

# NOAO-S Facilities Operations

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## FY2017 Q1 Progress Report

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### Executive Summary

This is the progress report of the NOAO-South Facilities Operations department for the first quarter of fiscal year 2017, FY2017 Q1. The total planned quarterly budget was 561 MCLP, not taking into account larger expenses or seasonal variations. FY2017 Q1 expenditures added up to a total of 508 MCLP, 9% lower than budgeted. Total revenues were 595 MCLP, 6% more than budgeted, resulting in a surplus of 87 MCLP in the first quarter. Note, this includes a 22 MCLP surplus in the project cost centers.

After a brief introduction, we discuss the accomplishments of the department in FY2017 Q1 in Section 2. In Section 3 we discuss the financial status of the department, starting with a summary, followed by comments on the finances per revenue stream: mountain share charges, per-use charges and census charges. Details of the finances status are presented in the appendix.

This progress report is complemented with a report on the status of the FY2016 and FY017 projects: *Status of FY2017 & FY2016 Projects, March 2017*. Both reports, as well as the FY2017 budget report are posted on the NOAO-S Facilities Operations website<sup>1</sup>.

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<sup>1</sup> [www.ctio.noao.edu/noao/content/Reports-and-documentation](http://www.ctio.noao.edu/noao/content/Reports-and-documentation)

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## 1. Introduction

The NOAO South Facilities Operations department is responsible for operations, maintenance and long-term stewardship of physical infrastructure shared by the facilities hosted by AURA-Observatory (AURA-O) in Chile. This includes support buildings, housing, hotel and kitchen facilities and miscellaneous other facilities in La Serena and on Cerro Tololo and Cerro Pachón.

A plan and budget are prepared on an annual basis, with a detailed budget for each cost center. Progress and finances are tracked on a monthly basis, and at the end of every quarter a progress report with the financial status and a brief update on work carried out by the department is presented to the programs and other clients. This report is the quarterly report for the first quarter of fiscal year 2017, FY2017 Q1.

Each year the department also plans for and executes several upgrade and improvement projects, as part of a major program to improve safety and services in all areas of the Facilities Operations department. Progress on those projects and the financial status of the associated cost centers is presented in a separate document, *“Status of FY2017 & FY2016 Projects, March 2017”*.

## 2. Accomplishments during Q1 of FY2017

In this section we discuss the Q1 accomplishments of the NOAO-S Facilities Operations department that are not covered by the project status report mentioned in the previous Section. For descriptive purposes these accomplishments are divided between milestones, planned for in the NOAO Program Operations Plan FY2017 (NOAO POP FY17) and additional projects that are part of regular operations, including regular maintenance projects.

### 2.1. Milestones

In Table 1 we list the FY2017 milestones presented in the NOAO POP FY17. In the table we include a brief comment on progress made on each of those milestones. In the first quarter significant progress was made, with five of the fourteen milestones completed.

The second milestone, “Implement training plan for kitchen staff”, should have been phrased differently, “Define training plan for kitchen staff”, or should have had as due date the end of FY2017, as this is a program that will take several months to complete. In the first quarter we defined the needs for the kitchen staff, met with three external consultants, experts in training of kitchen personnel and/or nutrition. We showed each of these consultants around on the mountain and, during their visit they had ample time to discuss the training needs and their training methods.

The delivery of the third milestone, a system to track and control kitchen food supplies, will be put to full use once kitchen training is completed, and modern stock control methods will be implemented.

With the completion of milestone number 2.6.4, installation of protection equipment on the medium-tension power lines on the mountain, another step was made towards the certification of the electric substations on Cerro Pachón and Cerro Tololo. The Cerro Pachón electric substation is being fenced off (a FY2016 project), while the Cerro Tololo electric substation is undergoing a major upgrade. The latter is financed through the NOAO No-Cost-Extension agreement.

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In Q1 of FY2017 several building improvements took place, which included renewal of part of the sewage system of the Hotel/Kitchen Tololo and painting of the outside of that same building, including varnishing doors and replacing room numbers. These improvements were captured in milestones 2.6.1 and 2.6.6.

