC CORRESPONDENCE	LANDSCAPE INTEGRITY
11	Dlap - 3232	3	0	3	High
12	DIce - 1221	0	0	1	Very Low
13	DIce - 231	1	0	2	Low
14	DIce - 241	2	2	2	High
15	DIce - 242	2	2	2	High
16	DIce - 315	2	2	2	High
17	DIce - 32122	3	2	3	Very High
18	DIce - 3231	3	2	3	Very High
19	DIce - 3232	3	2	3	Very High
20	DIco - 1221	0	3	1	Moderate
21	DIco-1315	0	2	1	Low
22	DIco - 231	1	3	2	High
23	DIco - 241	2	3	2	High
24	DIco - 242	2	3	2	High
25	DIco - 314	3	0	3	High
26	DIco - 3231	3	0	3	High
27	DIco - 3232	3	2	3	Very High
28	DIr - 231	1	2	2	Moderate
29	DIr - 242	2	2	2	High
30	DIr - 311212	3	2	3	Very High
31	DIr - 314	3	2	3	Very High
32	DIr - 315	3	2	2	High
33	DIr - 3231	3	2	3	Very High
34	DIr - 3232	3	2	3	Very High
35	Fca - 511	3	0	3	High
36	Fta - 1221	0	3	1	Moderate
37	Fta - 1315	0	2	0	Low
38	Fta - 231	1	2	2	Moderate
39	Fta - 241	2	0	2	Moderate
40	Fta - 242	2	0	2	Moderate
41	Fta - 3231	3	2	3	Very High
42	Fta - 3232	3	2	3	Very High
43	Vav - 242	2	0	2	Moderate
44	Vav - 314	3	0	2	Moderate
45	Vel - 1221	0	2	1	Low

Landscape Unit		DISCORDANT ELEMENTS	DISCORDANCE SIZE	CHROMATIC CORRESPONDENCE	LANDSCAPE INTEGRITY
46	Vel - 231	0	2	2	Moderate
47	Vel - 241	2	2	2	High
48	Vel - 242	2	2	2	High
49	Vel - 3231	3	2	3	Very High
50	Vel - 3232	3	2	3	Very High
51	Vlep - 1221	0	3	1	Moderate
52	Vlep - 231	1	3	2	High
53	Vlep - 241	2	3	2	High
54	Vlep - 242	2	3	2	High
55	311212 Vlep-	3	0	3	High
56	Vlep - 314	3	0	3	High
57	Vlep - 315	3	0	2	Moderate
58	32122 Vlep -	3	0	3	High
59	Vlep - 3231	3	0	3	High
60	Vlep - 3232	3	2	3	Very High

Source: GEOCOL Consultants Ltd., 2017.

Of the remaining landscape units, five (5) were assessed as Low Integrity (i.e., 8.33%) associated with landscape units related to discontinuous urban fabric, and some areas of clean pastures with moderate-size discrepancies (e.g., communication towers or power networks). Finally, four (4) landscape units were assessed with very low integrity (continuous and discontinuous urban fabric, road networks and associated territories in anthropic terraces, and areas of exploitation of construction materials), where in addition to the convergence of many discordant elements such as machinery, equipment and civilian infrastructure, there is also a high degree of transformation of the natural covers, with predominance of artificial elements.

Some examples of discordant elements identified in the areas of influence of the project, which diminish the landscape integrity analyzed, can be seen in the following pictures.

Photography 1. Communication towers.



Photography 2. Power networks.



Source: GEOCOL Consultants Ltd., 2017.

Photography 3. Areas of extraction of construction materials

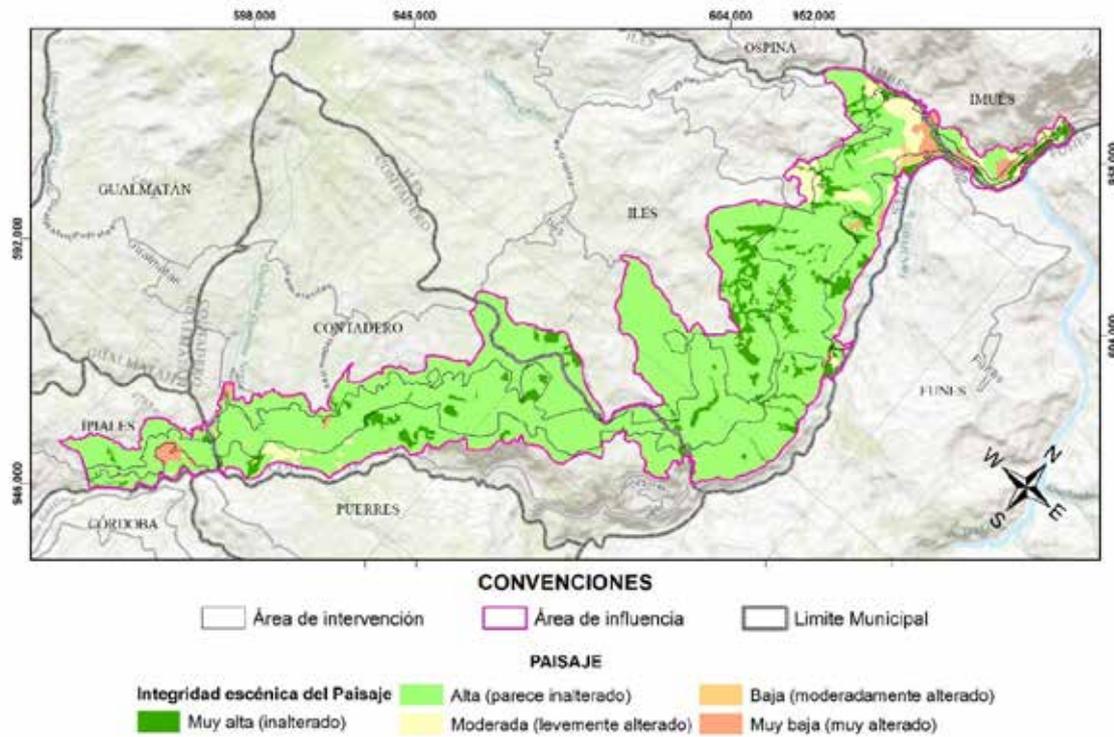


Photography 4. Pan American Highway



Figure 6 below shows the spatial representation of the landscape integrity analysis of LUs in the area of influence.

Figure 9. Spatial representation of the landscape integrity analysis of LUs in the area of influence



Step 4: Assessment of cumulative impacts on VECs

Based on this methodology and from the evaluation of the cumulative impacts caused on the scenario without project and with the activities planned for the construction of the two roadways, together with the most representative impacts of the developments intercepting the project, the most significant cumulative impacts can be established for which a differential management should be considered.

In the evaluation on the scenario without project it was established that the activities having a greater number of cumulative impacts are those of agriculture (transient crops) (2 mild or irrelevant, 17 moderate, and 2 severe) for a total of 21 impacts, followed by quarrying activity (4 minor or irrelevant, 9 moderate and 2 severe) for a total of 15 impacts; with habitat alteration of hydrobiological communities being the most common with 7 interactions (3 minor or irrelevant, 2 moderate and 2 severe), and with the same number of impacts the change in the physicochemical and biological properties of the soil (2 minor or irrelevant, 4 moderate and 1 severe) (Geocol 1, 2017).

The most recurring cumulative impacts for the scenario with project are the modification of the air quality by gases with 17 interactions (11 mild or irrelevant and 6 moderate), followed by the modification of the air quality by particulate material with 13 interactions (8 mild or irrelevant, 4 moderate and 1 severe), and, finally, the impact of alteration of waterbeds with 8 interactions (7 moderate and 1 severe) (Geocol, 2017).

With regard to the VECs, landscape integrity, and biodiversity, and their possible impacts in the present, past and future scenarios, based on information from studies of environmental impact on this type of linear project, both from pipeline and power transmission lines, it can be

established the following concerning the existing projects subject matter of this evaluation that intercept the construction project of the second roadway:

- Landscape integrity: This item was modified by the installation of power transmission towers, which fractionate the visual quality that existed prior to the installation of the towers and lines. This is an already existing cumulative impact that will be strongly increased with the construction of two new roadways, especially in sectors where one of them will not be built adjacent to the existing one, but will come as a completely new element of the landscape.

Something similar happens with the oil conduction project. At the present time the pipeline is visible in some sectors, generating a discordant element with the rural landscape associated with natural elements and areas intervened by agricultural production activities, fracturing the present unity.

- Biodiversity: The installation of power transmission towers results in a fragmentation of biodiversity, especially in areas where there are still patches of natural coverage that are used for the ecological continuity and exchange of certain species. In addition, the power lines affect birds by their frequent crashes with the infrastructure.

With the project for the construction of the second roadway these effects are exacerbated because there is a greater fragmentation of the scarce natural areas and ecological passages, which will be intervened even more.

As can be seen, and can be analyzed, the projects intersecting the project in question are all of the linear type, which generates fragmentation in many ways, and the impacts have a configuration consistent with this reality.

Step 5: Evaluate the importance of the anticipated cumulative impacts

With respect to landscape integrity as one of the elements affected, and defining impact as any change in such integrity, it was established that project components and activities that contribute to fragmentation, such as the mobilization of construction materials, supplies, machinery, equipment, and staff, were evaluated as having mild or irrelevant environmental impact, as they can affect landscape integrity due to their increased frequency and the presence of discordant elements in the landscape (vehicles, machinery, among others), which leads to an increase in the visual sensitivity and a decrease in the integrity and quality of the landscape, having a lower capacity of visual impact absorption. However, these changes are only foreseen during the constructive stage, with no permanence in time.

With regard to the removal of plant cover, clearing, and cleaning, this is one of the most significant impacts, being assessed as severe, taking into account the magnitude of the surface area and the coverage removed. Although most of these areas occupy places previously processed, changes in landscape units occur by the replacement of current coverage and changes in land usage. This will result in changes in ecological landscape units and altered visual attributes such as the shape and color of landscape, thus decreasing its integrity. Taking into account the

potentially involved area, the impact on landscape integrity can be considered extensive, permanent, and direct.

The impact generated by the demolition and removal of existing infrastructure in the areas to be intervened was considered severe because although these areas are associated with landscape units previously modified by anthropogenic activities, the construction of the divided highway is envisaged in these areas, thus increasing the presence of discordant elements, initially because of the necessary equipment and machinery, as well as the rubble from demolition activities, which generates an extensive, direct and frequent visual impact, with a high visual sensitivity.

On the other hand, earthworks (excavations and fills) were evaluated with a moderate value, to the extent that they are necessary to make material cuts, modifying the characteristics of the landforms and generating changes in landscape units. Due to the characteristics of the project, the impact on landscape integrity was assessed as extensive, direct and permanent, affecting attributes such as the natural regeneration of the vegetation, and the dominance of anthropogenic modifications.

With regard to activities such as the installation and operation of encampments and the installation and operation of processing plants (asphalt, concrete, crushing), both activities were rated mild or irrelevant because they involve the preparation of the terrain for the construction of the encampments, and the preparation of construction materials, thus altering both the nature of ecological landscape units, such as visual attributes of landscape shape and line, color and texture, the replacement of natural elements, and the use of machinery (discordant elements), thus decreasing landscape integrity and visual quality to the set analyzed.

The impact of machinery and/or equipment operation and maintenance activities was considered mild or irrelevant, given that, while it has an impact on the increase in the number and frequency of discordant elements, this is only a temporary activity, expressed in the area of influence to a limited extent, and does not cause significant changes in the landscape.

The impact associated with the construction and operation of rubble and excavation materials management zones (ZODMEs) was considered severe since it results in changes in line, form and color attributes, as well as in altered plant regeneration processes, intensification of erosive processes, and increased contrast between soil and rock, thus diminishing the quality of the scenic background. These zones are scattered throughout the area of influence, and since they are close to the road, they are also linked to an increased visual sensitivity.

The formation of the sub-base, base and affirmed layers, the top layer, and the construction of hydraulic works (including occupation of watercourses), cause a moderate impact to the extent that it involves the presence of discordant elements during the construction of the works, which increases visual sensitivity and fragility. Since this is associated with a linear project, the impact is extensive in the area of influence, and its direct effect in the landscape will be permanent.

The construction of pilots, foundations, and superstructures for bridges and viaducts may have a severely negative impact on landscape integrity, to the extent that this entails the construction of large infrastructures, which visually represents an increased artificiality of the landscape and the number of discordant elements present, thus generating relevant changes in visual quality and landscape integrity. Since they are subject to road operation, these structures will be strongly related with a high visual sensitivity, and although they will be present at some points only, their effects on the landscape will be direct and permanent.

