

## **CONCLUSIONS ON THE COMPLETENESS LEVEL OF FOIA-OBTAINED BUDGET INFORMATION FOR NASA PLANETARY SCIENCE DIVISION FY2017-FY2020**

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On March 2, 2021, I submitted to the Committee a document (210303\_mvvs\_foia\_psd\_budget.xlsx, hereafter PSD\_BUDGET) containing all of the information I have received in response to Freedom of Information Act requests over the past year to NASA to get the complete, detailed program-level budget breakdown of the NASA Planetary Science Division, spanning FY2017 through FY2020. I included budgetary information extending back to FY2009, also obtained through the FOIA process, regarding the budgets of individual planetary programs commonly competed in the Research Opportunities in Space and Earth Science (ROSES).

Within PSD\_BUDGET, I noted a number of programs, many solicited through ROSES, which were not included in the materials I received from the NASA FOIA office. I had assumed that any such program would have its own Work Breakdown Structure (WBS) code and corresponding budget in the NASA accounting system (RAPTOR). In response to my request for the missing information, the Government Information Specialist assigned to my case, Stephen Rowe (who has been very helpful), responded “The program office confirmed that the original report went down to its lowest level in RAPTOR (level 3, for reference), and to itemize under the names you provided would involve performing research rather than providing records.” This was an interesting response! It suggested that the budget information I was requesting for the “missing” programs was contained within the program budgets already sent to me. Did the listing of PSD programs and their budgets I provided in PSD\_BUDGET comprise the entirety of the PSD budget?

To test the hypothesis that I had complete information, I went to several years of Presidential Budget Requests for NASA to see if the budget information I had received could be tied out to numbers within those requests or whether there was evidence of some (I would expect systematic) level of funding shortfall.

Every year, the President submits a budget to Congress that contains the amount requested for the upcoming fiscal year and plans for the outyears. As illustrated in the FY2021 President’s budget request for the NASA Planetary Science Division (Appendix A), expenses for the current year (FY2020) are highly uncertain (especially if there is a Continuing Resolution), so largely blank. However, the prior fiscal year budget (in this case FY2019) is well understood from its ultimate Operating Plan and provided in the request.

I have extracted information from the President’s budget requests for FY2019 through FY2021 for the NASA PSD operating budgets for FY2017 through FY2019, respectively, to

compare with the FOIA-provided information for the same years and see if there are any significant discrepancies.

The results are presented in the attached document, foia\_comparison\_2017\_2019.xlsx (hereafter, COMP). I note that programs were excluded that had no reported funding in FY2017 thru FY2019. Presidential budget information is given in black, with the FOIA information provided in red. It shows that the FOIA-provided information ties out fairly closely to that obtained from Presidential budget requests. This supports the hypothesis that for FY2017-FY2019 and, by proxy, FY2020, there are no missing budget lines. The budgets of the “missing programs” in PSD\_BUDGET are not missing at all, but are imbedded in or across the various given budget lines.

#### *Implications for R&A Definition by the Decadal Survey*

None.

The proposed “Research and Analysis programs fund openly competed proposals for basic research and mission data analysis” requires no modification based on accounting structure. If the Decadal Survey were to decide that some or all Participating Scientists Programs satisfy this definition, and such a program (say “Mars Rover 2020 PSP”) was imbedded within the mission line “Mars Rover 2020”, it would behoove the agency to break out and identify that funding in its annual reporting of R&A expenses to support its continuing compliance with any Decadal funding recommendation. It might make sense to assign it a WBS number and include it in 203595 Mars Research and Analysis, analogous to 231402.02.07 GRAIL PSP in 231402 Discovery Research. Any directed research within a mission line would be excluded, of course, since it is not “openly competed”.

Compliance with Decadal recommendations cannot be asserted *ex cathedra*. NASA should be eager to share whatever information is needed to demonstrate to the community and public its commitment to these recommendations – or to make the case why such compliance is impractical or unreasonable under the circumstances. Knowing what needs to be done in advance and knowing that it will be repeated every year should be an incentive to set up a regular, if not automated process to generate a report for public consumption. Being purely reactive to FOIA requests is not efficient, but I can guarantee there will be continued FOIA requests as needed, by myself and others indefinitely. Given what has been learned over the past year, these can be refined to capture yet more granular information that is of value.

