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## FISCAL IMPACT REPORT

ORIGINAL DATE 2/12/2007

SPONSOR Cravens LAST UPDATED \_\_\_\_\_ HB \_\_\_\_\_

SHORT TITLE Magdalena Ridge Observatory SB 779

ANALYST McOlash

### APPROPRIATION (dollars in thousands)

Appropriation		Recurring or Non-Rec	Fund Affected
FY07	FY08		
	\$250.0	Recurring	General Fund

(Parenthesis ( ) Indicate Expenditure Decreases)

### SOURCES OF INFORMATION

LFC Files

Responses Received From  
Higher Education Department (HED)

### SUMMARY

#### Synopsis of Bill

Senate Bill 779 appropriates \$250,000 from the General Fund to the NM Tech Regents for expenditure in FY 2008 for operation of the Magdalena Ridge Observatory (MRO) at NM Tech.

### FISCAL IMPLICATIONS

The appropriation of \$250,000 contained in this bill is a recurring expense to the General Fund. Any unexpended or unencumbered balance remaining at the end of FY 2008 shall revert to the General Fund.

#### Higher Education Department Analysis

An MRO administrator described the intent of SB779 as providing NMT and the MRO with partial support for its first year of operations. The MRO itself is being constructed with federal funding provided through the Naval Research Laboratories. This funding, however, cannot be used for operations and must come from other sources.

Another MRO administrator indicated that while the MRO will require operating funds for as long as the observatory is in service, it does not see the state government as a permanent funding source beyond the initial years. The MRO business model intends to raise money for its operating costs from various users of the facility once it is up and running. This funding will also go toward future expansion needs.

## SIGNIFICANT ISSUES

The Magdalena Ridge Observatory is located in the Magdalena mountains of Socorro county, central New Mexico near South Baldy peak and the Langmuir Laboratory for Atmospheric Research, some 30 miles west of the NMT campus. At an elevation of 10,600 ft. above sea level, it will be the fourth highest observatory in the world.

The following institutions are involved in the design and construction:

- New Mexico Tech
- University of Cambridge - Cavendish Astrophysics Group
- Los Alamos National Laboratory
- New Mexico State University
- New Mexico Highlands University
- University of Puerto Rico

The project is overseen by the United States Naval Research Laboratory.

A Los Alamos National Laboratory news release indicated that NM Tech is the lead institution in site development and infrastructure design for the MRO. New Mexico State University is in charge of designing and building instrumentation, offering its expertise in running a major observatory. New Mexico Highlands University is responsible for controls, system integration, and designing a spectrograph, a device that acts like a prism. The University of Puerto Rico will design and build adaptive optics and interferometers.

The observatory is primarily intended for astronomical research and will be composed of two facilities, a single 2.4-meter telescope and an array of optical/infrared telescopes called an interferometer.

The project is scheduled for completion in 2009. The 2.4-meter-diameter single telescope, a fast slewing telescope which can respond quickly to targets-of-opportunity, has first light in September 2006. The interferometer, which is composed of ten 1.4-meter telescopes, expects first light by 2008. The telescopes making up the interferometer will be spaced by distances of up to 400 meters. These telescopes are optically linked together in order to make images of astronomical objects with unprecedented detail.

With this interferometric technology, the telescopes will synthesize (i.e. simulate) the resolving power of a single telescope up to 400 meter in diameter and thus will be able to resolve objects with 100 times the resolution of the Hubble Space Telescope. The advantage of having a large

number of telescopes in the array is that the interferometer will be able to make accurate images of complex astronomical objects many times faster than other existing and planned interferometric arrays.

**OTHER SUBSTANTIVE ISSUES**



BM/csd