In addition to the above, changes already identified in landscape integrity caused by projects intersecting the area of intervention of the construction of the second roadway add to the impact, but without generating a total rupture of the landscape matrix appreciated in the sectors.

ETHNIC POPULATION FRAMEWORK ASSESSMENT

Prior Consultation Process

Citizen Participation Legal Framework

The fundamental right to Prior Consultation is part of the wide range of regulatory provisions related to democratic participation in Colombia. This is due to the characterization of the Rule of Law, organized as a unitary and decentralized Republic, whose philosophy is based on a series of principles that guarantee the fundamental rights. The articles of the Colombian Constitution integrate a number of rules on recognizing pluralism and participatory democracy within a multiethnic and multicultural approach.

Follows a summary of the relevant contents of the constitutional articles regarding democratic participation:

Tabla 18. Relevant content of the constitutional articles regarding democratic participation

ARTICLES	CONTENT
Article 1.	Social rule of law, unitary, decentralized Republic with autonomous territorial entities (departments, districts, municipalities and indigenous territories), democratic, participatory and pluralistic, based on respect for the human dignity, work and solidarity of composing individuals and the prevalence of the general interest
Article 2.	Essential purposes of the State: (...) facilitate the participation of all in decisions affecting them and in the economic, political, administrative and cultural life of the Nation.
Article 3.	Sovereignty resides exclusively in the people, from whom public power emanates, which is exercised directly by the people or through their representatives, in the terms established by the Constitution.
Article 23	Guarantees the Right of Petition
Article 37	Right of assembly and public demonstrations
Article 40	Participate in the establishment, exercise and control of political power. (Elect, be elected, plebiscite, referendum, popular consultation and other forms of participation), form political parties and movements, revoke mandate, initiative vis-à-vis public corporations, unconstitutional actions, occupy public office and functions.
Article 45	Active participation of young people
Article 79	Enjoy a healthy environment and participate in decisions that may affect it. State duty to protect the diversity and integrity of the environment, conserve areas of special ecological importance
Article 95	Exercising the rights and freedoms recognized in this Constitution implies responsibilities

ARTICLES	CONTENT
Article 103	Citizen participation mechanisms: voting, plebiscites, referendums, popular consultation, open forums, legislative initiatives and the recall referendum
Article 246	The authorities of the indigenous peoples may exercise jurisdictional functions within their territory, in accordance with their own rules and procedures, provided they are not contrary to the Constitution and laws of the Republic
Article 270	Participation in monitoring governance
Article 330	The indigenous territories shall be governed by councils formed and regulated according to the customs of their communities. (...) In decisions taken in respect of such exploitation (natural resources), the Government shall encourage participation of representatives of the respective communities

Statutory Law 1757 of 2015 whereby provisions are issued in the promotion and protection of the right to democratic participation, and which aims to "*promote, protect and guarantee modalities of the right to participate in political, administrative, economic, social and cultural life, and likewise to control political power*". Without prejudice to the development of other forms of democratic participation in political, economic, social and cultural life, or the exercise of other political rights not mentioned therein, this law is responsible for essentially regulating the following forms of participation:

- the popular initiative and rules vis-à-vis public corporations,
- the referendum,
- the popular consultation,
- the mandate revocation,
- the plebiscite and the open council
- and lays down the basic rules governing democratic participation of civil organizations.

Prior Consultation Context

Within the framework of the Rumichaca - Pasto road corridor project given in Concession to the Concesionaria Vial Unión del Sur by the National Infrastructure Agency-ANI by Concession Agreement Under the scheme APP No. 15 of September 11, 2015, whose minutes of commencement are signed on October 27, 2015; and following the award and signing of the minutes of commencement, the Concesionaria Vial Unión del Sur in view of the legal and regulatory provision makes the application process in the presence of ethnic communities to the Prior Consultation Direction of the Ministry of the Interior; where said Prior Consultation Direction of the Ministry of the Interior certifies by administrative acts the presence of the following indigenous communities: Indigenous Council of Catambuco, Indigenous Council of Montaña de Fuego, belonging to the Quillasinga ethnicity, located in Functional Units 4 and 5 of the Iles Native Reservation located in the municipality of Iles; the Indigenous Council Aldea de Maria Putisnán located in the municipality of Contadero and the Native Reservation Colonial de

San Juan located in the municipality of Ipiales, all of the Pastos ethnicity, ethnic communities located in Functional Units 1.3, 2 and 3 of the project.

Prior Consultation Legal Framework

Prior Consultation

"Prior Consultation is a fundamental collective right (Sent T-550- 2015.) of the indigenous and afro-descendant communities aimed at ensuring their participation in identifying environmental, socioeconomic, ethnic and cultural impacts; the coordination of their respective measures for prevention, mitigation, correction, compensation and monitoring in order to protect their cultural and territorial integrity, as well as their economic and social life conditions, which aims to obtain their prior, free and informed authorization to implement measures that affect them directly such as: administrative and/or legislation norms, policies, plans, programs, development projects, works or activities within their territories or areas of influence of their cultural, economic and social life ".

Legal Framework of the Fundamental Right to Prior Consultation

Within the framework of international law.

The main international reference with respect to prior consultation is the Indigenous and Tribal Peoples C169 Agreement adopted in 1989 by the International Labor Organization, adopted by our legal system by Law of March 21, 1991. Article 6 literally states that, in applying the provisions of this Agreement, governments shall among others, *"a) consult concerned peoples, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged to affect them directly; (...)2. The consultations carried out under this Agreement shall be undertaken in good faith and in a manner appropriate to the circumstances, in order to reach an agreement on authorization on proposed measures."*

In the Colombian Constitution

The constitutional text under the rule of law is the guarantor of respect for ethnic and cultural diversity, in this regard its normative statements provide for the participation of indigenous peoples in making decisions that may directly or indirectly affect their rights. This is spelled out in Articles 2, 4, 7, 40 and paragraph of Article 330.

Article. 2. The essential goals of the State are: to serve the community, promote general prosperity and guarantee the effectiveness of the principles, rights and duties enshrined in the Constitution; to facilitate the participation of all in decisions that affect them and in economic, political, administrative and cultural life of the Nation; to defend national independence, maintain territorial integrity and ensure peaceful coexistence and enforcement of a just order.

The authorities of the Republic are instituted to protect all persons residing in Colombia, in their life, honor, property, beliefs and other rights and freedoms and to ensure compliance with the social obligations of the State and individuals.

Article. 7. The State recognizes and protects the ethnic and cultural diversity of the Colombian nation.

Article 40. Every citizen has the right to participate in the establishment, exercise and control of political power. (...) 2. To take part in elections, plebiscites, referendums, popular consultations and other forms of democratic participation. (...) 6. To exercise public rights of actions in defense of the Constitution and the law.

Article. 330. Paragraph. Exploitation of natural resources in indigenous territories shall be without prejudice to the cultural, social and economic integrity of said indigenous communities. In the decisions taken in respect of such exploitation, the Government shall encourage the participation of representatives of the respective communities.

In national legislation

The legislative bloc related to the fundamental Right to prior Consultation is systematically contained in:

1. Law 70 of 1993, where black communities are recognized and mechanisms to ensure their protection are established.
2. Law 99 of 1993, regarding the exploitation of renewable natural resources
3. Decree 1320 of 1998, which regulates prior consultation with indigenous and black communities for the exploitation of natural resources.
4. Decree 200 of 2003 whereby the objectives and structure of the Ministry of the Interior and Justice are determined and that the Ethnic Direction is responsible for inter-institutionally coordinating the implementation of prior consultations
5. Law 165 of 1994. Biological Diversity Agreement for Scientific Research Permits (biodiversity associated knowledge)
6. Law 1098 of 2006, in case of adopting a member of the indigenous peoples
7. Decree 3573 of 2011, whereby the National Environmental Licensing Agency ANLA is created.
8. Directive 001 of 2010 of the Presidency of the Republic, which summarizes and incorporates the guidelines expressed by the Constitutional Court through its extensive jurisprudence, and which provides an exhaustive list of cases in which consultation processes are mandatory:
 - a) When legislative or administrative measures which may directly and specifically affect National Ethnic Groups are issued, and which require a differential formulation approach when being applied.
 - b) Programs on exploration or exploitation of natural resources in their territories.
 - c) Decisions on land alienation or on transfer of their land rights in the event that the provisions of national implementation may hinder in any way the processes of collective titling, expansion or land reclamation.
 - d) Organization and operation of general application vocational training programs.
 - e) Teaching children of the peoples concerned to read and write in their own indigenous language or in the language most commonly used by the group to which they belong.
 - f) When it is intended to develop, enhance or transform the road network in ethnic territories.

- g) Formulate, design or implement research projects developed by public entities that are related to natural, biotic, economic, cultural, religious resources, etc., of ethnic groups that can generate an affectation by execution or publishing thereof.
- h) When actions to eradicate illicit crops that may affect ethnic groups are planned.
- i) When actions on health and disease measures of National Ethnic Groups are considered to be taken; except in emergencies jeopardizing right to life.
- j) When any priority measure regarding the development process of a national ethnic group is intended to be taken.
- k) When it is required to incorporate special features in the scope of some general legislative measure according to the custom or common law of National Ethnic Groups, in the scope of some general legislative measures.
- l) Other cases expressly provided by law.

Presidential Directive 01 of 2010

According to Presidential Directive 01, 2010, it is mandatory to request prior free and informed consent through the consultation process in the following cases:

- a. When legislative or administrative measures which may directly and specifically affect National Ethnic Groups are issued, and which require a differential formulation approach when being applied.
- b. Programs on exploration or exploitation of natural resources in their territories.
- c. Decisions on land alienation or on transfer of their land rights in the event that the provisions of national implementation may hinder in any way the processes of collective titling, expansion or land reclamation.
- d. Organization and operation of general application vocational training programs.
- e. Teaching children of the peoples concerned to read and write in their own indigenous language or in the language most commonly used by the group to which they belong.
- f. When it is intended to develop, enhance or transform the road network in ethnic territories.
- g. Formulation, design or implementation of research projects developed by public entities that are related to natural, biotic, economic, cultural, religious resources, etc., of ethnic groups that can generate an affectation by execution or publishing thereof.
- h. When actions to eradicate illicit crops that may affect ethnic groups are planned. i) When actions on health and disease measures of National Ethnic Groups are considered to be taken; except in emergencies jeopardizing right to life.
- i. When any priority measure regarding the development process of a national ethnic group is intended to be taken.

- j. When it is required to incorporate special features in the scope of some general legislative measure according to the custom or common law of National Ethnic Groups, in the scope of some general legislative measures.
- k. Other cases expressly provided by law.

Actions not requiring guaranteeing the right to prior consultation of ethnic groups.

- a. Legislative or administrative measures which do not affect National Ethnic Groups. Such is the case of fiscal measures that do not cover them; criminal, civil and procedural of the ordinary jurisdiction; commercial, industrial and urban nature service measures; labor; and social security measures, provided they do not reduce the quality of life of ethnic groups.
- b. Activities for the maintenance of the existing road network, provided that concerted management plans are agreed to mitigate the impact of specific works on sections that may affect ethnic groups. In any case, a certification must be requested to the prior consultation office, who will determine the activities which, under the road development project, require the guarantee to the right of prior consultation.
- c. When urgent measures in health, epidemics, alarming rates of illness and/or disease must be taken, natural disasters and guarantee or violation of Human Rights.
- d. When the consultation process is not mandatory under specific law.

Complementary legislation regarding indigenous peoples

Decree 1397 of 1996. The National Commission on Indigenous Territories is created, attached to the Ministry of Rural Development and the Permanent Bureau of consultation with indigenous peoples and organizations, attached to the Ministry of the Interior.

Decree Law 4633 of 2011. Whereby preparation of the comprehensive collective reparation plan for indigenous peoples and communities is directed and under the framework of the Victims Law.

In the jurisprudence of the Constitutional Court

The Corporation has produced more than 500 different natured rulings that have generated important precedents, which together with the definitions of international standards, have provided support to structure the scope and procedures to be taken into account in the context of prior consultations. The following is highlighted from the jurisprudential body:

- Constitutional Court, Ruling SU-039 1997 R.J. Antonio Barrera Carbonell.
- Constitutional Court, Ruling T-652 of 1998, R.J. Carlos Gaviria Díaz.
- Constitutional Court, Ruling C-418 of 2002, R.J. Alvaro Tafur Galvis.
- Constitutional Court, Ruling SU-383 2003 R.J. Alvaro Tafur Galvis.
- Constitutional Court, Ruling T-955 of 2003, R.J. Alvaro Tafur Galvis
- Constitutional Court, Ruling T-880 of 2006, R.J. Alvaro Tafur Galvis.
- Constitutional Court, Ruling T-154 of 2009, R.J. Nilson Pinilla Pinilla.
- Constitutional Court, Ruling T-769 of 2009, R.J. Nilson Pinilla Pinilla.

