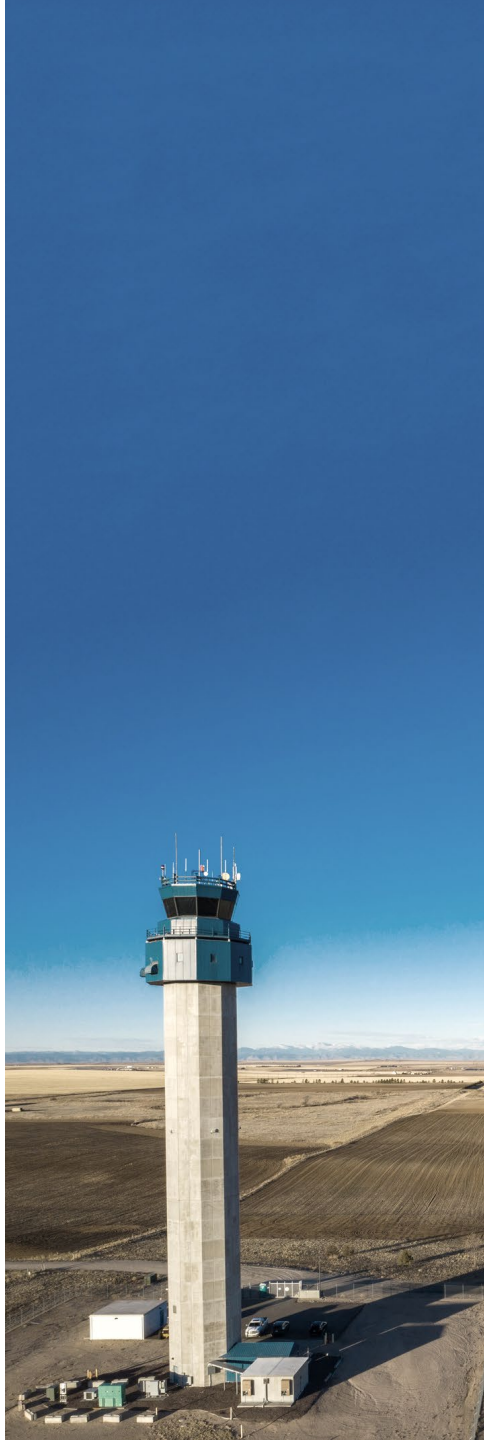
REGIONAL AEROSPACE PLANNING STUDY

SPAG

Kimley»Horn

AEROSPACE PLANNING RECAP

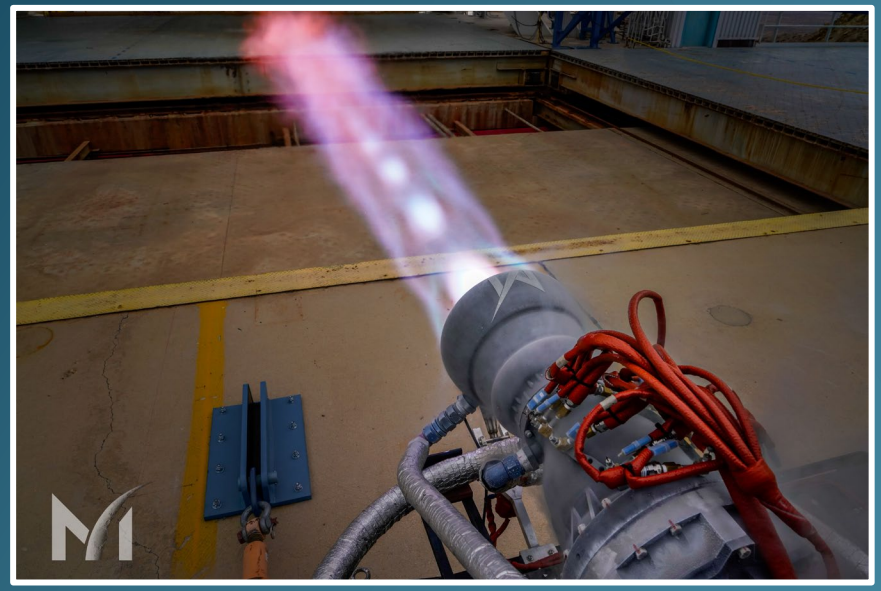
	Task	Progress	Note
Phases of Aerospace Planning	Concept Development	100%	CONOP Prioritization Complete
	Site Selection	70%	Criteria Selection, Preliminary Results
	Economic Analysis to Guide Aerospace Initiatives	50%	Market Potential Evaluation, National and Regional
Launch and Re-Entry Operations	Evaluating Options for Launch and Re-Entry Operations	90%	Operational Evaluation Matrices for Various CONOPs Considered and Included in Report
	Due Diligence for Compatible Operations and Locations	60%	Evaluation Criteria Analyzed in Detail for Further Recommendations
Regulatory Framework	Compliance with FAA Regulations and NEPA Environmental Assessments	20%	Regulatory Frameworks are Currently Being Evaluated Further



