



OUTLOOK BUDGET
FISCAL YEARS 2017 – 2019
FACILITIES OPERATIONS
NOAO-S

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February 15, 2016

NOAO-S Facilities Operations

Executive Summary

In this report we present a forecast of the annual budgets of the NOAO-S Facilities Operations Department (hereafter Facilities Operations) for fiscal years 2017 – 2019.

Facilities Operations maintains the common infrastructure on the AURA recinto (including the recinto hotel) in La Serena and the AURA-Observatory near Vicuña, i.e. telescopes and facilities located on Cerros Tololo and Pachón. Over the last few years NOAO has been working on improving the services provided by the NOAO-S Facilities Operations department. As part of this process a significant number of upgrade and improvement projects were defined and a robust maintenance program is being developed. Several of these upgrade and improvement projects have been included in the FY2016 plan and budget, while others are planned for FY2017 and beyond. In addition, in some areas the need for extra staff, and/or staff with a different skill set has been identified, as well as the need for regular training of staff, to keep up with safety and health regulations.

Implementing these upgrades and improvements has led to significant increases in the Facilities Operations annual budget and spend plan over the last few years. In view of these recent increases, and because several of the upgrades and improvements are planned to occur in the coming few years, it is appropriate to present a forecast of the annual budgets for the fiscal years 2017 – 2019. This forecast is not meant to define exact budgets for the years FY2017, FY2018 and FY2019. It is however intended as a guideline for the Facilities Operations group when working out the detailed budget each year. It will also enable the programs and smaller tenants to be aware of and become involved in the planning for the coming years.

The forecasts for the FY2017, FY2018 and FY2019 base budgets are: 2159 MCLP, 2337 MCLP and 2477 MCLP, whereas the base budget for FY2016 is 1802 MCLP. To include cost for additional staff and non-payroll expenditures the base budgets for FY2017 and FY2018 increase by 19.8% and 8.2% respectively compared to the proceeding year. Barring unforeseeable circumstances, from FY2019 the base budget is planned to be constant in purchasing power, increasing with inflation and payroll increases only.

The total budgets for FY2017, FY2018 and FY2019 are expected to be 2434 MCLP, 2570 MCLP and 2725 MCLP, compared to 2097 MCLP total budget for FY2016. These include the budget for upgrade and improvement projects. As far as the upgrade and improvement projects are concerned, we expect to be in a stable situation already in FY2018, unless the programs decide that major road repair is necessary. A five-year plan will be developed in FY2017.

NOAO-S Facilities Operations

1. Introduction

The NOAO-S Facilities Operations Department (Facilities Operations) maintains the common infrastructure for AURA-O and the programs and smaller tenants present on the AURA-O properties, in La Serena and near Vicuña. This includes road maintenance, maintenance of the common electric power systems, water and wastewater systems and the communication system, which includes the radio communication with and on the mountain and the telephone service. Facilities Operations also manages the restaurant and hotel facilities on the two mountaintops as well as the hotel service on the La Serena recinto. Finally, the Facilities Operations department oversees the guard service, reception and the transportations services. A detailed description of the services provided by or supervised by the Facilities Operations department can be found in the Service Level Agreement July 22, 2014. Included in the services, but under direction of the NOAO-S safety engineer, is the emergency medical service.

The department operations costs are fully recovered through charges to the programs and visiting astronomers. The charges for the services are calculated annually on the basis of the yearly budget and a cost-sharing model agreed upon by the programs. Departmental overhead is distributed over the cost centers in terms of percentage of the budget per cost center. Services provided internally, to other groups within the NOAO-S Facilities Operations Department, are charged an internal rate to avoid double charging of overhead in the cost center using the service. Indirect costs associated with the NOAO Director's Office and Business Administration charged to NOAO by AURA CAS and AURA HR are added to direct costs. In FY2015 and FY2016 this rate was 5.5%, representing the "All-sites" portion of NOAO General and Administrative (G&A) rate charged to externally funded projects. All NOAO rates are developed with the assistance of AURA-CAS and submitted to NSF for approval on an annual basis. For all administrative and operational activities in Chile, direct accounting is in Chilean Pesos (CLP). Correspondingly, all monetary figures in this report are in CLP and, charges for the services are calculated and charged in CLP.