- Constitutional Court, Ruling T-547 of 2010, R.J. Gabriel Eduardo Mendoza Martelo.
- Constitutional Court, Ruling T-745 of 2010, R.J. Humberto Antonio Sierra Porto.
- Constitutional Court, Ruling T-1045A, 2010, R.J. Nilson Pinilla Pinilla.
- Constitutional Court, Ruling T-129 of 2011, R.J. Jorge Ivan Palacio Palacio.
- Constitutional Court, Ruling T-693 of 2011, R.J. Jorge Ignacio Pretelt Chaljub.

Synthesis of the normative foundations

Some general rights emerge from the entire normative framework to be taken into account before considering the toll case in particular:

1. Prior consultation is a national and international recognized fundamental right. Such consultation should be free, prior and informed; and must adhere to the principles of good faith, legitimacy, transparency, participation, representation, intercultural understanding and bilingualism, and be timely.
2. The right to establish reservations in territories that indigenous communities have traditionally occupied.
3. The right to protect sacred areas or of special ritual and cultural importance, even if they are located outside the reservations;
4. The right to dispose of and manage their territories; (underlined and bold added).
5. The right to participate in the use, operation and conservation of existing renewable natural resources in the territory, and
6. The right to protect ecologically important areas.

Objectives of the Prior Consultation

The Constitutional Court recognizes the prior consultation as a fundamental right of a collective nature, whose owners are Afro-Colombian, black, raizales, palenqueras and indigenous communities and is a right capable of protection through the right of protection, based on rule established in Ruling SU-037 1997 (Constitutional., 2014) of Convention 169 of the International Labor Organization, ILO, and the constitutional bloc.

In Ruling SU-039 of 1997, the Constitutional Court defined for the first time the main features and objectives of the right to prior consultation:

- a) That the community has full knowledge of the projects to explore or exploit natural resources in the territories they occupy or belong to them, the mechanisms, procedures and activities required to implement them.
- b) That the community is also aware and enlightened on how the implementation of said projects may involve an impairment or affectation to the elements that form the basis of their social, cultural, economic and political cohesion, and therefore the substrate for their survival as a human group with unique characteristics.

c) That the community be given the opportunity to freely and without outside interference, by convening its members or representatives, consciously assess the advantages and disadvantages of the project on the community and its members, to be heard regarding any concerns and claims presented in what concerns the defense of their interests and decide on the feasibility thereof. With the aforesaid, the intent is for the community to actively and effectively participate in any decision made by the authority, which as far as possible must be agreed to.⁵

This series of jurisprudential origin principles are contained in Presidential Directive 10, 2013, which encompasses the "Guidelines for Conducting Prior Consultations with Ethnic Communities" conceived as a tool or protocol regulating internal coordination between public entities involved in Consultation processes in order to integrate the appropriate skills and efficient allocation of resources.

This directive is not binding for the communities, but defines a consistent methodological approach to the guidelines established by the Constitutional Court, which in turn defines the scope of prior consultation through the interpretative exercise of Convention 169 of the ILO and more concordant rules protecting the rights of indigenous peoples.

Prior Consultation Principles

Principle of good faith

According to Convention 169 Article 6.2 and Ruling C-891 of 2002 of the Constitutional Court it was specified that "the institution of consultation with indigenous communities that may be affected because of the exploitation of natural resources, involves adopting communication and understanding relations, marked by mutual respect and good faith between said communities and public authorities."

Principle of information

Convention 169 Article 16.2 provides that the consent of indigenous peoples should be obtained "with full knowledge of the cause," being an obligation that provides all necessary elements for making a decision, Ruling C-891 of 2002 "full knowledge on projects to explore or exploit natural resources in the territories they occupy or belong to them, as well as the mechanisms, procedures and activities required to implement them. That the community is aware and enlightened on how the implementation of said projects may involve an impairment or affectation to the elements that form the basis of their social, cultural, economic and political cohesion ". (Constitutional Court, Ruling C-891 of 2002)

Free principle

Convention 169 Article 6.1 states that governments should "establish means whereby these peoples can freely participate, at least to the same extent as other sectors of the population, and at all levels in decision-making ...which may concern them" (Convention 169, 1989).

Previous principle

⁵Working paper based on the lawsuit filed against the Rural Development Statute (Law 1152 of 2007) before the Constitutional Court, by the Colombian Commission of Jurists and other social organizations. 2 Constitutional Court ruling SU-039 1997 R.J.: Antonio Barrera Carbonell.

The consultation must take place before adopting and implementing under Convention 169 Article 6.1 that states "whenever legislative or administrative measures which may affect them directly", Article 15 "governments shall establish or maintain procedures to consult the peoples concerned ... before undertaking or permitting any programs for the exploration or exploitation of resources in their lands."

Presidential Directive 10 of 2013

Prior consultation stages

Presidential Directive 10, 2013 calls for the development of projects, works or activities in areas where these minorities are located, following the steps provided in the guide, enclosed thereto, for conducting Prior Consultations with Ethnic communities.

The State seeks to regulate the coordination of involved parties, to ensure transparency of the process thus defining the following stages:

- *Stage 1*

Certification of the presence of ethnic communities requiring prior consultation: the determination must be carried out according to the criteria of ILO Convention 169, the national legislation and the constitutional jurisprudence on ethnic communities.

- *Stage 2*

Coordination and preparation: identify public entities with competence related to proposed work or activity to be consulted and convene a meeting to hear their views on the situation.

- *Stage 3*

Pre-consultation: it a preliminary dialogue is required with representatives of the communities in order to define the methodology the work or activity project executor will implement, the terms in which the process is performed depending on the specific cultural characteristics of each ethnic community; this involves appointing a team, meeting requests, presenting the right, presenting the project or activity, determining the object and constructing the methodological route.

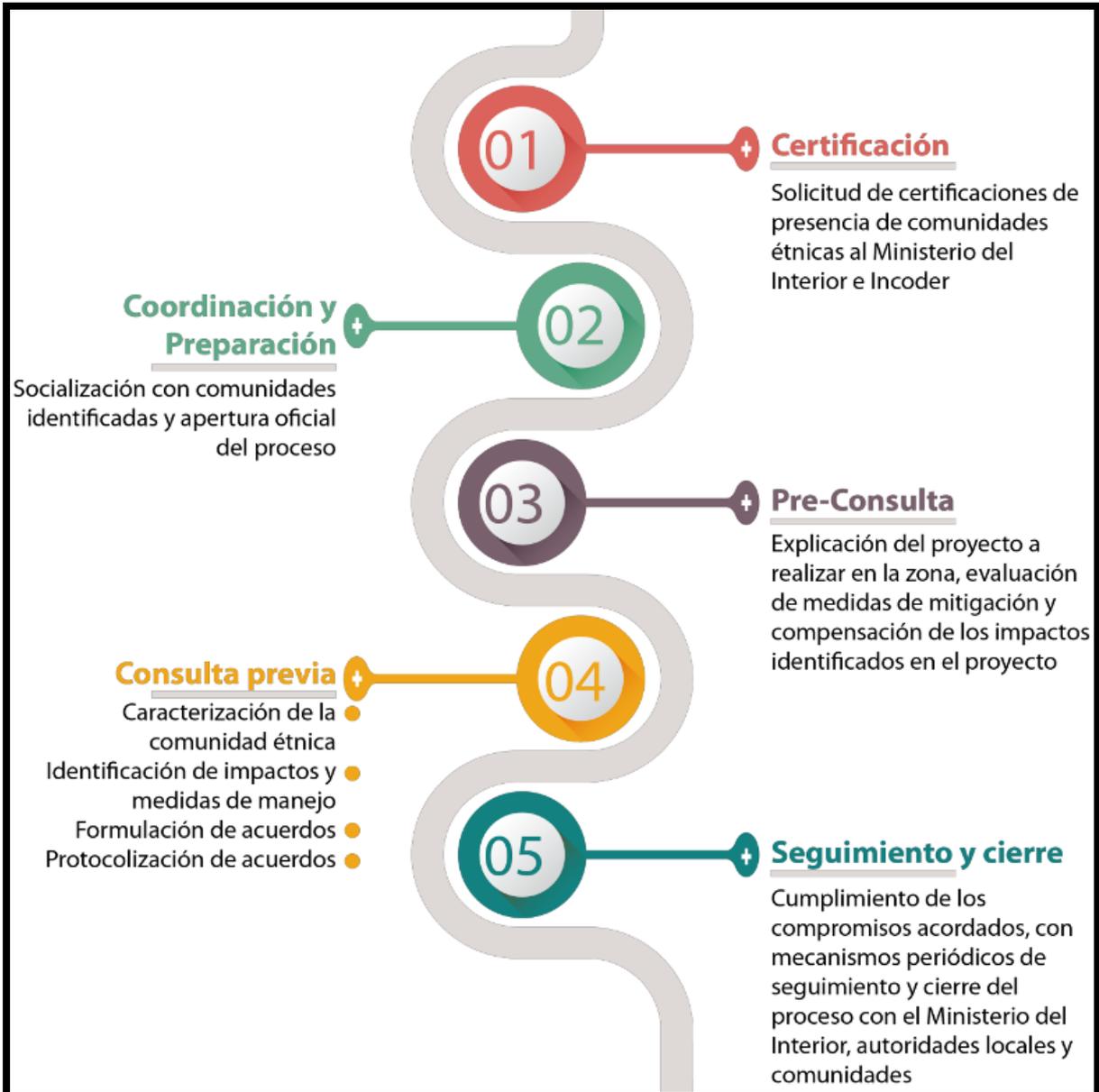
- *Stage 4*

Prior consultation: is establishing the dialogue between the State, the executor and ethnic communities so the direction of the prior consultation ensures actual, timely and effective participation on decision-making of the project or activity that directly affects the communities, with the aim of ensuring ethnic and cultural integrity: for such end, the following steps will be applied:

- Convene meetings
 - Meetings to analyze and identify impacts and develop management measures
 - Meeting to formulate agreements
 - Notarization
- *Stage 5*

Monitoring the agreements: this seeks to ensure that agreements notarized in the prior consultation process are fulfilled by the parties involved, in accordance with the terms agreed to with the ethnic communities; therefore, monitoring or periodic requirement arises so that a consultation close-out is generated at the end of the process.

Figura 10. Consultation Stages



Source: Concesionaria Vial Unión del Sur. 2017

Description of ethnic communities present in the project

Catambuco Indigenous Council

The Ministry of the Interior by certificate 110 of February 22, 2016 confirmed there were no Indigenous, Minorities and Roma communities recorded in the project area, also no presence of Black, Afro-Colombian, Raizales and Palenqueras communities recorded in project areas. However, the Concesionaria Vial Unión del Sur by EXTMI16-0019006 filed external communication of April 25, 2016, indicated that indigenous communities belonging to the Montaña de Fuego Councils (municipality of Tangua) and Catambuco (Municipality of San Juan de Pasto), communities belonging to the Quillasinga people, were identified in the area. That having made the technical analysis, the need for a project field verification visit was necessary, which took place from June 9 to 11, 2016. Subsequently Resolution 22 of 2016 was issued, whereby Administrative Act No. 111 of February 22 was partially revoked and certified the presence of the Catambuco Council in the project area. After subsequent corroboration and certification issued by the Prior Consultation Direction of the Ministry of the Interior, the Concessionary requested this government agency to carry out the respective pre-consultation and installation of the prior consultation with these certified indigenous Councils in the area of influence of the road project.

Thus, on October 11, 2016 the Pre-consultation and installation of the prior consultation process meeting was held, agreeing on a methodological route that was modified by internal community dynamics, therefore, the information gathering process to characterize the territory was carried out from February to April 2017; Workshop on Impact Identification and Formulation of Management Measures on May 7, 2017; formulation of Agreements on May 30, 2017 and 2017 Notarization on May 31, 2017.