CONCEPT OF OPERATIONS RESULTS

Priority Ranking

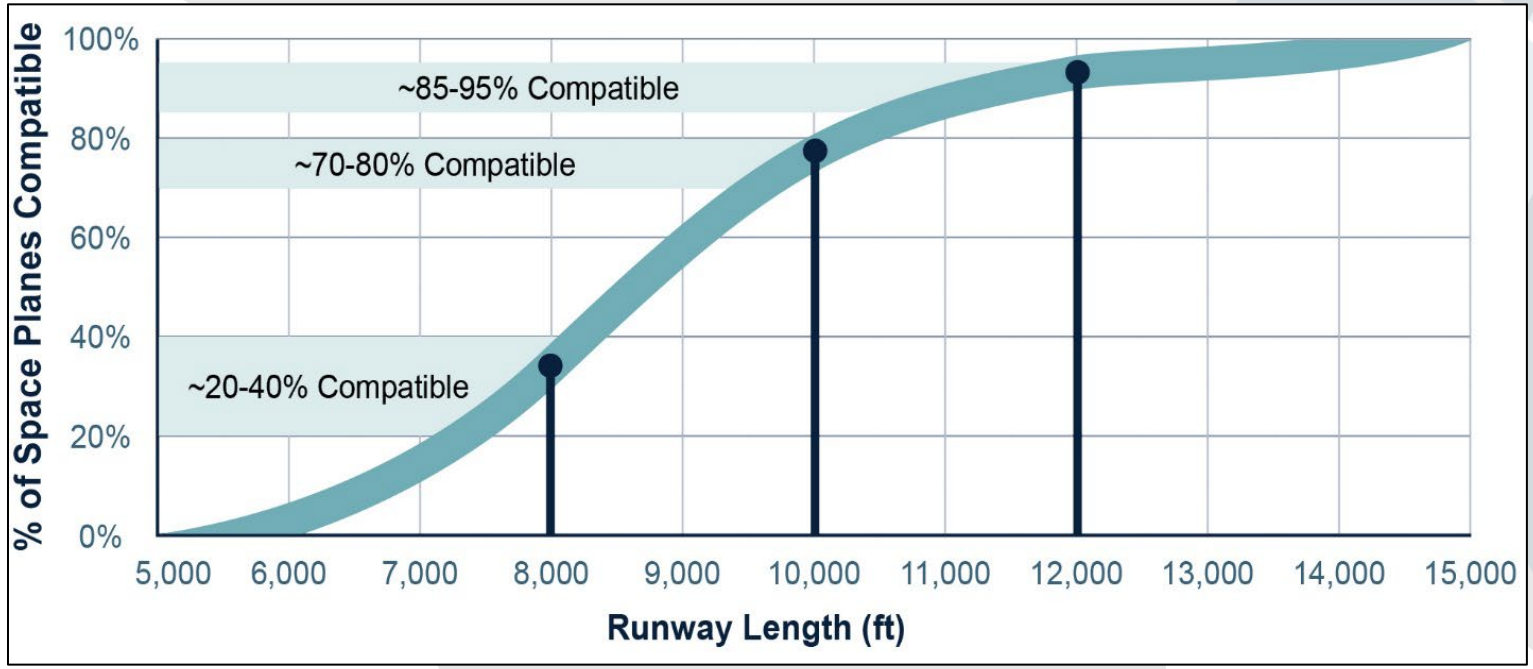
1. Manufacturing
2. Spacecraft and Payload Processing
3. Engine Testing
4. Horizontal Takeoff
5. Hypersonic
6. Re-entry Operations
7. Suborbital Launch
8. Vertical Suborbital Point-to-Point Delivery
9. Vertical Orbital Launch