The budget is primarily based on the previous year's budget and other long-term experiential data regarding costs for goods and services in Chile. An adjustment for inflation is made each year, along with discretionary corrective adjustments to the budgets for specific services. For FY2017, FY2018 and FY2019 budget forecasts we assume an inflation of 6%, for both payroll and non-payroll. Payroll increases are determined by the AURA-O collective negotiations, and depend in part on the local labor market and other external factors. The inflation of 6% is a conservative assumption, based in part on the fairly high inflation of the last few years, 4.6% in 2014 and 4.4% in 2015. The other consideration for adopting a conservative inflation factor is that when inflation is high, the collectively negotiated salary increases tend to be on the high end as well. In addition, traditionally, when the exchange rate for US dollars to Chilean pesos has been high, as it has been during the past year, the union has argued for a considerable salary increase. Note: the assumed inflation correction will be adjusted each year, to reflect the actual situation at the time the budget is prepared.

Planned improvement and upgrade projects are also included in the budget,, necessary to make the infrastructure more robust and to improve maintenance of the infrastructure. In addition, it has become clear that significant road maintenance will be required over the next few years. In Section 2 and 3 we discuss the projects and maintenance planned for the coming years and the budget projection that comes with this work. The forecasts for the FY2017, FY2018 and FY2019 budgets are discussed in Section 4.

NOAO-S Facilities Operations

Maintenance of the dirt road to Cerro Tololo and Cerro Pachón, and the cost of this maintenance will be discussed in depth in a separate document, as this will be handled as a separate project.

2. Recovering a strong basis

Since about 2000, when cost sharing between the programs commenced and AOSS was established, the budget for non-payroll and in particular staffing was decreased significantly, whereas the areas that were maintained by AOSS increased, sometime by about 1/4. For example, the Facilities Operations group used to maintain the road to Tololo and the secondary road to Quebrada San Carlos. With the arrival of Gemini and SOAR the roadwork extended to Cerro Pachón, adding 14 km of main road and about 22 km of secondary road to enable maintenance of the power lines to Pachón, from Quebrada San Carlos to Cerro Pachón. At the same time, the team maintaining the road, decreased from 4.5 FTE to 1.5 FTE. The same has been the case in other areas and as a result some of the maintenance was deferred, and improvement projects were postponed.

At the start of FY2010, i.e. October 2009 the Facilities Operations department was reincorporated into NOAO-South. Since then an effort has been made to improve services, re-establish a vigorous maintenance plan and to carry out improvement projects to catch up on maintenance. In doing so, it became clear that there are some weaknesses in the departmental staffing: the department is understaffed in some areas; in some areas there is a need for a different skill sets; and, in most areas training of staff is necessary. In addition, it was found that a stock of critical spares is not maintained for all areas, , nor is equipment, such as the vehicle fleet, renewed on a regular basis.

2.1. Additional staff

To strengthen the department we have created a staff development plan for the coming few years. We will be hiring a few extra staff members, to cover different skill sets or to simply increase the effort. In Figure 1 an organizational chart is presented, with positions rather than names of current staff. The year of hiring is listed for the new positions.

The positions being filled in FY2016 include a senior electric engineer, a civil engineer and an extra heavy equipment operator. These positions will strengthen the basic infrastructure group, especially in the area of electric systems and roadwork. In FY2017 we plan to hire an additional janitor, who will be spending most of his/her time on the mountain, and we will hire an administrative assistant specialized in cost analysis and budgets. The administrative assistant will also oversee the process of invoicing programs.

The electric engineer arrived in December 2015. His first priority is to refurbish the Tololo powerhouse to ensure robustness in the systems providing commercial power to Cerro Tololo. All costs related to the refurbishment of the Tololo powerhouse, including the effort of the electric engineer are directly paid for by NOAO. Before the end of FY16, his efforts will move from the Tololo powerhouse to other electric areas, such as the stability of the incoming commercial power, and the electric system in La Serena. In FY2018 his efforts will be fully focused on common electric systems.

NOAO-S Facilities Operations

2.2. Training and certifications

The staff development plan also includes training for staff and certifying some of the staff to comply with Chilean health and safety regulations. Examples are training of the electric technicians and gasfitters, to enable the staff to be SEC certified professionals. The SEC, Superintendencia de Electricidad y Combustibles or Energy Superintendence, is the Chilean governmental organization responsible for supervising compliance with laws, regulations and technical standards in the energy sector.