The importance of R&A programs to successfully advancing NASA’s mission has been explicitly articulated for decades by Academy panels and now the Decadal Surveys. It is clear that to embrace this, NASA needs explicit guidance from the Decadal Survey about what is and is not an “R&A” program (regardless of program or budget line name) and a demonstration of its application to existing program elements within the NASA Planetary Science Division budget. It is also clear that any recommendation to NASA include annual reporting requirements on the funding of all compliant R&A programs. For context, it would be useful for NASA to publish the entirety of its budget at a level of detail at least equivalent to PSD\_BUDGET (yes, including even “PSD Travel” and “Detailees”).

In the 1980s and 1990s, I recall NASA officials coming to meetings of the Division for Planetary Sciences of the American Astronomical Society and presenting detailed budget charts for various research and other programs. They showed past budgets (generally declining at the time) and their plans for future years (generally increasing), and discussed challenges, accomplishments and aspirations with meeting participants. This level of transparency created a real sense of “we are all in it together”, which has been long lost today. I really think that we can start recovering this if NASA can embrace more of a culture of transparency.

## APPENDIX A. President's FY 2021 Budget Request Summary for the NASA Planetary Science Division

National Aeronautics and Space Administration

### FY 2021 PRESIDENT'S BUDGET REQUEST SUMMARY

Budget Authority (\$ in millions)	Fiscal Year						
	Op Plan 2019	Enacted 2020	Request 2021	2022	2023	2024	2025
<b>Planetary Science</b>	<b>2,746.7</b>	<b>2,713.4</b>	<b>2,659.6</b>	<b>2,800.9</b>	<b>2,714.9</b>	<b>2,904.8</b>	<b>2,830.7</b>
<b>Planetary Science Research</b>	<b>276.6</b>	--	<b>305.4</b>	<b>288.6</b>	<b>285.1</b>	<b>295.2</b>	<b>286.7</b>
Planetary Science Research and Analysis	195.7	--	223.0	206.2	204.4	207.1	204.4
Other Missions and Data Analysis	80.9	--	82.4	82.4	80.7	88.1	82.3
<b>Planetary Defense</b>	<b>150.0</b>	--	<b>150.0</b>	<b>147.2</b>	<b>97.6</b>	<b>98.0</b>	<b>98.0</b>
DART	98.0	72.4	66.4	9.1	4.5	--	--
Other Missions and Data Analysis	52.0	--	83.6	138.1	93.1	98.0	98.0
<b>Lunar Discovery and Exploration</b>	<b>188.0</b>	--	<b>451.5</b>	<b>517.3</b>	<b>491.3</b>	<b>458.3</b>	<b>458.3</b>
<b>Discovery</b>	<b>409.5</b>	--	<b>484.3</b>	<b>424.4</b>	<b>434.8</b>	<b>570.1</b>	<b>505.8</b>
Lucy	165.5	210.8	153.4	63.7	16.5	18.6	22.9
Psyche	174.2	219.3	187.4	152.4	28.7	29.0	32.0
Other Missions and Data Analysis	69.8	--	143.5	208.3	389.6	522.5	450.9
<b>New Frontiers</b>	<b>93.0</b>	--	<b>179.0</b>	<b>314.3</b>	<b>332.8</b>	<b>326.9</b>	<b>285.0</b>
Dragonfly	8.0	--	95.8	198.8	291.4	288.7	208.9
Other Missions and Data Analysis	85.0	--	83.2	115.5	41.4	38.2	76.1
<b>Mars Exploration</b>	<b>712.7</b>	--	<b>528.5</b>	<b>588.4</b>	<b>671.2</b>	<b>798.7</b>	<b>855.3</b>
Mars Rover 2020	502.6	318.7	162.3	97.0	33.0	--	--
Other Missions and Data Analysis	210.1	--	366.2	491.4	638.2	798.7	855.3
<b>Outer Planets and Ocean Worlds</b>	<b>793.6</b>	--	<b>414.4</b>	<b>370.7</b>	<b>239.4</b>	<b>192.3</b>	<b>171.7</b>
Jupiter Europa	732.4	592.6	403.5	351.8	224.9	180.8	160.1
Other Missions and Data Analysis	61.2	--	10.9	18.9	14.5	11.5	11.7
<b>Radioisotope Power</b>	<b>123.3</b>	--	<b>146.3</b>	<b>150.1</b>	<b>162.8</b>	<b>165.4</b>	<b>169.8</b>