Milestones in the area of road works include enlarging the parking area in front of the Hotel Pachón. The area was enlarged by 200 square meters, and will be covered with a layer of bischofite to suppress dust. Road signage was renewed and distance indicators were placed every kilometer, to allow users to better locate themselves on the road, in particular in case of problems.

A major project, which was one of the FY2016 projects, was called out as a FY2017 milestone because of its importance: the repair of the mountain road at km 30 (wash out) and km 27 (damaged retaining wall & culverts). In the first quarter the project was defined in detail, so that bids could be solicited.

Work on the last milestone, “implement system to track the department expenditures,” was started in the first quarter. The system was developed with CAS and once fully functional, with each of the group leaders in control of their finances, should help streamline the process of preparing quarterly and annual reports, as well as preparing the annual budgets.

## **2.2. Other projects and accomplishments**

During the year various other projects are carried out, smaller scale improvements or projects that are part of regular maintenance. In this section we present these accomplishments.

### **2.2.1. Transportation**

As of November 1, 2016 the service of a second bus was contracted to take daytime staff directly to Cerro Tololo. This extra service allows more daytime staff to make use of the bus, and brings the Tololo staff directly to their work place. The bus to Cerro Pachón continues to serve the Pachón based daytime staff. The seats freed up in the Pachón bus, because of the new service, have been distributed between LSST, SOAR and NOAO.

### **2.2.2. Road maintenance & heavy equipment**

In Q1 of FY2017 major maintenance and repairs were carried out on the road grader. This essential piece of equipment is aging and we should plan for renewal in the coming years.

As part of routine maintenance all culverts of the dirt road were cleaned out. This is a yearly recurrent job that is carried out by contracted personnel, working directly with one of the Facilities Operations staff members. In Q1 of FY2017 we also repaired damage done earlier in 2016 on the bridge at km 10.

### **2.2.3. Electric systems**

The equipment in the Tololo powerhouse is being modernized and renewed, a project funded by the NOAO no cost extension (NCE, funds from the prior AURA cooperative agreement with NSF to operate NOAO). This upgrade project generated several additional projects of which refurbishing part of the

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Tololo warehouse to house the new transformer and switchgear and the installation of fences were carried out in Q1 of FY2017. These additional projects were funded through the Tololo share cost centers.

In addition, two posts of the medium tension power lines were replaced at the entrance of the observatory grounds in Q1. The costs of which were shared between LSST (installation of the optical fibre project) and the Common mountain share cost centers.

## 2.2.4. Water supply system

Maintenance of two of the three pumps along the water supply system was carried out in Q1 of FY2017.

## 2.2.5. Hotels Tololo and Pachón

In Q1 of FY2017 several improvement projects were carried out in the hotels Tololo and Pachón: couches and sofas were outfitted with new cushions and curtains and blinds in hotel and dining room areas both on Tololo and on Pachón were renewed. Baths in some of the Tololo hotel rooms were renewed. Bathroom ceilings of rooms on Pachón were repaired and painted. Trees around the hotel Tololo were trimmed back. Heaters were cleaned and basic maintenance was carried out. Fire alarm sensors were replaced in hotel Pachón.

## 2.2.6. Communication system

As part of the upgrade of the radio communication system, a FY2016 project, the repeater located in La Serena was upgraded. This was funded through the All Staff All Site Census cost centers.

## 2.2.7. La Serena recinto

In Q1 of FY2017 the phone lines for guardhouses on the La Serena recinto were replaced to connect the guardhouses to the VOIP system.

In preparation for the summer months the quebrada next to the recinto fence was cleaned of shrubs and bushes, so as to create a natural firewall. In addition, part of the water pipes of the fire fighting system on the La Serena recinto were renewed, as were some of the fire hydrants.