The characterization process and document review highlights that the Indigenous Council of Catambuco are located in the Atriz Valley and are an ancestral Community of the Atures or Hatunllacta Valley and surroundings; Eduardo Zuniga anthropologist states in their regard:

The Quillacingas, as a people, were dissolved, from the formal point of view, in the middle of the last century [XX] when their reservations were extinguished. Today they are undergoing a reunification process and recovery of their former territories. This endeavor is being led by several districts of the municipality of Pasto. So far only three councils have been recognized by the Ministry of the Government (four with Obonuco) out of half a hundred that existed at the beginning of the twentieth century (Zuñiga Erazo, 2011)

Returning to ethnohistoric processes, it is necessary to clarify that the Indigenous Council of Catambuco of the Quillasinga people is in a process of reorganization since 2015; it had a historical process since colonial times which was interrupted in mid-twentieth century through its dissolution, achieved at the time by individual titling of lands owned by indigenous people. Despite the dissolution of the Reservations, the Quillasingas communities, inhabitants of the present territory of the municipality of Pasto, have largely maintained their community, family and social relations and cultural rights.

The El Socorro and Santa Barbara provinces are part of the council. They identify and self-recognize with the Quillasinga ethnicity, recently established registered with the Mayor of San Juan de Pasto with Minutes of Possession No. 002 of January 1, 2016. According to preliminary information given by the governor of the Carlos Potosi Council, the population census is 578 persons that are distributed in a dispersed manner in three districts of the municipality of San Juan Pasto (Catambuco, El Socorro and Santa Barbara) on 27 counties.

The vast majority of the population is concentrated in the Province of Catambuco, which is located on an international corridor of the Panamerican Highway that streamlines the processes

of urban pressure in the Atriz Valley altering the pattern of land use, changing rural activities for urban ones similar to the city of Pasto. It consists of 20 counties as follows: Alto Casanare, Botanilla, Botana, Cruz de Amarillo, Chavez, Cubijan Alto, Cubijan Bajo, Bellavista, Gualmatán, Guadalupe, El Campanero, La Merced, La Victoria, Santa Maria, San Antonio de Casanare, Rio Bobo, San José de Casanare, San José de Catambuco, San Antonio de Acuyuyo, San Ezequiel, San Isidro, Catambuco centro.

Montaña de Fuego Indigenous Council of Tangua

The Interior Ministry by certificate 110 of February 22, 2016 confirmed no presence of indigenous communities, Minorities and Roma recorded in the project area, also no presence of Black, Afro-Colombian, Raizales and Palenqueras communities recorded in project areas. However, the Concesionaria Vial Unión del Sur by EXTMI16-0019006 filed external communication of April 25, 2016, indicated that indigenous communities belonging to the Montaña de Fuego Councils (municipality of Tangua) and Catambuco (Municipality of San Juan de Pasto), communities belonging to the Quillasinga people, were identified in the area. That having made the technical analysis, the need for a project field verification visit was necessary, which took place from June 9 to 11, 2016. Subsequently Resolution 0318 of March 30, 2017 was issued, whereby the Ministry of the Interior certifies the presence of the Montaña de Fuego Indigenous Council of the Quillasinga ethnicity in the project area, considering phase III of the geometric design, therefore the Concessionary requested this government agency to carry out the respective pre-consultation and prior consultation installation with these certified indigenous Councils in the area of influence of the road project.

Thus, on October 10, 2016 the Pre-consultation meeting was held and the prior consultation installation of the process was conducted on October 26,, agreeing on a methodological route that was modified by internal community dynamics, therefore, the information gathering process to characterize the territory was carried out from February to April 2017; Workshop on Impact Identification and Formulation of Management Measures on April 30, 2017; formulation of Agreements on May 24, 2017 and 2017 Notarization on May 29, 2017.

Within the characterization process, documents were reviewed evidencing that the Montaña de Fuego Indigenous Council comes from a very recent formation process, a fact which, inter alia, complicates the process of territorial unit. This is because, in the year 1940, under decree law 1421 issued by the Ministry of National Economy, the indigenous reservations in Colombia were declared non-existent. Nariño had at the time around 88 constituted reservations, being the Colombian department with the largest indigenous population. Of these reservations, the government continued to recognize only 19, mostly belonging to the Pasto indigenous community. This explains why the current population does not have collective lands, which does not refute the fact that these communities have inhabited the region for a long time.

Thus, the Municipality of Tangua is located in the Nudo de los Pastos, south of the Department of Nariño on the slopes of the Galeras volcano, between PR 2 + 900 and 26 + 800 in North-South Catambuco-Ipiales direction. The total area of the municipality is 239 km², corresponding to 35 Hectares to the urban hub, with an average altitude of 2403 meters above sea level. It is located 28 km south west of the capital of the department of Nariño, and limits on the north with the municipalities of Yacuanquer, Consacá and Pasto and with the La Magdalena and Cubijan streams; south with the Municipality of Funes and the Curiaco stream; to the east with the Municipality of

Pasto and the Opongoy river; and west again with the Municipality of Yacuanquer and the La Magdalena Stream.

The consolidation and strengthening of the indigenous process in the municipality begins in August 2015. In December of the same year they consolidated the corporation that will represent them from 2016. Belonging to the Quillasinga ethnicity, land tenure is of an Individual nature having dissolved the figure of reservation some decades ago by the inhabitants themselves. The Montaña de Fuego Council is registered in the Town Hall of Tangua by Minutes of Possession 001 of January 21, 2016, a process that has been followed closely by the governors of the Quillasinga nation, as are the Refugio del Sol Reservation, Obonuco council, Aranda, La Laguna Pejendino, Mocondino, Mapachico, Genoy, Catambuco, Botanilla and Gualmatan.

The Montaña de Fuego Quillasinga Territory has an organizational structure represented in the Council, protected by the Political Constitution of Colombia; the Council has one hundred and fifty (150) families, consisting of approximately 380 community members. The Montaña de Fuego Council has recognized the sacred sites in its borders represented by petroglyphs, the Pikisiki and La Magdalena streams.

Iles Indigenous Reservation

On April 17, 2017 the Concesionaria Vial Unión del Sur submits request for information on the presence of ethnic communities to the Prior Consultation direction as appropriate for the Concession Rumichaca - Pasto 4G Project Under APP Scheme No. 15 of September 11, 2015 in Functional Units 1, 2 and 3 as per filed communication EXTMI17-16539. Given the above, on May 9, 2017 the Ministry of the Interior certifies the presence of indigenous communities under certification No. 0432 issued with Phase III designs of the general layout of the project in FU 2.

On 17 May 2017 the Concesionaria Vial Unión del Sur requests the Prior Consultation Direction commencement and opening of the Prior Consultation process; on June 6, 2017 the Ministry of the Interior convenes a pre-consultation meeting and beginning of the Prior Consultation Process on the Iles Indigenous Reservation, which accompanying of the ANI, HVM technical auditors, public ministry, members of the community and CVUS professionals. From June 7 to August 8 (3 months) the parties agree to the following methodological route taking into account the timing and dynamics of the community and the Concesionaria, Baseline construction and Characterization of the Iles Reservation; Impact Identification and Management Measures Workshop Meeting on September 30, Pre-Agreements Formulation meeting on November 4, 2017 and Notarization meeting on November 11 for a process time of 5 months.

However, such activities in conjunction with the community advisory team and the Prior Consultation professional team, helped bring forward the dates of the methodological agreed route, as follows: Baseline Construction and Characterization of the Iles Reservation from June 7 to August 8, 2017 (3 months), Impact Identification Workshop and Management Measures Meeting on September 23, 2017 and Agreements Formulation and Notarization Meeting on October 28, 2017, the process lasted 4 months.

Thus, after gathering the information it was identified that the Iles Indigenous Reservation territory is part of the Gran Pueblo Ancestral de los Pastos, which is located southwest of the department of Nariño and shares the same jurisdiction of the municipality of Iles, occupying an area of approximately 8,400 Ha. The Reservation has a total population of 252 families and 1135 indigenous communities, distributed in the areas of Bolivar, San Francisco or Pupuetez, Alto del

Rey or Chacuaspu, Urbano and San Javier, for a total of 15 counties: Mirador, Lomas de Argotis Alto, Lomas of Argotis Bajo, Villanueva, Bolivar, San Francisco, Yarqui, Alto del Rey, Tamburan, Urbano, Tablón Alto, Tablón Bajo, La Esperanza, Quitasol and San Javier.

According to documentary research conducted it was identified that the Iles indigenous community has remained over time in a long process of resistance, overcoming the imposition of the western culture during the conquest, the colony and the republic; around 1948 existed Institution of the Iles indigenous Council as authority, weakening after this date by the influence of the Catholic religion, State policies that limited the rights of natives, traditional parties, the arrival of outsiders and offensive treatment for being indigenous.

After a long internal process and subsequently to the different entities, the Iles Council Corporation was recognized by resolution dated June 5, 2007 issued by the mayor of the Municipality of Iles, in addition to the recognition of the mayor it received the recognition of the Pasto People and later the Ministry of Interior. In this way the rights as indigenous communities were recognized. The Corporation continued the process of Constituting a Reservation for recognition of the lands occupied by the natives; the first Reservation Constitution request was filed on July 12, 2007 by the indigenous governor Jose Elias Morillo (Pages 1 to 3 of the file). The head of INCODER No. 4 Office of Territorial liaison based in Cali issued Writ of September 7, 2007 ordering the first technical visit to the community (pages 4 to 6 of the file). Between September and October 2007, INCODER conducted the survey and technical drafting of the boundaries of sixty-two (62) lots, consolidated in thirty-one (31) plans (pages 102 to 104 of the file).

The second Iles reservation constitution request by the indigenous governor was carried out in July 13, 2013 (pages 7 and 8 of the file). In development of Article 2.14.7.3.4 of Sole Regulatory Decree 1071 of 2015, the Promotion, Monitoring and Ethnic Affairs assistant manager of INCODER issued Writ of August 2, 2013 ordering the technical visit to the Iles community from September 16 to October 10, 2013, in order to agree and collect information for the Socio-Economic, Legal and Land Tenure Study, to continue the collective entitlement process (pages 9 to 13 of the file).

Between September and October 2013, surveying and technical drafting of boundaries of forty four (44) more properties, consolidated into twenty (22) plans (pages 105 and 106 of the file) was performed. This work measured and georeferenced one hundred and six (106) individual properties, consolidated in fifty-three (53) plans⁶. Given the relevant procedures INCODER issued Agreement No. 373 of September 21, 2015, whereby the Pasto de Iles Indigenous Reservation is formed, thus the land rights were recognized as well as to exercise actions according to their autonomy; by being constituted as Reservation they become a legal sociopolitical institution that considers collective ownership, in this case it is constituted by 156 plots with collective entitlement.

Needless to say, the investigation by the Concesionaria Vial Unión del Sur showed that the project intervention area does not affect the collective territory legally constituted in the Reservation territory.

Aldea de Maria Putisnan Indigenous Council

⁶ COLOMBIAN INSTITUTE FOR RURAL DEVELOPMENT. Agreement No. 373 of September 21, 2015. Whereby the Iles Indigenous Reservation is Constituted.

On March 28, 2016 the Concesionaria Vial Unión del Sur submits EXTMI16-0012824 filed letter GG 207-16 requesting certification of presence or absence of ethnic communities for the "Rumichaca - Pasto 4G Concession Project Under APP Scheme No. 15 of September 11, 2015 in Functional Units 1, 2 and 3; in response to the request, the Prior Consultation Direction of the Ministry of the Interior certifies the existence of ethnic communities according to Administrative Act certification No. 0420 of May 2, 2016 which was issued with phase II designs of the general layout of the project in FUs 1.4 and 2.1.

However, the Concesionaria Vial Unión del Sur with the designs of the general project layout, requests the National Environmental Licensing Authority ANLA for the Environmental Assessment of Alternatives, in order to assess the feasibility of changing the designs of the general phase II and phase III layout of the project; the ANLA responded by issuing Writ 0948 approving and giving viability to the general phase III project design layout. Due to the change of the general layout design of the project the Concesionaria Vial Unión del Sur through letter requests withdrawing administrative act Certification No. 0420 of May 2, 2016 to the Ministry of the Interior which by Writ of June 1, 2016 revokes certification 420 of May 2, 2016.

The Concesionaria Vial Unión del Sur requests the Prior Consultation Direction of the Ministry of the Interior information on the presence of ethnic communities by EXTMI16-17132 communication of April 20, 2017 filed with Phase III layout designs; the PCD of the Ministry of Interior issues Certification No. 0434 of May 9, 2017 certifying the existence of the Parcialidad Indígena Aldea de Maria Putisnan ethnic communities, of the de los Pastos people in the municipality of Contadero. On June 7, 2017 the Pre-Consultation and commencement of the of prior consultation process on the Parcialidad Indígena Aldea de Maria Putisnan meeting is held, meeting convened by the Ministry of the Interior, there the following methodological route was agreed to: Baseline Construction and Characterization of Aldea de Maria Putisnan Indigenous Council on June 8 to October 8, 2017 (4 months), Impact Identification and Management Measures Workshop Meeting on November 8, 2017, Pre-Agreement Formulation Meeting on November 28, 2017 and Notarization Meeting on December 1, 2017, for a process duration of 6 months.

