

OPTIONS FOR LOCATING THE ALMA CENTRAL OFFICES IN SANTIAGO

**Report to the ALMA Board
by the
Joint ALMA Office**

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CONFIDENTIAL

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Approvals: None

Purpose: Information for the ALMA Board

INTRODUCTION

At the meeting of the ALMA Coordinating Committee (ACC) in Santiago, October 29-30, 2002, L. Bronfman conveyed an offer from the University of Chile of land on Cerro Calan for the site of the ALMA Central Offices (ACO). Cerro Calan is a hill in Las Condes, an eastern *barrio* of Santiago, where the University of Chile Observatory is located. Bronfman stated that the land would be free to ALMA, with a term of 50 years, and that in making the offer he was representing the Chilean astronomical community as well as his university.

Following this offer, C. Cesarsky reminded the ACC that ESO had always been prepared to offer land for the ACO in ESO's compound in Vitacura, another eastern *barrio* of Santiago.

The ACC asked the JAO to study the all options for the ACO – building on land from one of these two offers, building on another site, and leasing space.

REQUIREMENTS

ALMA does not have a well-developed up-to-date operations plan. The present approved plan, contained in the ALMA Project Plan, was adequate for early planning, but is not adequate to answer the many questions that are appearing with the start of construction. *Until a new Operations Plan is approved by the ALMA Board and better information is available, we will assume the requirements in the operations plan contained in the Project Plan.*

According the this plan, the ACO supports the following functions:

1. standard pipeline data reduction and data quality assessment;
2. maintenance of the joint ALMA data archive;
3. business and administrative functions;
4. relations with the government of Chile;
5. offices for staff scientists while not at Chajnantor;
6. Director's office.

A first-cut at the personnel requirements for these functions, made as part of the process of estimating ALMA operations costs, projects a staff of 53 for the ACO. The staff breakdown is as follows:

| | |
|-------------------------|----|
| Operations Managers | 5 |
| Administrative Services | 20 |
| Logistics | 3 |
| Observing Program Ops. | 3 |
| Data Management | 22 |
| Total | 53 |

A staff of 53 in these functional areas will require 1500 m² of space, largely offices, including common areas, plus parking. Conference rooms, an auditorium, additional offices for visiting scientists, etc., plus room for expansion could easily add another 500 m².

We have made our estimates of construction and leasing costs based on 2000 m² of space.

CONSTRUCTION COSTS

The cost of constructing a building will be roughly the same independent of location. To be sure, each site will have its specific requirements, and some sites may be more amenable to construction than others, thus reducing costs. But we have not included this in our comparison.

For information, the cost of construction in Las Condes or Vitacura is approximately 850(US\$) m⁻², or 1,700,000(US\$), equipped and furnished, but not including the land.