## 3. Finances

For reference we will take one quarter of the FY17 annual budget, that is 561 MCLP, as the target for Q1, but will note where seasonal effects or large planned expenditures for scheduled projects, result in departures from a simple linear spending and revenue plan. Overall the revenue and expenditures of the NOAO-S Facilities Operations department are in good shape. Actual *Total Revenues* are higher than budgeted by 6%, while actual *Total Expenses* were under budget by 9.5%. The total surplus in the first quarter of FY2017 is 87MCLP, or 15% of the actual *Total Revenues*. This includes a 22 MCLP surplus in the project cost centers. Historical data shows that in the first half year, and in particular in the first quarter, expenses tend to be less than average, while expenses during the winter months are typically significantly higher than budgeted. End of year surpluses or deficits will be folded into the budget plan for the cost centers that generated the surplus/deficit.

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*Payroll* expenses are under budget by 18%, which is to be expected with benefits such as vacation bonuses and educational bonuses being paid out in the second and third quarter of the fiscal year. In addition, some of the open positions are still to be filled. Costs expensed under *Equipment & Building Leases* and under *Professional Services* were budgeted under *Contracted Services*, with the result that *Equipment & Building Leases* as well as *Professional Services* are over budget, whereas *Contracted Services* are under budget. These expenses will be moved in the FY2017 Q2 report so that expenses and budgets can be compared and, in FY2018 they will be budgeted under the correct expense codes.

## **3.1. Mountain Shares**

The mountain share cost centers include:

- Emergency medical service
- Guard service
- Road maintenance
- Communications
- Maintenance of the power lines
- Maintenance of the Tololo power house (Tololo share only)

### **3.1.1. Mountain share common to both mountains**

Revenues and expenditures for the common mountain share cost centers are on target. However, due to an administrative change for one of the electrical technicians, part of the labor recharge was not credited to the mountain share cost centers, resulting in an apparent overspend in *Payroll*. Costs expensed under *Equipment & Building Leases* and under *Professional Services* were budgeted under *Contracted Service*. These expenses will be moved in the FY2017 Q2 report; there is no net overspend. *NOAO-S Services*, i.e. services provided by the maintenance group and the garage were almost 30% higher than budgeted. This included work on the new policlinic on Cerro Pachón, roadwork and other projects.

### **3.1.2. Cerro Tololo share**

Revenues and expenditures for the Cerro Tololo share cost centers are on target, with the exception of *Supplies & Materials*. Problems with the generators, requiring extra maintenance and replacement of parts resulted in unbudgeted expenses of about 14 MCLP in *Supplies & Materials*. Costs expensed under *Professional Services* were budgeted under *Contracted Services* and this will be corrected in FY2017 Q2.

### **3.1.3. Cerro Pachón share**

Revenues and Expenditures are on target. Costs expensed under *Professional Services* were budgeted under *Contracted Services* and this will be corrected in FY2017 Q2.

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## 3.2. Per-use services

### 3.2.1. Meal service

In the first quarter of FY2017 fewer meals were sold than estimated, resulting in 5% less *Total Revenues* than budgeted. We expect this trend to continue during the second quarter, because of staff summer vacations. In the third quarter of the fiscal year we expect sales to go up as contractors and staff involved in the construction of LSST will start to make use of the dining facilities on the mountain.

Remodeling of the Tololo kitchen took place during FY2017 Q1, see also “Status of 2017 and 2016 Projects” and while a large part of this remodeling was budgeted in the project cost centers, it did impact the regular kitchen cost center, resulting in expenditures being higher than budgeted in *Supplies & Materials*, *Contracted Services* and in *NOAO-S Services* (maintenance group): about 30% higher in *Supplies & Materials* and more than double the amount budgeted for one quarter in *Contracted Services* and *NOAO-S Services*. *Contracted Services* included hiring of extra kitchen staff during the remodeling, to support the use of the temporary kitchen as well as food transport from the temporary kitchen facility to the dining area. Renewal of kitchen equipment was budgeted under *Capital Equipment*, but was expensed under *Supplies & Materials*. Water, electricity and gas, i.e. *Utilities*, of the temporary kitchen were charged to the Mountain Lodging account. This will be corrected in the report for FY2017 Q2.