The FY2016 base budget included 13.5 MCLP for training, including management training for group heads, training of the emergency brigade and training of electric technicians. In FY2017 and beyond, we plan to maintain at least this level of funding for training, to allow for staff to become SEC certified professionals and to keep up with current rules and regulations.

2.3. Regular renewal of equipment

As part of the maintenance plan, a list of critical spares and a plan for regular renewal of equipment has been compiled. Examples are spares for the Tololo water system, whereby water is pumped from the well, through a series of three water tanks to the summit of Cerro Tololo. Spares are particular critical when long lead times are involved. Regular renewal of the vehicle fleet will be included in the budget as well, to ensure safe travel for staff to and from the mountain, including travel in winter conditions and travel on the secondary roads for maintenance of the water system or the power lines.

3. Additional budgetary considerations

3.1. Transport to Cerro Tololo

Included in the non-payroll expenditures to be added to the base budget from FY2017 onward is the cost for transport of the Tololo based staff, directly to Cerro Tololo. Currently there is a bus service from La Serena directly to Cerro Pachón. Tololo based staff transfer to smaller vehicles at El Quisco, and on the return trip, wait at El Quisco for the bus to come down from Cerro Pachón. The Tololo based staff has (strongly) requested to modify the transportation service, so that they also have transport directly to their place of work. We are in the process of contracting such a service, most likely a service that will be combined with the carry-all service. However, this does imply an extra cost for the Tololo based departments, such as the CTIO TelOps department and the NOAO-S Facilities Operations department.

3.2. Severance pay

The FY2016 budget included a line item “severance pay” (*finiquito*) in view of several staff retirements. As per collective negotiation agreement of AURA-O, a substantial allowance is paid when employees leave the organization. It is therefore prudent to budget for these expenditures. In FY2016 this item was budgeted under “Regular Projects” and is recovered through the Mountain Share Charge. From FY2017 onward it will be included as general overhead, i.e. as part of the base budget.

