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Prepared for:
Michigan Aerospace Manufacturers Association
7205 Sterling Ponds Ct.
Sterling Heights, MI 48312

Prepared by:
BRPH Mission Solutions, Inc.
5700 North Harbor City Blvd. Suite 400
Melbourne, FL 32940

Vertical and Horizontal Business Case

1.0 Executive Summary

This report presents the high-level rough order of magnitude “input-output” economic impact of designing, engineering, building and operating infrastructures and facilities at the two spaceports proposed for the State of Michigan.

MAMA and the MLI promoters can use this economic impact analysis to first, further validate their return-on-investment metrics and second, to provide an initial “feasibility” framework for fund raising and capital formation primarily with the State of Michigan Public sector investors. The infrastructure and facilities to equip both spaceports signify a capital investment in real and fixed assets of \$289,250 million in the 10-year time period 2023-2032.

The use of the new build facilities could attract circa 30 new aerospace and space companies and 2,600 jobs with average yearly pay of \$92,500 and equipment and specialized capital expenditures of circa \$5,000,000 per company. The target tenants are envisioned to use the facilities and to generate a gross direct, indirect, and induced economic impact totaling \$13,2 billion in the 10-year period 2023-2032.

This report indicates a potential return of 40 times the investment in terms of economic impact to the State of Michigan.

Table 1. Economic Impact Analysis Overview MAMA-MLI 2023-2032

PERIOD YR		1 2023	2 2024	3 2025	4 2026	5 2027	6 2028	7 2029	8 2030	9 2031	10 2032	TOTAL (\$,000)	
INPUT	BRPH FACILITIES CAPEX \$(,000)											(289,250)	
	MICHIGAN ECONOMIC DEVELOPMENT \$(,000)												
OUTPUT	JOBS CREATED	650	850	1050	1250	1450	1650	1850	2050	2250	2660	2,660	
	AVERAGE \$/JOB	92,500	92,500	95,275	98,133	101,077	104,110	107,233	110,450	113,763	117,176	120,692	
	PAYROLL GROSS \$(,000)	60,125	80,984	103,040	126,347	150,959	176,934	204,332	233,215	263,647	321,039	1,720,621	
	ESCALATION	3%											
	CAPEX FROM INVESTMENTS												
	AVERAGE CAPEX PER COMPANY	5,000,000											
	INVESTED CAPEX \$(,000)	38,235	11,765	11,765	11,765	11,765	11,765	11,765	11,765	11,765	24,118	156,471	
	AVERAGE EMPLOYEES PER COMPANY	85											
	NUMBER OF COMPANIES	8	10	12	15	17	19	22	24	26	31	31	
	DIRECT GROSS OUTPUT MLI	MULTIPLE	98,360	92,748	114,805	138,111	162,724	188,699	216,097	244,980	275,411	345,157	1,877,092
	INDIRECT GROSS OUTPUT \$(,000)	2	196,721	185,497	229,609	276,223	325,447	377,398	432,194	489,959	550,822	690,314	3,754,184
	INDUCED GROSS OUTPUT \$(,000)	4	393,441	370,994	459,218	552,445	650,894	754,796	864,388	979,918	1,101,645	1,380,628	7,508,368
	TOTAL OUTPUT		688,522	649,239	803,632	966,779	1,139,065	1,320,892	1,512,678	1,714,857	1,927,879	2,416,100	13,139,643

2.0 Business Case Introduction

The Michigan Launch Initiative (MLI) is spearheaded by the Michigan Aerospace Manufacturing Association (MAMA) to develop commercial Space Launch capabilities and their associated business and industrial activities within the State of Michigan. The initiative has identified two locations within Michigan for launch operations, one horizontal and the other vertical. Oscoda-Wurtsmith Airport (OSC) has been identified as the Air and Space Port to support horizontal launch operations and Loma Farms located in Marquette County as the vertical launch site. Both locations are envisioned to host industrial and business parks, and technology R&D centers for businesses operating in support of launch activities at the spaceports.

Previous studies have identified and listed potential companies in several industry verticals that are expected to set up operations in and around the spaceports points of launch. The ecosystem of companies has been listed and outlined on previous studies that this update report supports.

The following charts outline a simplified business plan for the initial five years of licensing and launch site operations for both the horizontal and vertical launch sites. Each chart is broken into three sections: capital expenditures, operating expenses and revenue. Capital Expenditures are the costs for initial upgrades, repairs, renovations, and new infrastructure to support the users. Operating Expenses include the cost for operations, maintenance and launch site operator license. The Revenue section estimates the amount the operator could expect yearly from users.

3.0 Horizontal Analysis

This analysis assumes two initial users at the beginning of 2023 with additional users added in subsequent years. The capital expenditures category matches this assumption by including temporary facilities in 2023 with permanent facilities and commodity storage added each year to match the user’s needs.

Similarly, the Operating Expenses increase as additional facilities come online and users are added to the site. Additional users also drive the revenue with a gradual increase due to additional users and an expedited launch cadence for existing users. It is anticipated that users will be from both commercial and government sectors and span a wide range of vehicle types. It should be noted that the large investment seen in year four is the addition of processing and support facilities as users become permanent and a more concrete launch cadence is expected.

HORIZONTAL	Dollar (000)				
	2023	2024	2025	2026	2027
Capital Expenditures	(7,200)	(5,050)	(15,000)	(106,000)	(66,000)
Operations	(1,000)	(3,000)	(4,000)	(6,000)	(6,000)
Expenditure Sub Total	(8,200)	(8,050)	(19,000)	(112,000)	(72,000)
Revenue					
Commercial	1,921	3,709	9,247	17,001	19,737
Government	-	412	2,312	7,286	19,737
Revenue Sub Total	1,921	4,121	11,559	24,288	39,474
TOTAL	\$ (6,279)	\$ (3,929)	\$ (7,441)	\$ (87,712)	\$ (32,526)
Running Total	\$ (6,279)	\$ (10,208)	\$ (17,649)	\$ (105,361)	\$ (137,887)

4.0 Vertical Analysis

This analysis assumes a single user at the time of licensure with an increase of one or two users a year. As seen in the capital expenditures section the initial cost is significant in comparison to the horizontal analysis. The requirement for permanent infrastructure and facilities is needed before the first launch. Additional expenditures are shown over the following five years to build out additional capabilities for new users such as processing space and administration. Operations costs are also significantly more than those seen on the horizontal site. Items such as cryogenic storage, ground system equipment and electrical/communication equipment require constant maintenance. Revenue is anticipated to begin steady with an initial user and then grow to a multi-user commercial and government provider.

VERTICAL	Dollar (000)				
	2025	2026	2027	2028	2029
Capital Expenditures	(85,000)	(5,000)	(10,000)	(15,000)	(20,000)
Operations	(2,000)	(4,000)	(6,000)	(8,000)	(8,000)
Expenditure Sub Total	(87,000)	(9,000)	(16,000)	(23,000)	(28,000)
Revenue					
Commercial	-	3,500	2,625	4,375	14,000
Government	3,500	3,500	7,875	13,125	14,000
Revenue Sub Total	3,500	7,000	10,500	17,500	28,000
TOTAL	\$ (83,500)	\$ (2,000)	\$ (5,500)	\$ (5,500)	\$ -
Running Total	\$ (83,500)	\$ (85,500)	\$ (91,000)	\$ (96,500)	\$ (96,500)