The remodeling of the Pachón kitchen and dining facilities is planned for the last quarter of FY2017. The building will be enlarged such that the dining room will be sufficiently spacious to host all Pachón staff at breakfast and lunch hours. The kitchen facility will also be enlarged, to allow for a better kitchen layout. This project, which was budgeted for in the FY2016 projects, is expected to be significantly more costly than the Tololo kitchen renovation. Any extra costs, such as upgrade or renewal of equipment and meals for contractors will be expensed in the kitchen cost center, similar to the way such costs were handled for the Tololo kitchen renovation. Note that the kitchen cost center did run a surplus in FY2016, which will help cover the current overspend in the kitchen cost. These financial data will be reported on in a forthcoming document on FY2016.

### 3.2.2. Hotel service

- **Mountain lodging**

*Total Revenues* exceed the budgeted revenues by almost 9%. Expenditures in the areas of *Supplies & Materials*, *Contracted Services* and *NOAO South Services* are higher than budgeted, as several of the planned repairs, upgrades and annual maintenance of the mountain lodging facilities were carried out in the first quarter. *Utilities & Office Expenses*, on the other hand, are lagging behind, only 43% of planned budget spent, with gas for heating expected to increase cost during the Chilean winter.

Lodging on Cerro Pachón continues to include 16,201 CLP to pay off the AURA loan. As of December 31, 2016, an accumulated amount of US\$671,797 had been paid back leaving an amount outstanding on the AURA loan of US\$119,887.

- **La Serena lodging**

*Total Revenues* for the La Serena lodging cost center are on track, while the expenditures, in particular *Payroll*, *Supplies & Materials*, and *NOAO South Services* (mostly the Maintenance group) are expected to catch up when the La Serena lodging is moved from the current location to

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House 9. This move has been planned and budgeted for since FY2016, and the FY2016 carry-over will be available for this project as well.

### 3.2.3. Janitorial service

- **Mountain janitorial service**

Revenues and expenditures are on target.

- **La Serena janitorial service**

One of the La Serena janitors moved to the mountain, resulting in lower expenses under *Payroll*. The replacement janitor is hired on a temporary contract. These costs will show up in the FY2017 Q2 report under *Contracted Services*.

### 3.2.4. Water and sewage

- **Mountain water and sewage**

Estimates for water usage on Cerro Tololo and Cerro Pachón were based on FY2016 actuals. However, during the first quarter of FY2017 more water was used on both mountains, resulting in significantly more *Total Revenues*: water consumption on Cerro Tololo was more than 3 times higher than budgeted in FY2017 Q1 because of a leak in waterpipes of one of the Tololo telescopes and water usage on Cerro Pachón was 60% higher than budgeted, due to higher water consumption by LSST. The latter affects revenue in both the Mountain Water and Sewage cost center and the Water Transportation cost center. *Payroll* and other expenses are lagging behind in the Mountain Water and Sewage cost center, with major maintenance not taking place until the second half of FY2017.

- **Water transportation to Cerro Pachón**

As commented above, *Total Revenues* in this cost center were 60% higher than budgeted. Expenditures are on target.

- **La Serena water and sewage**

Revenues and expenditures for the La Serena Water and Sewage are on target, considering that maintenance on the system will take place in the second half of FY2017.

### 3.2.5. Maintenance group

Due to an administrative change for one of the electrical technicians, the cost center of the maintenance group was credited erroneously in *Payroll*, resulting in a surplus in this cost center. Revenues, both external (*Total Revenues*) and internal, i.e. work orders within the department (*A&F Internal Sales*) were on target by the end of FY2017 Q1, while expenditures in *Supplies & Materials* and *Travel Expenditures* were over budget by about 50%, this includes the meals of the electric technician, which were budgeted in the Electric maintenance cost center, part of the Mountain Shares. It also includes the fraction of the cost for the bus to Cerro Tololo corresponding to the maintenance group; this was not considered in the FY2017 budget, but will be included in the FY2018 budget.

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## 3.2.6. Garage

At the end of FY2017 Q1 the cost center Garage had a positive balance: the first quarter saw higher revenue than estimated, both external (*Total Revenues*), about 30% higher, and internal, i.e. work orders within the department (*A&F Internal Sales*), about 20% higher. Expenditures were on target.