However, the activities carried out together with the community's advisory team and the Prior Consultation professional team, helped bring forward the dates of the methodological agreed to route, as follows: Baseline Construction and Characterization of the Aldea de Maria Putisnan Indigenous Council from June 7 to August 8, 2017 (3 months), Impact Identification and Management Measures Workshop Meeting on October 4, 2017 and Agreement Formulation and Notarization Meeting on October 27, 2017, the process took 4 months.

Thus, with the information gathered it was identified that the territory of the Aldea de María Putisnán Indigenous Council located in the municipality of Contadero, south west of the department of Nariño, 75 km from San Juan de Pasto, with geographical coordinates East 0°24'28" latitude north and 77°27'45" longitude of the Greenwich meridian. The indigenous territory is located on one of the slopes of Guaitara River Basin, in the area between the eastern foothills of the western mountains. It is part of what is historically known as the Nudo de los Pastos or Nudo de Wuaca within the Nariño geography.

At present the indigenous community has no collective lands as it once had with the existence of the Reservation, but there is proof that the indigenous community possessed this land according to the law of origin that is known in the Gran Pueblo de los Pastos which states that the natives inhabited these lands since the beginning of time and that they were the first to work it asserting

the essence of being indigenous born from the land as children of the Pachamama. However, due to various steps taken by the community, on December 15, 1995 the Ministry of the Interior certifies the presence of the Aldea of María Putisnán Indigenous Council, highlighting that the Council Corporation is currently in different proceedings vis-à-vis competent authorities to be recognized as a Reservation.

The Aldea de María Putisnán indigenous territory is currently divided into 3 sections: high, medium and low with an area of 15 km² and was recognized and certified as indigenous council in the direction of ethnic groups and the Ministry of the Interior on December 15, 1999, however the reorganization process start since 1997. The territory has a population of 2996 natives according to council census of 2016, distributed in the following counties in the municipality of Contadero: Aldea de María, San Francisco, Contaderito, Capulí, Iscuazán Cuevas, San Andres, Ospina Pérez, San José de Quisnamuez, La Providencia, Las Delicias, La Josefina, El Juncal and El Manzano.

San Juan Indigenous Reservation

On 28 March 2016 the Concesionaria Vial Unión del Sur submits EXTM16-0012824 filed letter GG 207-16 requesting certification of presence or absence of ethnic communities for the "Rumichaca - Pasto 4G Concession Project Under APP Scheme No. 15 of September 11, 2015 in Functional Units 1, 2 and 3 Project", in response to the request the Prior Consultation Direction of the Ministry of the Interior certifies the existence of ethnic communities according to Administrative Act certification No. 0420 of May 2, 2016 which was issued with phase II designs of the general layout of the project in FUs 1.4 and 2.1.

However, the Concesionaria Vial Unión del Sur with the general layout designs of the project, requests the National Environmental Licensing Authority ANLA for the Environmental Assessment of Alternatives, in order to assess the feasibility of changing the design of the phase II and phase III general layout, the ANLA responds by issuing Writ 0948 approving and giving viability to the general phase III project design layout. Due to the change of the general design layout of the project, the Concesionaria Vial Unión del Sur by letter, request withdrawing the administrative act Certification No. 0420 of May 2, 2016 to the Ministry of the Interior which by Writ of June 1, 2016 revokes certification 420 of May 2, 2016.

The Concesionaria Vial Unión del Sur requests the Prior Consultation Direction of the Ministry of the Interior on the presence of ethnic communities by filed EXTM16-17132 letter of April 20, 2017 with Phase III layout designs; the PCD of the Ministry of the Interior issued Certification No. 0434 of May 9, 2017 which certifies the existence of the San Juan Indigenous Reservation ethnic communities, of the los Pastos people of in the municipality of Contadero. On June 10, 2017 the Pre-Consultation and commencement of the prior consultation process of the San Juan Indigenous Reservation meeting is held, this meeting was convened by the Ministry of the Interior, wherein the following methodological route was agreed: Baseline Construction and Characterization of the San Juan Reservation from June 11 to September 2, 2017 (4 months), Impact Identification and Management Measures Workshop Meeting on October 2, 2017, Pre-Agreements Formulation Meeting on October 30, 2017 and Notarization Meeting on November 17, 2017.

The agreed to methodological route was modified due to the position of the community not to continue the process until the ANI defined the toll situation, so the route was established as follows: Baseline Construction and Characterization of the San Juan Reservation from June 11 to

September 2, 2017 (4 months); I Impact Identification and Management Measures Workshop Meeting on 7 October 2017, II Impact Identification and Management Measures Workshop Meeting on October 26, 2017, III Impact Identification and Management Measures Workshop Meeting, because the community decided not to continue with the process and therefore the Prior Consultation process was closed on November 17, 2017.

Thus, once the information was gathered it was identified that the territory of the Colonial de San Juan Indigenous Reservation limits on the North with the ancestral lands of the Inchuchala Miraflores, Municipality of Pupiales; Aldea de María Reservation, municipality of Contadero and the Municipality of Gualmatán; on the south with the Ipiales Reservation, Municipality of Ipiales; East with the Gran Tescual Council, Municipality of Puerres, the Córdoba Reservation, Municipality of Córdoba, Mueses Potosí Reservation, Municipality of Potosí.

It has a population of 4,656 inhabitants who inhabit an area of 575 ha. and is made up by the counties of Loma de Zuras, Camellones, Laguna de Bacca and the San Juan populated center and its El Boqueron sectors, El Rosal and Quenguanes sectors.

The San Juan Reservation has colonial title 319 of May 13, 1961 of small indigenous council of the partiality of San Juan. Notaria One of Ipiales- Nariño, in terms of Reservation territory legality; the communities are also protected and by the National Constitution, the laws and regulations within the Republican State as part of the Colombian nation, who have defined, economic, social, cultural, territorial and communicational political structures.

Collective lands are considered those that serve the community, the family and individual persons, as affirmed by the community in the social mapping workshops. But in any case, Article 21 of Decree 2164 of 1995 in its legal nature, states that "Indigenous reservations are collectively owned by indigenous communities in favor of which are constituted and in keeping with Articles 63 and 329 of the Political Constitution they have the inalienable, indefeasible and nontransferable nature". This implies that indigenous communities and their councils exercise full authority, autonomy and jurisdiction in their territories, since the Constitution, laws and regulations so consider it. Therefore, in said article, its second paragraph defines that "Reservations are a legal and socio-political institution of a special nature, consisting of one or more indigenous communities, with a collective property title deed enjoying the guarantees of private property, with their own territory and are governed for management thereof and their inner life by an autonomous organization covered by the indigenous courts and their own regulatory system." For the specific case of the of San Juan Reservation, in addition to aforementioned regulations, this territory is legally covered and protected by colonial Deed 528 of February 12, 1906 and notarized by Deed 319 of May 13, 1961 at Notaria One from Ipiales.

The San Juan Reservation has lots where educational, recreational, community, religious, industrial and reserve institutions are built, which are collective Reservation lands.

Colonial de Ipiales Indigenous Reservation

According to the review of secondary sources, Ipiales was founded on January 01, 1539. The first settlers, "the Protopastos, inhabited the interandino alley region on the Túquerres and Ipiales plateau in the Republic of Colombia and the province of Carchi in Ecuador about 1,000 years ago" (Ipiales Town Hall, 2016). 28% of the population living in Ipiales is self-recognized as belonging to an indigenous community, 0.2% are Afro-descendants. (DANE, 2010). There are four indigenous reserves in the municipality, 3 of the los Pastures ethnicity, (Ipiales, San Juan, Yaramal) and 1 of

the Kofán (Santa Rosa de Sucumbíos) ethnic group, constituted by INCORA. (Municipal Town Hall of Ipiales, 2012)

On 21 January 2016 the Concesionaria Vial Unión del Sur, request certification on the presence of ethnic communities in FUs 1.1 and 1.2. at the offices of the Prior Consultation Direction of the Ministry of the Interior. Faced with no response from the Ministry of the Interior the Concesionaria Vial Unión del Sur files a right of petition with the request for certification of indigenous communities for FU 2sub-span on March 11, 2016; the Ministry of Interior via Resolution 264 of March 28, 2016 determined the presence of Colonial de Ipiales Indigenous Reservation, Los Pastos ethnicity.

Since the project had some phase II to phase III design changes given the history, a single certification is requested to include the areas which were FU 1.1 and 1.2. Besides the additional areas, in order to maintain certificate 264 of March 28, 2016 valid and the presence of the Colonial de Ipiales Indigenous Reservation covered in a single certification.

On April 12, 2016 the Concesionaria Vial Unión del Sur requests commencement of the Prior Consultation to the PCD of the Ministry of the Interior. On May 9, 2016 the Indigenous Reservation submits a communication cancelling workshops, social and property profile and any activity related to the Rumichaca - Pasto 4G Concession Project Under APP Scheme No. 15 of September 11 2015. Given the aforesaid, on May 31, 2016 the Concesionaria informs the ANI Project Manager that the Ipiales Indigenous Reservation community will not allow applying the information gathering sheets until they know the final project route.

The Prior Consultation Direction of the Ministry of the Interior convened several meetings to develop the pre-consultation stage and Prior Consultation Process installation with the Ipiales Indigenous Reservation on August 10, 2016 (first meeting), September 14, 2016 (second meeting); December 16, 2016 (third meeting), January 18, 2017 (fourth meeting); February 23, 2016 (fifth meeting); June 8, 2017 (sixth meeting); June 28, 2017 (seventh meeting), August 9, 2017 (eighth meeting), August 18, 2017 (ninth meeting), October 6, 2017 (tenth meeting) and November 18, 2017 (eleventh meeting) all meetings were accompanied by the ANI and the ANI technical audit where the Reservation ratifies their position of not commencing the Prior Consultation Process until the ANI does not define the toll situation, reason why the meetings did not have positive results.

Given previous meetings, on November 18, 2017 (eleventh meeting convened by the Ministry of the Interior to develop the Pre-consultation and prior consultation commencement process), the Ministry of the Interior "concludes the consultation stage given the unshakable position of the parties" stressing that all dialogue spaces were provided to ensure the effective and timely participation of ethnic communities. (...) to also consider that the project is of national interest. The Concesionaria highlights having generated all dialogue and participation spaces within the Prior Consultation framework with the Ministry of the Interior as guarantor.

CLIMATE CHANGE RESILIENCE ASSESSMENT

Global climate change is unequivocal. The increase in the temperature of the planet has been proven, finding that temperature has risen by about 0.2°C between 1990 and 2005 (IPCC, 2007).

Its growing trend has also been verified, and by 2010 there were already evidences of the effect of higher temperatures on sea levels, polar ice caps, sea currents, glaciers and moors, among others.

The projections indicate that by the end of the 21st century there will be an increased occurrence of extreme events such as heat waves, heavy rainfalls, severe frosts, and marked drought or rainfall periods. Also, the projections show that it is likely that tropical cyclones will increase, as well as the severity of winds and precipitations.

For Latin America it is expected that "toward the middle of the century, temperature increases and, thus, decreased water in the soil, would lead to a gradual replacement of tropical forests with savannas in the east of the Amazonian region. The current semi-arid vegetation would be progressively replaced by arid vegetation. Significant losses of biological diversity may occur due to the extinction of species in several areas of tropical Latin America. The productivity of some important crops and livestock would decrease, with adverse consequences for food security. In temperate zones there will be an increase in the yield of soybean crops. On the whole, the number of people at risk of hunger will increase (medium degree of confidence). Changes in rain patterns and the disappearance of glaciers will seriously affect the availability of water for human consumption, for agriculture and for the power generation" (IPCC, 2007 pp52).

For small islands, "the rise of the level of the sea could increase flooding, storm surges, erosion and other hazardous coastal phenomena, thus threatening infrastructure, settlements and essential facilities that support the livelihood of island communities. The deterioration of the living conditions of coastal communities resulting, for example, from the erosion of beaches and coral bleaching, would affect local resources. Toward the middle of the century, climate change would reduce water resources in a large number of small islands, such as those in the Caribbean and the Pacific Ocean, to the point of their no longer being sufficient to meet the demands during periods of low rainfall. Rising temperatures would increase invasions by non-native species, particularly in islands of mid- and high latitudes." (IPCC, 2007 pp52).

Knowing accurately the possible impact on an area of interest is only possible through the generation of regional climate change scenarios, for large areas, for example for Colombia as a country; or, for smaller areas such as Departments.