COST OF LAND

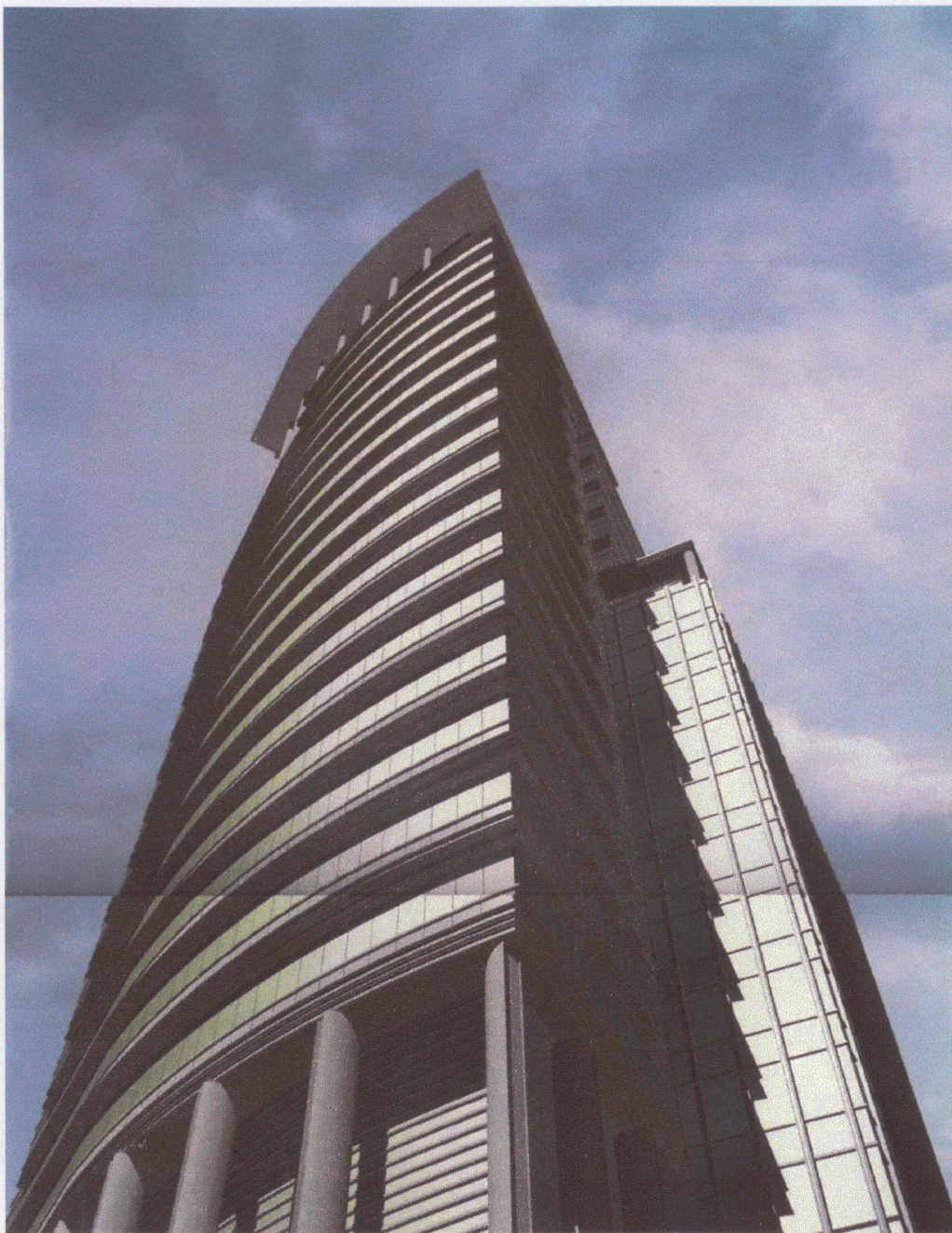
Land in Vitacura, Providencia, or Las Condes costs about 400 US\$ m⁻². Assuming a two-story building with a 1000 m² footprint, 50 parking spaces with total area of 2000 m², we arrive at a land requirement of 5000 m² maximum, allowing for room for proper siting of the building, landscaping, and expansion. This would cost about 2,000,000 (US\$).

It should be noted that the acquisition of ½ hectare of land in these regions of Santiago is not a trivial process. The parcel would likely be acquired in separate pieces by different third parties and assembled into a whole at the end. It takes one to two years to do this.

LEASING SPACE FOR THE ACO

Space is available for lease in the commercial real estate market in Santiago that would satisfy the ACO requirements. We were presented several possibilities for raw space that we could finish to our requirements, with parking, and basic maintenance. While the rental prices varied somewhat per unit area, typically it was about 400,000 – 500,000 (US\$) per year for the space we need. (This is very roughly consistent with the rule of thumb that monthly rent should be 1% of the cost of land and construction, plus profit.)

The façade of one of these rental properties, centrally located in Las Condes, is shown below.



o f i c i n a s

TORRE ORIENTE

a l o n s o d e c ó r d o v a 5 1 5 1

PURCHASING SPACE FOR THE ACO

The space in properties like Torre Oriente are available for purchase as well as lease. Space in this particular property was priced at 1000 US\$ m⁻². This is raw space, to be finished and furnished by ALMA to our requirements. The total purchase price is comparable to construction by ALMA of a building, 2,000,000 (US\$).

LOCATION AND PRICE

The price of land and purchased or leased space is also dependent on location. The same agency that presented Torre Oriente and other centrally located properties has informed us that in Huachuraba we would find prices to be lower. This is the area you see below the high road that goes through "Piramide" on the way to the airport from eastern Santiago. The area is more industrial in character.

For example, they claim that ALMA could buy land and construct a building ready to use, key in hand, for 780 US\$ m⁻². This includes both construction *and* land. Additional land could be added 300 US\$ m⁻². For the building envisioned, (2000 m² space with a 1000 m² on a 5000 m² parcel of land, the total cost is 2,760,000 (US\$).

COST COMPARISON

The costs are compared in the following table.

| Description | Cost US\$ | Comment |
|---|------------|---|
| Build land at ESO | 1,700,000 | Free land |
| Build on Cerro Calan | 1,700,000 | Free land |
| Build on land in Vitacura, Las Condes, or Providencia | 3,700,000 | Includes land and construction costs |
| Build on land in Huachuraba | 2,760,000 | Includes land and construction cost |
| Buy space in building located in Vitacura/Las Condes area | 2,000,000+ | Does not include finishing the space Annual maintenance fees in addition |

CONCLUSION

The least cost to the ALMA Project is incurred by building on one of the sites offered to ALMA free of charge. Huachuraba is the next least expensive location, although it has disadvantages of accessibility and ambiance. Buying space in an existing building or one under construction near the ESO and AUI offices is the next in line of cost. And building on a site the Project acquired near the ESO and AUI offices is the most expensive.