SITE EVALUATION CRITERIA

Horizontal Launch Site Criteria

- Runway Length
- Runway Width
- Runway Material
- Airfield Condition
- Airfield Geometry
- Hazardous Material Storage and Handling
- Land Use and Availability



Concept X

Concept Y

Concept Z

Reentry Vehicle

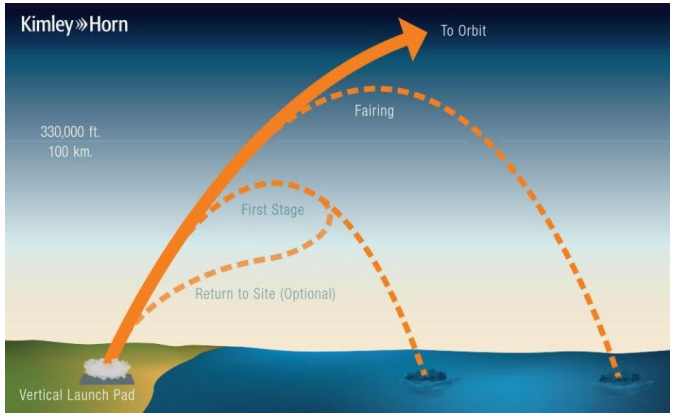
EXAMPLE- HL SITE ANALYSIS

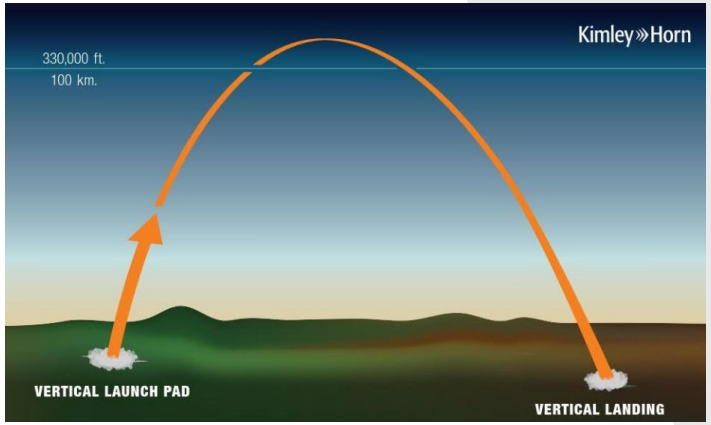
Criteria	Level of Concern					Notes
	Low 1	2	3	High 4	Fail 5	
Runway Width	●	○	○	○	○	The current width is sufficient for the range of launch and reentry vehicles being considered. Some Concept Z RLVs may require 200 ft runway width for carrier vehicle clearance.
Runway Condition	○	●	○	○	○	Runway is currently in good condition.
Runway Material (Concrete) - Takeoff Launch / Landing	●	○	○	○	○	The existing concrete-grooved runway is sufficient for takeoff and landing launch vehicles.
Runway Length - Concept X	●	○	○	○	○	Existing runway length (11,500 ft) is sufficient for Concept X vehicles.
Runway Length - Concept Y	●	○	○	○	○	The existing runway is sufficient to support the curent Concept Y vehicle in development.
Runway Length - Concept Z	○	●	○	○	○	The existing runway is sufficient to support the curent Concept Z vehicle in development.
Runway Length - Reentry vehicles	●	○	○	○	○	The existing runway length is sufficient to support Reentry vehicle landings.