The result of the regional and local scenarios would allow to know the potential risks and vulnerabilities of ecosystems, productive sectors, populations, and changes in vegetal covers according to assumed irreversible increases in surface temperature. This information will be the basis for the formulation of plans for climate change mitigation and adaptation.

In the case of Nariño, the projected climate change scenarios with respect to factors such as temperature and precipitation are as follows:

Temperature

As can be seen in Figure 7, the scenario of the mean temperature for the period 2011- 2040, being the one of greater interest by the temporal scale selected for this analysis, presents a mean variability in temperature of 0.7°C, which will be especially marked in the west of the Department.

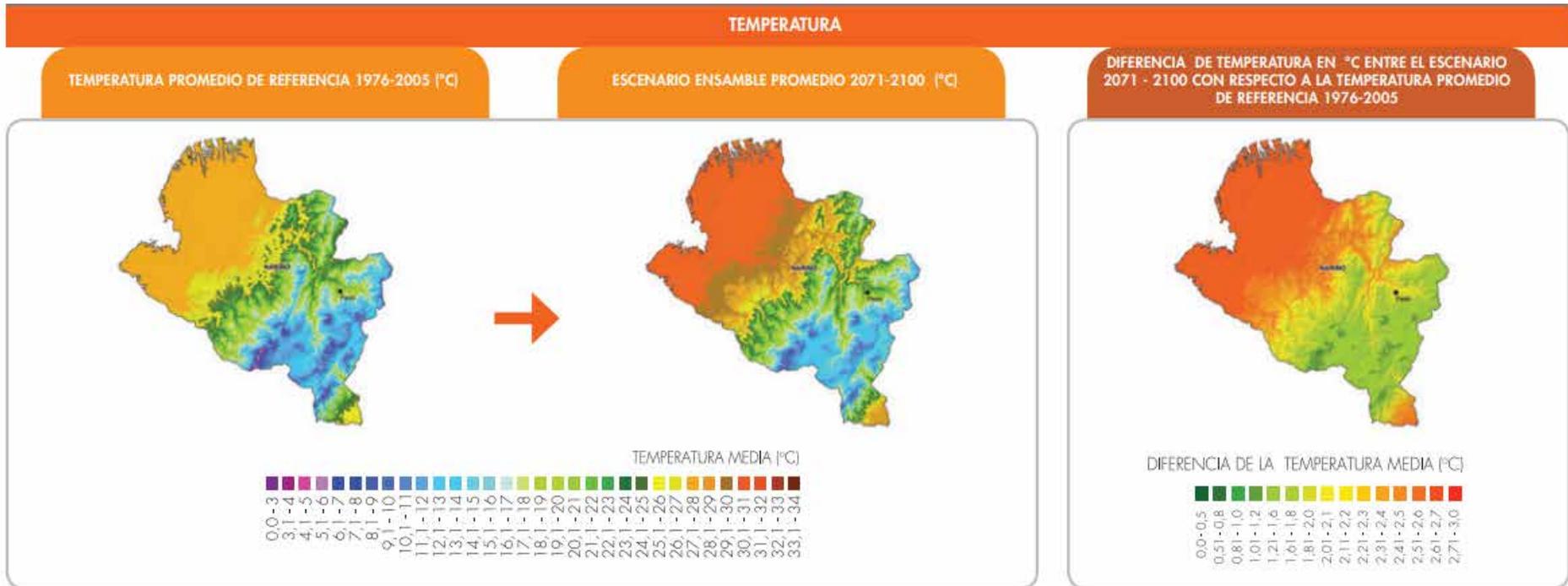
The main effects could be seen in the agricultural sector, because of the potential increase in pests and diseases for the crops of the mountainous region. The road sector could be affected by increases in landslides and mass removal phenomena for communities living in territories with

steep slopes. The livestock sector in the west of the Department could be affected given the gradual increase in temperature (IDEAM, 2015).

Precipitation

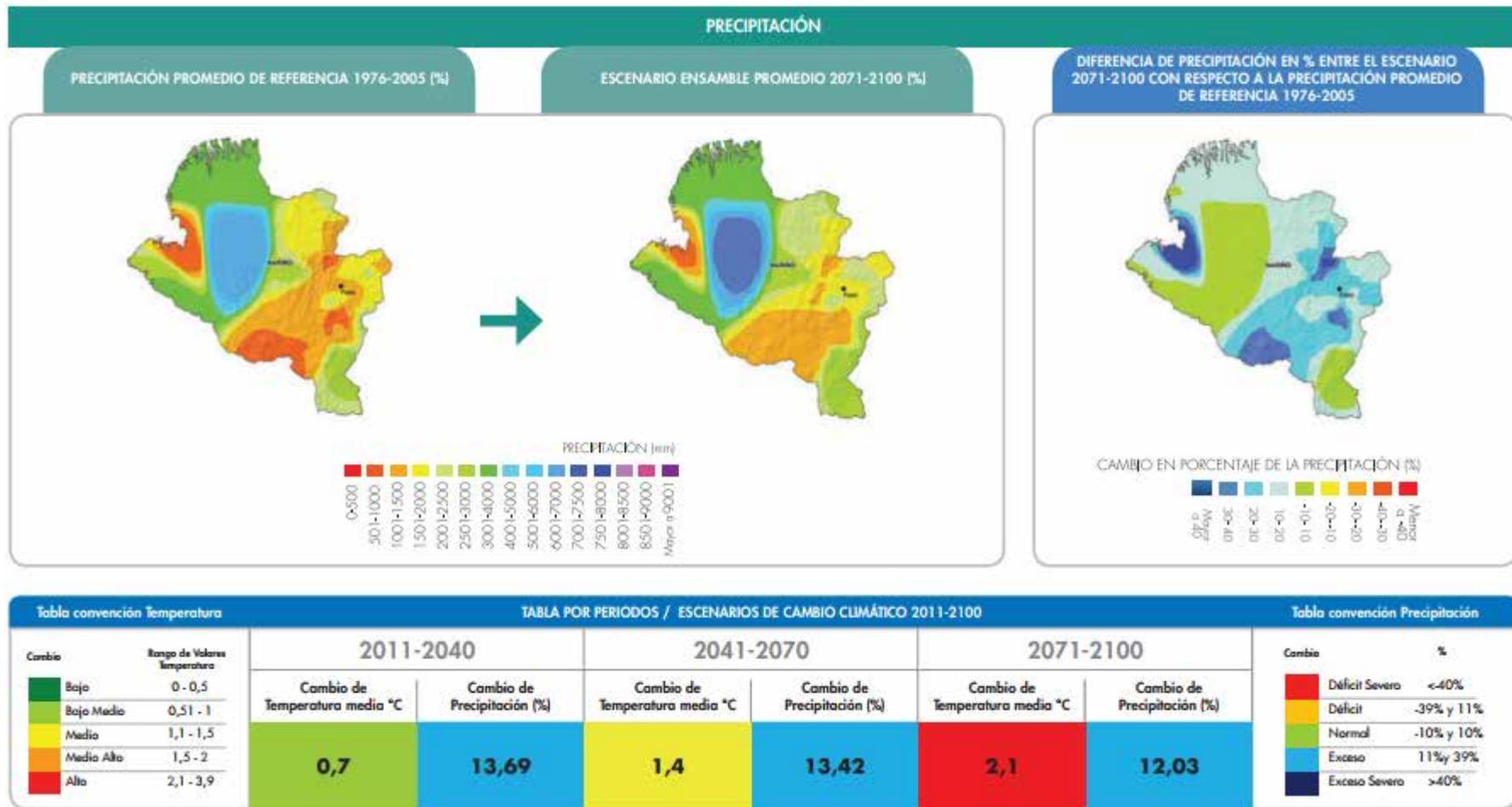
With regard to this environmental factor, the climate change scenarios for the period 2011 - 2040, presents 13.69% variability with respect to the baseline scenario, which represents an increase in the levels of precipitation. Particularly the subregions of coastal piedmont, Abades, Sabana and Guayambuco could sustain increases of between 20% and 30%.

Figure 11. Climate change scenarios, a factor temperature, 2010-2100, department of Nariño.



Source: IDEAM, 2015

Figure 12. Climate change scenarios, a factor temperature, 2010-2100, department of Nariño.



Source: IDEAM, 2015

Now, the UNDP identifies five lines on which climate change can affect human development, as follows:

- Agricultural production and food security
- Drinking water shortage
- Sea level rise and exposure to meteorological disasters
- Ecosystems and biodiversity
- Human health

Of these lines, and taking into account the spatial scale of the project, i.e., the area of influence, and the data provided by the EIAs formulated in the framework of the environmental licensing of the project, it is clear that the main impacts are on agricultural production and food security, drinking water scarcity, ecosystems and biodiversity, and human health, for the surrounding population.

Now, due to the environmental demand of the project in question, one of the main effects of climate change on this development will be related to water supply, because according to the volumetric flows estimated in the main collection sources, this supply is already limited.

Table 19. Water supply

UPTAKE	DEMANDED FLOW RATE	MINIMUM ESTIMATED MEAN OFFERED FLOW RATE		PERCENTAGE OF THE DEMANDED FLOW RATE IN RELATION TO THE MINIMUM OFFERED FLOW RATE	ESTIMATED FLOW RATE		PERCENTAGE OF THE DEMANDED FLOW RATE IN RELATION TO THE ESTIMATED FLOW RATE
		(For the time)			Feb – March		
	L/s	m ³ /s	L/s		m ³ /s	L/s	
1. Río Guaitara	1.5	(Oct) 1.84	1837	0.081%	(Feb) 27.53	27530	0.005%
2. Río Boquerón	1.95	(Aug) 0.04	46.02	4.23%	(Feb) 13.08	13080	0.015%
3. Quebrada Humeadora	1.95	(Feb) 0.0031	3.14	54.95%	(Sea) 0.27	270	0.72%
4. Quebrada Moleadores	1.5	(Aug) 0.0021	2.10	71.14%	(Sea) 0.572	572	0.26%
5. Quebrada San Francisco 2	1.95	(May) 0.0022	2.22	87.79%	(Sea) 0.312	312	0.63%
6. Quebrada El Macal	1.5	(Jun) 0.004	3.65	41.06%	(Sea) 2.14	2140	0.07%
7. Río Sapuyes	1.95	(Aug) 0.53	533.02	0.37%	(Sea) 1107	11070	0.02%
8. Quebrada Yamurayán	1.5	(Jul) 0.0016	1.61	93.01%	(Feb) 0.001	1	150%
9. Quebrada San Francisco	1.5	(Jul) 0.0023	2.34	63.86%	(Feb) 0.002	2	75%
10. Quebrada El Cilantro	1.5	(Jul) 0.0020	2.02	73.99%	(Sea) 0.008	8	18.75%
11. Quebrada El Manzano	1.5	(May) 0.0004	0.42	94.43%	(Sea) 0.018	18	8.33%

Source: 2017 Geocol,

In addition, the rise in the levels of precipitation leads to the same situation in the mass removal phenomena, particularly in the areas where cuts or fill embankments will be constructed.

References

BOLÍVAR-G., W., GALVIS, C., MOTTA, D., & GONZÁLEZ-COLORADO, A. (2015). *Gastrotheca argenteovirens*. Guía de los anfibios del Valle del Cauca. Recuperado el 2016, de http://anfibiosdelvalledelcauca.com/index.php?option=com_k2&view=item&layout=item&id=70&Itemid=417.

ACOSTA-GALVIS, A. R. (2016). Lista de los Anfibios de Colombia: Referencia en línea V.05.2015.0 Pagina web accesible en <http://www.batrachia.com>; Batrachia, Villa de Leyva, Boyacá, Colombia. Recuperado el 12 de Marzo de 2017, de <http://www.batrachia.com>

IUCN. (Septiembre de 2015). The IUCN Red List of Threatened Species. Version 2015.4. Recuperado el 12 Marzo de 2017, de www.iucnredlist.org.

RAMÍREZ PINILLA, M., OSORNO-MUÑOZ, M., RUEDA, J., AMÉZQUITA, A., & ARDILA-ROBAYO, M. (2004). *Gastrotheca argenteovirens*. La Lista Roja de la UICN de Especies Amenazadas 2004: e.T55324A11292970. Recuperado el 2016, de <http://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T55324A11292970>.

RESTREPO-TORO, J. H. 2004. Rana marsupial de La Cocha. *Gastrotheca espeletia*. pp 273-277, En: Rueda-Almonacid, J. V., J. D. Lynch, & A. Amézquita (Ed.), Libro Rojo de los Anfibios de Colombia. Panamericana Formas e Impresos, S.A. Bogota 384pp.