NOAO-S Facilities Operations

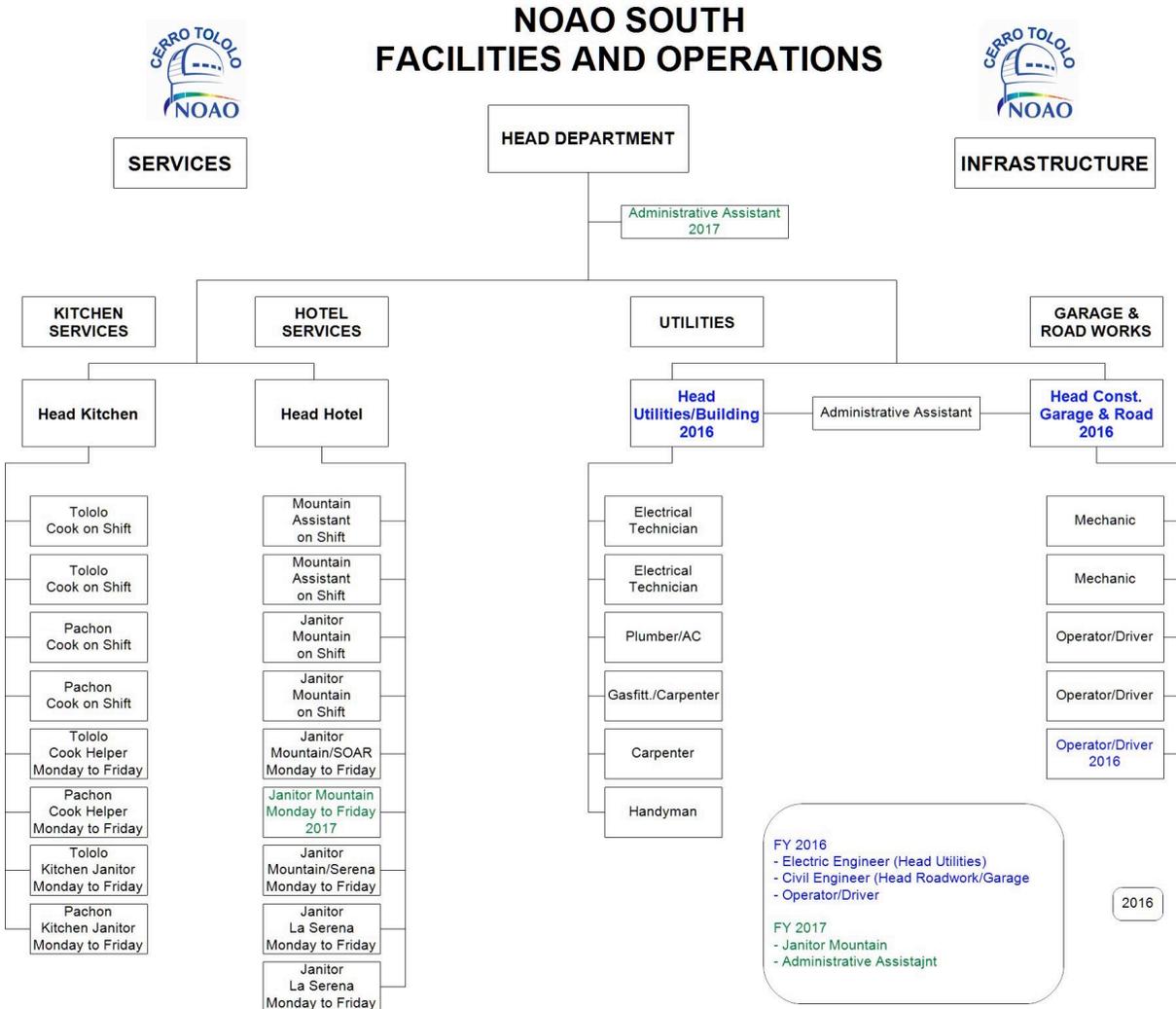
4. Budget Forecasts

In Table 1 the forecast for the years FY2017, FY2018 and FY2019 are presented. Included in this table is the FY2016 budget, split up in base budget and the budget for regular projects. The base budgets for FY2017 and FY2018 will be increased stepwise to include the extra staff and non-payroll expenditures as discussed above, and are expected to be stable in purchasing power from FY2019 onward. An inflation of 6% for payroll and non-payroll has been assumed.

In addition to the base budget, each year an additional budget will be presented for upgrade and improvement projects, which, even with a rigorous maintenance program, will continue to be necessary. We also plan to carry out road repairs, improving the worst 5% of the road. This would be replacing or installing culverts in the road, repair of the guard rail damaged in the March 2015 storm or installing nets along the road to Cerro Pachón, to prevent rocks from falling onto the road. In the FY2018 and FY2019 we expect to be able to limit the budget of the upgrade and improvement projects to 10% of the base budget. Roadwork will continue to be the major focus, but there will be projects in other areas of the infrastructure. A five-year plan will be developed in FY2017, and each year a list of projects will be presented as part of the budget report.

NOAO-S Facilities Operations

Figure 1: NOAO-S Facilities Operations Department Org Chart



NOAO-S Facilities Operations

Table 1: Budget forecasts for FY2017, FY2018, FY2019
The FY2016 base budget and budget for regular projects are included for completeness.

FY16	% of base	CLP	Increase	Comments
FY16 Base		1,802,000,000		
FY16 Projects	16.37%	295,000,000		
FY16 Total		2,097,000,000		

FY17	% of base	CLP	Increase	Comments
FY16 Base+6%		1,910,120,000		
Extra Staff		154,000,000		50% Electric Engineer & Admin Assistant, Civil Engineer, Operator, Janitor
Extra Non-Payroll		95,000,000		Equipment & vehicle fleet, Severance, Bus
FY17 Base		2,159,120,000	19.82%	
FY17 Projects	12.74%	275,000,000		In FY17 concentrate on road improvements & repair
FY17 Total		2,434,120,000	16.08%	

FY18	% of base	CLP	Increase	Comments
FY17 Base+6%		2,288,667,200		
Extra Staff		48,000,000		50% Electric Engineer & Admin Assistant
Extra Non-Payroll		-		
FY18 Base		2,336,667,200	8.22%	
FY18 Projects	10.00%	233,666,720		e.g. large equipment renewal, road repairs etc
FY18 Total		2,570,333,920	5.60%	

FY19	% of base	CLP	Increase	Comments
FY18 Base+6%		2,476,867,232		
Extra Staff		-		
Extra Non-Payroll		-		
FY19 Base		2,476,867,232	6.00%	
FY19 Projects	10.00%	247,686,723		e.g. large equipment renewal, road repairs etc
FY19 Total		2,724,553,955	6.00%	