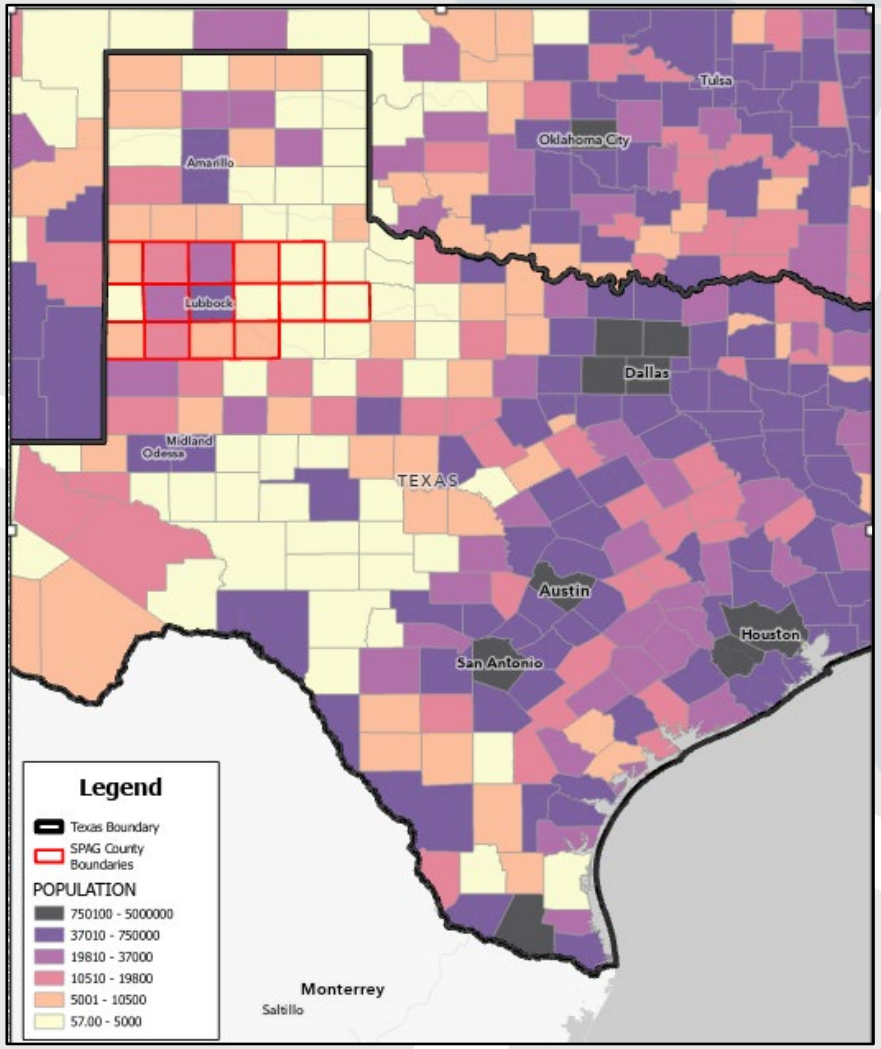
SITE EVALUATION CRITERIA

Vertical Launch Site Criteria

- Average Population Density
- Orbital Launch Capability
- Sub-Orbital Launch Capability
- Airspace Compatibility
- Utility Availability
- Emergency Services
- Site Access/Support Roads