## 3.3. Census charges

### 3.3.1. La Serena Census

The La Serena census cost centers include the La Serena guard service, maintenance of the common areas on the La Serena compound and the La Serena based communication services. *Total Revenues* are on target, while *Total Expenses* are 13% over budget.

In the first quarter of FY2017 telephone lines for the La Serena guards were renewed, connecting the guardhouses to the VOIP phone system. As a result, *Payroll* in the La Serena cost centers was higher than budgeted for one quarter: 2.8 MCLP instead of 1.7 MCLP. Furthermore, the La Serena communication system was upgraded, and the cost of this upgrade, budgeted under *Capital Equipment*, was charged to *Supplies & Materials*. Both these upgrades are one-offs, and the projection for the remainder of FY2017 is that the La Serena Census cost center will be on target.

### 3.3.2. All-Site, All-Staff Census

The cost centers financed by the All-Site, All-Staff census charges include the AURA reception in La Serena, which provides service to both La Serena and mountain facilities and safety in all areas that fall under the responsibility of the NOAO-S Facilities Operations department.

*Total Revenues* in the All-Site, All-Staff Census cost centers include the sale of one of the vehicles, and as a result are 13% over budget. This revenue will be used to replace one of the Facilities Operations vehicles. Expenses in the All-Site, All-Staff cost centers have been lagging behind the estimates for FY2017, except for *Payroll*. The latter is a result of labor charged incorrectly to these cost centers. This will be corrected in the FY2017 Q2 report.

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**Table 1. FY2017 Milestones**

Number	Milestone Text	Due Date	Status - Detail
2.6.1	Paint outside of hotel/restaurant building on Cerro Tololo.	31-Dec-16	Complete
2.6.2	Implement training plan for kitchen staff.	31-Dec-16	In progress. Bidpackage prepared and discussed with external consultants, who were also shown around on both mountains, to see the kitchens and meet with the kitchen staff. Proposals will be evaluated in February, and in March, after summer vacations, training of staff will start.
2.6.3	Implement system to track and control kitchen food supplies.	31-Dec-16	Complete. System developed, and in place. This system will be used together with the stock control system, which is part of the kitchen training/improvement plan under 2.6.2
2.6.4	Complete installation of protection equipment on medium-tension power lines on the mountain.	31-Dec-16	Complete
2.6.5	Upgrade fill system for water storage tanks on Cerro Tololo.	31-Mar-17	No progress
2.6.6	Repair or renew sewage system of hotel/restaurant building on Cerro Tololo.	31-Mar-17	Kitchen sewage system was upgraded as part of the kitchen renovation. Hotel part of the sewage system will be revised and if needed, will be upgraded in the second or third quarter of FY2017.
2.6.7	Repair roof of technician dorms on Cerro Tololo.	31-Mar-17	No progress
2.6.8	Repair roof of hotel/restaurant building on Cerro Pachón.	31-Mar-17	No progress
2.6.9	Enlarge parking area in front of hotel/restaurant building on Cerro Pachón.	31-Mar-17	Complete. Parking area was enlarged by 200 square meters.
2.6.10	Upgrade heating system of hotel/restaurant building on Cerro Tololo.	31-Mar-17	No progress
2.6.11	Upgrade heating system of hotel/restaurant building on Cerro Pachón.	31-Mar-17	No progress
2.6.12	Upgrade road signage.	31-Mar-17	Complete. Road signage has been upgraded. Distance indicators have been placed every kilometer along the way from the gate to both mountain tops. Other road signage have been replaced where needed.
2.6.13	Repair mountain road at the area around kilometer 30.	30-Jun-17	Bid package has been prepared.
2.6.14	Implement system to track department expenditures.	30-Sep-17	Work with AURA-CAS has started. Monthly financial reports will be prepared for the group leaders of the four areas of the department, including one for the NOAO-S safety engineer. In second quarter the group leaders will be trained in interpretation and usage of these reports.