MINISTERIO DE AMBIENTE Y DESARROLLO SOSTENIBLE. 2014. Resolución Número 192 de 2014. "Por la cual se declaran las especies silvestres que se encuentran amenazadas en el territorio nacional y se toman otras determinaciones". Dirección de Ecosistemas del Ministerio de Ambiente, Vivienda y Desarrollo Territorial.

CHAPARRO-HERRERA, S.; ECHEVERRY-GALVIS, M.A.; CÓRDOBA-CÓRDOBA, S. & SUA-BECERRA, A. 2013. Listado actualizado de las aves endémicas y casi-endémicas de Colombia. *Biota Colombiana* 14(2): 235-272.

BIRDLIFE INTERNATIONAL. 2016. *Eriocnemis derbyi*. The IUCN Red List of Threatened Species 2016: e.T22687947A93176392.<http://dx.doi.org/10.2305/IUCN.UK.20163.RLTS.T22687947A93176392>.en. Downloaded on 15 April 2017.

GEOTOL CONSULTORES SA 2017. Estudio de Impacto Ambiental para el Proyecto Vial doble Calzada Rumichaca – Pasto, tramo San Juan – Pedregal, contrato de concesión bajo el esquema app n° 15 de 2015

GÉMINIS CONSULTORES SAS 2016. Estudio de Impacto Ambiental para el proyecto vial doble calzada Rumichaca-Pasto- tramo Pedregal – Catambuco, contrato de concesión bajo el esquema app no. 15 de 2015

PLAN DE TRABAJO UF 4

PROYECTO RUMICHACA - PASTO

AÑO	2017																												2018																												2019																							
MES	JUNIO				JULIO				AGOSTO				SEPTIEMBRE				OCTUBRE				NOVIEMBRE				DICIEMBRE				ENERO				FEBRERO				MARZO				ABRIL				MAYO				JUNIO				JULIO				AGOSTO				SEPTIEMBRE				OCTUBRE				NOVIEMBRE				DICIEMBRE				ENERO			
No. MES	MES 1				MES 2				MES 3				MES 4				MES 5				MES 6				MES 7				MES 8				MES 9				MES 10				MES 11				MES 12				MES 13				MES 14				MES 15				MES 16				MES 17				MES 18				MES 19				MES 20			
SEMANA	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
ELABORACION INSUMOS PEDIALES	12	12	12	12	12	12	12	12	12	14	14	14	14	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15																
REVISION INSUMOS INTERVENTORIA			12	13	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15																				
REVISION Y APROBACION DE INSUMOS INTERVENTORIA			8	8	8	8	8	8	10	10	10	10	10	10	10	10	10	11	12	12	12	12	12	12	15	15	15	15	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20																								
ELABORACION AVALUO			10	10	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15																												
REVISION AVALUO - INTERVENTORIA					8	8	8	10	10	10	10	10	10	10	10	10	10	10	10	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13																																
APROBACION AVALUO						6	6	6	6	7	7	7	7	7	7	7	7	7	7	9	9	9	10	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6																																	
ELABORACION Y NOTIFICACION OFERTAS FORMALES DE COMPRA						6	6	6	6	7	7	7	7	7	7	7	7	8	8	9	9	9	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	2																																		
ENAJENACION VOLUNTARIA DIRECTA - INCLUYE ESCRITURACION PREDIOS SIN PROBLEMAS JURIDICOS									5	5	5	5	5	5	6	6	6	6	6	8	8	8	8	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	3																																
EXPROPIACION																									1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																																
SANEAMIENTO PREDIAL - INCLUYE ESCRITURACION PREDIOS CON PROBLEMAS JURIDICOS																																																																																

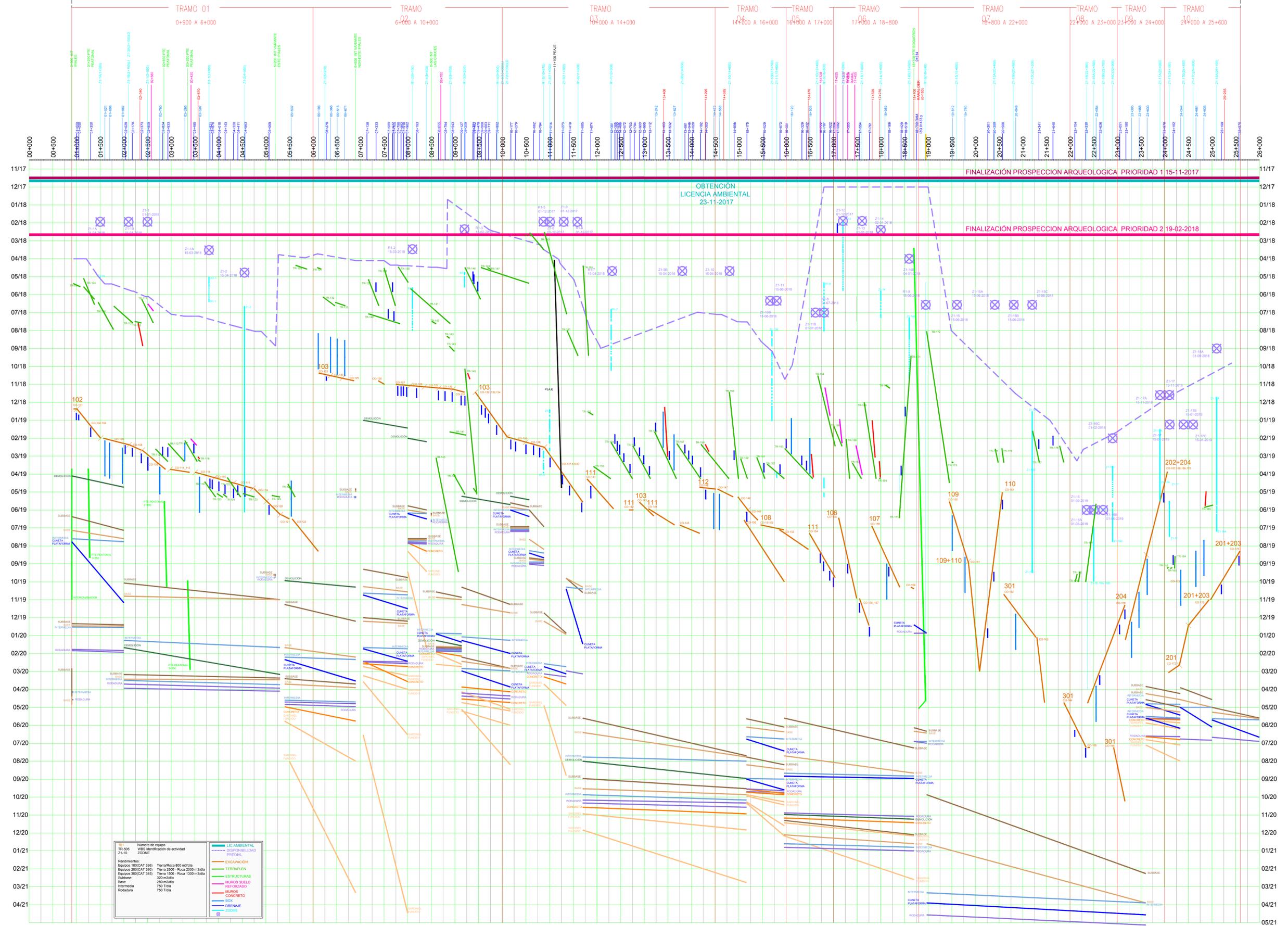
	CONSEJONARIA: REPRESENTANTE DE LA CONSEJONARIA LUIS ALBERTO CASTILLO		ESTUDIOS Y DISEÑOS DEFINITIVOS FASE III DEL CONTRATO 015 DE 2015: FINANCIACIÓN, CONSTRUCCIÓN, REHABILITACION, MEJORAMIENTO, OPERACION Y MANTENIMIENTO Y REVERSION DEL CORREDOR RUMICHACA - PASTO, SUSCRITO ENTRE LA ANI Y LA CONSEJONARIA VIAL UNION DEL SUR S.A.S.	ESTUDIOS Y DISEÑOS 	INTERVENTORIA 	AGENCIA NACIONAL DE INFRAESTRUCTURA	FECHA: _____ VERSION: _____ MODIFICACIONES: _____	CONTIENE: PROGRAMACION ENTREGA DE INSUMOS PEDIALES UF4 Y UF5.
	DIRECTOR DE ESTUDIOS Y DISEÑO: JOSE IGNACIO SANZ DELGADO			DIRECTOR DE INTERVENTORIA: DIEGO BENAVIDES JURADO	PROYECTO: Predio CVUS FECHA: Junio - 2017		ESCALA: _____ TABLA No: 1/1	

PLAN DE TRABAJO UF 5.1
PROYECTO RUMICHACA - PASTO

AÑO	2017																								2018																								2019																											
MES	JULIO				AGOSTO				SEPTIEMBRE				OCTUBRE				NOVIEMBRE				DICIEMBRE				ENERO				FEBRERO				MARZO				ABRIL				MAYO				JUNIO				JULIO				AGOSTO				SEPTIEMBRE				OCTUBRE				NOVIEMBRE				DICIEMBRE				ENERO			
No. MES	MES 1				MES 2				MES 3				MES 4				MES 5				MES 6				MES 7				MES 8				MES 9				MES 10				MES 11				MES 12				MES 13				MES 14				MES 15				MES 16				MES 17				MES 18				MES 19			
SEMANA	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
ELABORACION INSUMOS PEDIALES	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	15	15	15		15	8																																														
REVISION DE INSUMOS INTERVENTORÍA		10	10	10	10	10	10	10	10	10	10	10	10	12	12	12	12	12	12	12	15	15	15		15	15	2																																																	
APROBACIÓN DE INSUMOS INTERVENTORÍA			5	5	5	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	13	13	13		13	13	13		13	13	13	13																																												
ELABORACIÓN AVALÚO					8	8	8	8	8	8	8	8	8	8	10	10	10	12	12	12	12	12	12		12	12	12		12	12	12	13																																												
REVISIÓN AVALÚO - INTERVENTORÍA									8	8	8	8	8	8	8	8	8	8	10	10	10	10	10		10	10	10		10	10	10	10	10	10	10	11																																								
APROBACIÓN AVALÚO																													8	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10																
ELABORACION OFERTAS FORMALES DE COMPRA Y NOTIFICACION									2	2	2	2	4	4	4	4	4	4	4	4	8	8	8		8	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5																							
ENAJENACIÓN VOLUNTARIA DIRECTA- PREDIOS SIN PROBLEMAS JURIDICOS													1	1	1	1	1	1	1	1	8	8	8		8	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5																														
EXPROPIACIÓN																					1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																								
SANEAMIENTO PREDIAL - PREDIOS CON PROBLEMAS JURIDICOS																																																																												

	CONSEJONARIA:		ESTUDIOS Y DISEÑOS DEFINITIVOS FASE III DEL CONTRATO 015 DE 2015: FINANCIACIÓN, CONSTRUCCIÓN, REHABILITACIÓN, MEJORAMIENTO, OPERACIÓN Y MANTENIMIENTO Y REVERSIÓN DEL CORREDOR RUMICHACA - PASTO, SUSCRITO ENTRE LA ANI Y LA CONSEJONARIA VIAL UNIÓN DEL SUR S.A.S.		INTERVENTORIA		AGENCIA NACIONAL DE INFRAESTRUCTURA	FECHA	VERSION	MODIFICACIONES	CONTIENE: PROGRAMACIÓN ENTREGA DE INSUMOS PEDIALES UF4 Y UF5.
	REPRESENTANTE DE LA CONSEJONARIA LUIS ALBERTO CASTILLO							DIRECTOR DE ESTUDIOS Y DISEÑO JOSE IGNACIO SANZ DELGADO	DIRECTOR DE INTERVENTORIA DIEGO BENAVIDES JURADO	PROYECTO: PREDIAL CVUS	

UF1



101	Número de equipo	101	LIC-AMBIENTAL
TR-800	WBS Identificación de actividad	102	DISPONIBILIDAD PREDIAL
Z-10	ZONA	103	EXCAVACIÓN
		104	TERRAPLEN
		105	ESTRUCTURAS
		106	MUROS SUELO REFORZADO
		107	MUROS CONCRETO
		108	BOX
		109	DRENAJE
		110	ZONA
		111	

Agencia Nacional de Infraestructura

CONCESIONARIA:
 REPRESENTANTE DE LA CONCESIONARIA:

Unión del Sur

ESTUDIOS Y DISEÑOS DEFINITIVOS FASE III DE LA UNIDAD FUNCIONAL 1, DEL CONTRATO 015 DE 2015: FINANCIACIÓN, CONSTRUCCIÓN, REHABILITACIÓN, MEJORAMIENTO, OPERACIÓN Y MANTENIMIENTO Y REVERSIÓN DEL CORREDOR RUMICHACA - PASTO, SUSCRITO ENTRE LA ANI Y LA CONCESIONARIA VIAL UNIÓN DEL SUR S.A.S.