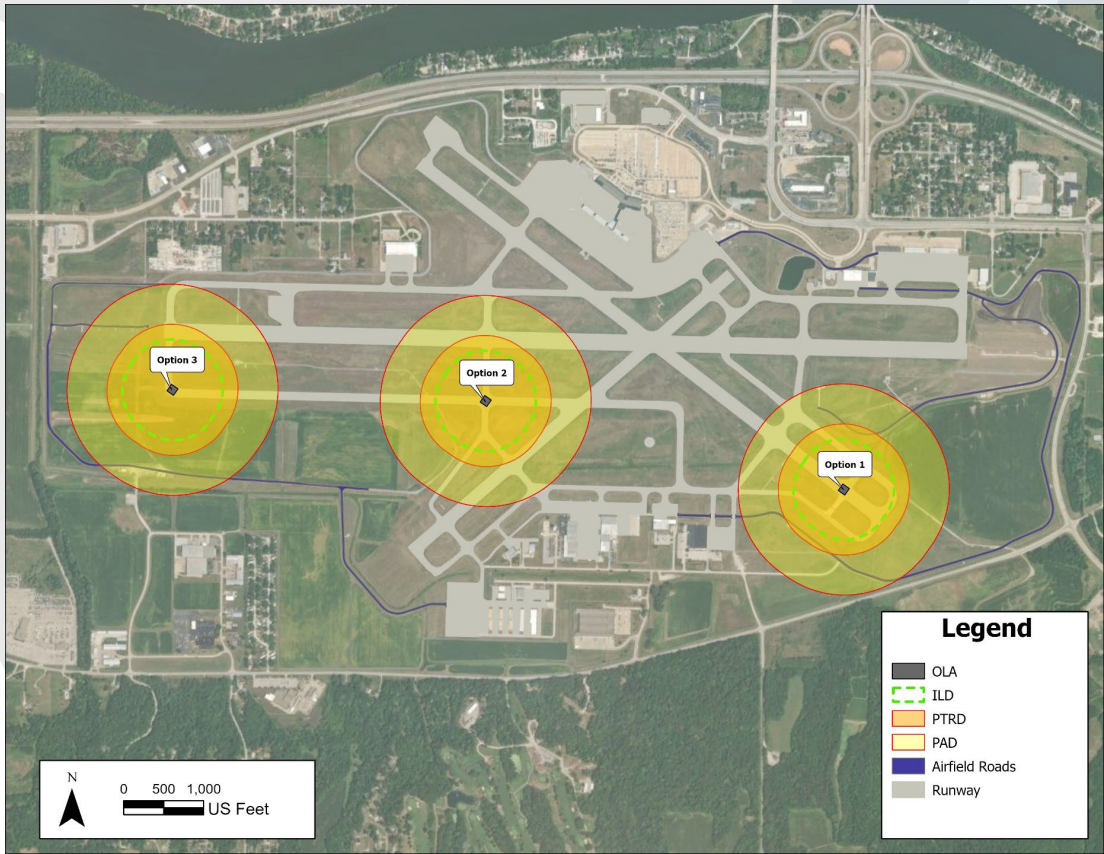
EXAMPLE- VL SITE ANALYSIS

Lubbock County						
Criteria	Level of Concern					Notes
	Low			High	Fail	
	1	2	3	4	5	
Average Population Density	○	○	○	○	●	345.8
Orbital Launch Capability	○	○	○	○	●	Flight path would go over highly-populated areas.
Sub-Orbital Launch Capability	○	○	○	○	●	Too densely populated for safe operations.
Airspace Compatibility	○	○	○	○	●	Busiest airspace in the region.
Utility Availability	○	○	○	●	○	Serious water availability concerns.
Emergency Services	●	○	○	○	○	Many fire departments, hospitals, and Hazmat services.
Site Access/Support Roads	●	○	○	○	○	Good coverage throughout the region due to many US and state highways.

SITE EVALUATION CRITERIA

Advanced Research and Testing

- Proximity to Educational Institutions
- Hazardous Material Storage and Handling
- Land Access with Sufficient Safety Distances
- Facilities Availability



EXAMPLE- ADVANCED RESEARCH AND TESTING SITE ANALYSIS

Floydada Municipal Airport						
Criteria	Level of Concern					Notes
	Low 1	2	3	High 4	Fail 5	
Proximty to Educational Institutions	●	○	○	○	○	Driving distance of multiple educational institutions.
Hazardous Material Storage and Handling	●	○	○	○	○	Fuel service.
Land Access with Sufficient Safety Distances	●	○	○	○	○	Ample surrounding land to the Northeast.
Facilities Availability	●	○	○	○	○	There is room to support the additional construction of testing equipment.

SITE EVALUATION CRITERIA

Manufacturing

- Available Workforce
- Land Development Area

EXAMPLE- MANUFACTURING SITE ANALYSIS

Criteria	Level of Concern					Notes
	Low 1	2	3	High 4	Fail 5	
Available Workforce	○	○	●	○	○	Low population density means a strong workforce may be a challenge.
Land Development Area	●	○	○	○	○	There is room to support additional manufacturing equipment.

SITE EVALUATION PRELIMINARY RESULTS

Potential Horizontal Launch/Reentry Site Selection

- Reese Technology Center – Lubbock
  - Operational Compatibility Research Required
- Preston-Smith International Airport – Lubbock
  - Operational Compatibility Research Required

Potential Vertical Launch Site Selection

- Orbital Launch Not Currently Recommended
  - Duplicate Efforts – Midland Air and Space Port
- Potential Location for Suborbital Launch and Testing
  - Available in Less Populated Areas of the Region
  - Further Market Research is Recommended

Potential Research and Testing Selection

- Most of the SPAG Region

Potential Manufacturing Selection

- Preliminary Results Identify a Large Percentage of SPAG Region

SPAG

Kimley»Horn

Expect More. Experience Better.

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Questions?