ESTUDIOS Y DISEÑO:

CONSORCIO SH

INTERVENTORIA:

HVM CONSULTORIA

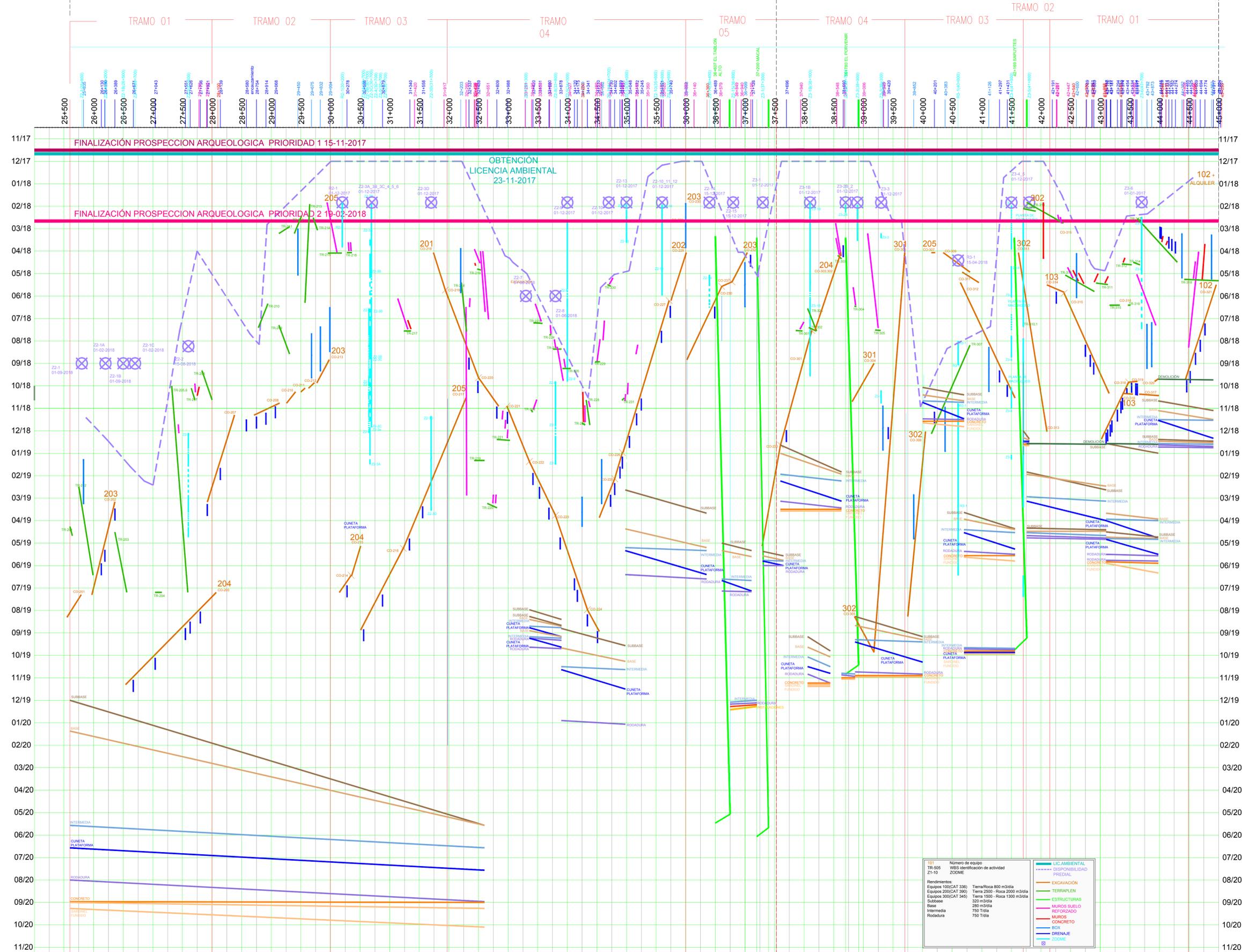
AGENCIA NACIONAL DE INFRAESTRUCTURA:

FECHA	VERSION	MODIFICACIONES

CONTIENE:
ESPACIO TIEMPO CON DISPONIBILIDAD PREDIAL

UF2

UF3



101	Número de equipo	— LIC. AMBIENTAL
TR-505	WBS identificación de actividad	— DISPONIBILIDAD PREDIAL
Z1-10	ZODIME	— EXCAVACIÓN
		— TERRAPLEN
		— ESTRUCTURAS
		— MUROS SUBREFORZADO
		— MUROS CONCRETO
		— BOX
		— DRENAJE
		— ZODIME

MINISTERIO DE TRANSPORTE

ANI Agencia Nacional de Infraestructura

CONCESIONARIA:

REPRESENTANTE DE LA CONCESIONARIA:

JULIAN BARRERA VILLAMIZAR

Unión del Sur

ESTUDIOS Y DISEÑOS DEFINITIVOS FASE III DE LA UNIDAD FUNCIONAL 1, DEL CONTRATO 015 DE 2015: FINANCIACIÓN, CONSTRUCCIÓN, REHABILITACIÓN, MEJORAMIENTO, OPERACIÓN Y MANTENIMIENTO Y REVERSIÓN DEL CORREDOR RUMICHACA - PASTO. SUSCRITO ENTRE LA ANI Y LA CONCESIONARIA VIAL UNIÓN DEL SUR S.A.S.

ESTUDIOS Y DISEÑO:

CONSORCIO SH

DIRECTOR DE ESTUDIOS Y DISEÑO:

JOSÉ IGNACIO SANZ DELGADO

INTERVENTORIA:

HMV CONSULTORIA

DIRECTOR DE INTERVENTORIA:

DIEGO BENAVIDES JURADO

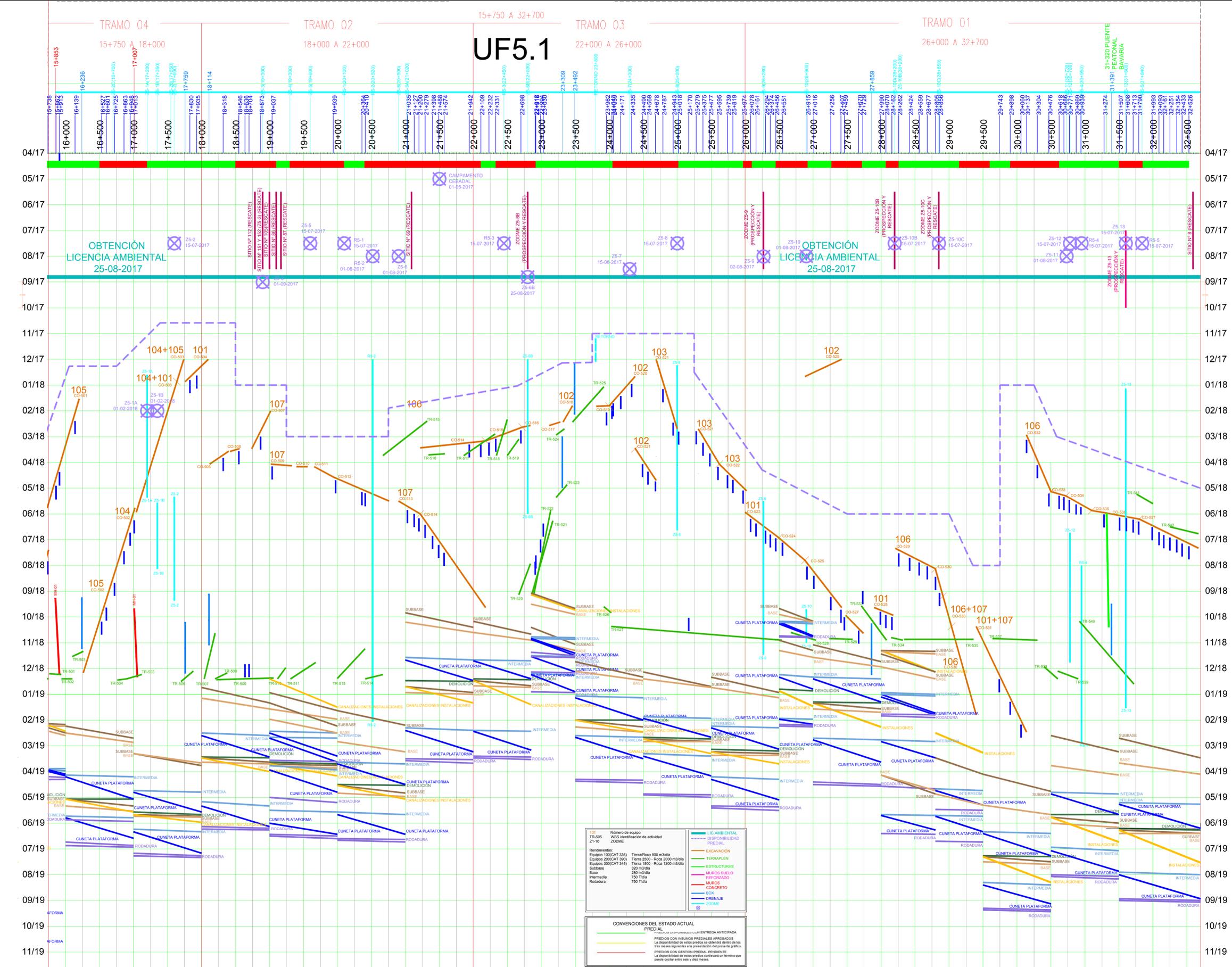
AGENCIA NACIONAL DE INFRAESTRUCTURA:

FECHA	VERSIÓN	MODIFICACIONES

CONTIENE:

ESPACIO TIEMPO CON DISPONIBILIDAD PREDIAL

DIBUJO: _____ FECHA: AGOSTO DE 2017 ESCALA: 0 PLANO No. CSH-G-PR-PF-CR-G-0004-4



101	Número de equipos	— LIC AMBIENTAL
TR-505	WBS identificación de actividad	— DISPONIBILIDAD PREDIAL
ZONE	ZONE	— ZONE
Recursos: Equipos 100(CAT 336) Tierra/Roca 800 m3/día Equipos 200(CAT 380) Tierra 2000 - Roca 2000 m3/día Equipos 300(CAT 345) Tierra 1500 - Roca 1500 m3/día Subbase 300 m3/día Base 300 m3/día Intermedia 750 Tola Rodadura 750 Tola		
CONVENIONES DEL ESTADO ACTUAL PREDIAL: PREDIAL CON ENTREGA ANTERIOR A LA ENTREGA ANTICIPADA PREDIAL CON INDICADORES PREDIALES APROXIMADOS La disponibilidad de estos prediales se muestra dentro de los tres meses siguientes a la presentación del presente gráfico. PREDIAL CON GESTIÓN PREDIAL PENDIENTE La disponibilidad de estos prediales confirmará un término que puede variar entre seis y diez meses.		

MINISTERIO DE TRANSPORTE

CONCESIONARIA:
 REPRESENTANTE DE LA CONCESIONARIA:

 JULIAN BARRERA VILLAMIZAR

ESTUDIOS Y DISEÑOS DEFINITIVOS FASE III DE LA UNIDAD FUNCIONAL 1, DEL CONTRATO 015 DE 2015: FINANCIACIÓN, CONSTRUCCIÓN, REHABILITACIÓN, MEJORAMIENTO, OPERACIÓN Y MANTENIMIENTO Y REVERSIÓN DEL CORREDOR RUMICHACA - PASTO, SUSCRITO ENTRE LA ANI Y LA CONCESIONARIA VIAL UNIÓN DEL SUR S.A.S.

ESTUDIOS Y DISEÑO:

 DIRECTOR DE ESTUDIOS Y DISEÑO:
 JOSÉ IGNACIO SANZ DELGADO

INTERVENTORIA:

 DIRECTOR DE INTERVENTORIA:
 DIEGO BENAVIDES JURADO

AGENCIA NACIONAL DE INFRAESTRUCTURA

FECHA	VERSIÓN	MODIFICACIONES

DIBUJO: _____ FECHA: OCTUBRE DE 2017 ESCALA: 0 _____ PLANO No.: CSH-G-PR-PF-CR-G-0004-4

CONTIENE: ESPACIO TIEMPO CON DISPONIBILIDAD PREDIAL