Financial Advisory
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POLICY BRIEF NO. 4: APEX HIGHEST AND BEST USE ANALYSIS: 900 ACRES

PREPARED FOR:

Nevada Governor's Office of
ECONOMIC DEVELOPMENT
Empowering Success

PREPARED BY:

RCG economics

June 2023

7219 West Sahara Avenue
Suite 110
Las Vegas, NV 89117
Main 702-967-3188
www.rcgecon.com

RCG economics
(702) 967 - 3188 | www.rcgecon.com
7219 West Sahara Avenue, Suite 110, Las Vegas, NV 89117

June 21, 2023

Mr. Kris Sanchez
Deputy Director
Nevada Governor's Office of Economic Development
555 E. Washington Avenue, Suite 5400
Las Vegas, NV 89101

Re: Apex Highest and Best Use Analysis: 900 Acres ("the Report")

Dear Mr. Sanchez:

RCG Economics LLC ("RCG") is pleased to submit the above referenced Report to GOED ("the Client"), providing the regional economic and real estate advisory services and analyses specified in our scope of work.

RCG conducted a highest and best use and economic benefit analysis for the development of 900 acres at Apex Industrial Park ("the Park") as either an inland port, an advanced manufacturing project, or a hybrid of the two. Because of the scarcity of "employment land" in Clark County, Nevada, especially land serviced by utilities of a certain size, configuration and topography and with transportation access, it is important to understand the highest and best use of remaining vacant land at the Park. This highest and best use will inform the utility and road investments needed to optimize the economic development and resilience of the development options for the remaining land at the Park.

The Study was prepared under the assumptions listed in the attachment to this letter.

If you have any questions, please do not hesitate to contact us at your convenience by phone at 702-967-3188 ext. 101 or by email.

Regards,

RCG Economics LLC

RCG Economics LLC
Attachment

Attachment
Standard Assumptions & Limiting Conditions

1. RCG prepared the Report deliverables from third-party economic information collected by RCG, as well as our internal economic, and demographic models, databases and sources.

2. The results of RCG's analyses apply only to the effective date of the Report deliverables. The success of the Clients' plans for the region will be affected by many related and unrelated economic and real estate market conditions within a local, regional, national and/or world context. We assume no liability for an unforeseen change in the local, regional or national economies. Accordingly, we have no responsibility to update the Report deliverables for events and circumstances occurring after the date of our Report deliverables.

3. Our deliverables are based on historical and current regional economic and industry benchmark information. Thus, variations in the future could be material and have an impact on the Report conclusions. Even if our Report's hypothetical assumptions were to occur, there will usually be differences between the estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. These could include major changes in economic and market conditions; and/or terms or availability of financing altogether; and/or major revisions in current state and/or federal tax or regulatory laws.

4. If our Report deliverables are reproduced by the Client, they must be reproduced in their entirety.

5. RCG makes no representation or warranty as to the accuracy or completeness of the third-party information contained in the Report deliverables and shall have no liability for any representations (expressed or implied) contained in, or for any omissions from, our materials.

6. The working papers for this consulting assignment will be retained in RCG's files and will be made available for your reference. We will be available to support the analyses, as required.

7. The estimates in our Report may not be used in conjunction with any other report(s). The conclusions stated in our Report will be based on the existing and hypothetical plans developed by the public, and may not be separated into parts. The analysis has been prepared solely for the purpose, function and parties so identified in this engagement letter.

8. All exhibits and illustrations that are incorporated into the Report are for illustrative purposes only, to assist the reader in visualizing our research, but are not guaranteed to be exact.

9. Unless otherwise stated in our Report deliverables, no effort has been made to determine the possible effect, if any, of future Federal, State or local legislation, including any environmental or ecological matters or interpretations thereof.

10. RCG has not performed an audit, review or examination or any other attest function (as defined by the AICPA) regarding any of the third-party parcel and economic benchmarks or demographic information used or included in the Report deliverables. Therefore, RCG does not express any opinion or any other form of assurance with regard to the same, in the context of our Report deliverables.

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Memo

To: Mr. Kris Sanchez

From: John Restrepo and Grant McCandless

Date: June 20, 2023

RE: ***Apex Economic Impact Modeling and Analysis***

Introduction

The 18,000-acre Apex Industrial Park ("the Park" and "Apex") in North Las Vegas, with its strategic location near rail lines and the I-15, is poised to become a significant driver of economic development in in Southern Nevada, specifically, and in the Western United States, generally. Accordingly, the development options for remaining vacant land at the Park should be carefully considered to ensure the highest and best use of the land and maximize the associated economic benefits. Accordingly, RCG was retained by the Nevada Governor's Office of Economic Development ("GOED") to conduct economic impact modeling and analysis of land uses for 900 acres at Apex ("the Project"). There are at least two development scenarios for these 900 acres: 1) to envision and develop the Project as an inland port or 2) as a large, mixed-use advanced manufacturing zone ("AMZ"). This report explores the benefits and challenges associated with each of these options and provides insight into the highest and best use of the Project.

While both an inland port and an AMZ involve industrial/business park development and contribute to economic growth, they serve different functions within the supply chain and economic development landscape. The distinction lies in their primary functions, infrastructure, focus areas and economic development objectives:

Function

- An inland port primarily serves as a transportation hub and logistics center, facilitating the efficient movement of goods between different transportation modes (such as rail, road and sometimes air). While it can also contain manufacturing facilities (especially light manufacturing), its primary purpose is to enhance supply chain efficiency, streamline logistics operations and provide intermodal connectivity.

- An AMZ focuses on creating a conducive environment for advanced manufacturing activities. It combines manufacturing facilities, research and development centers, technology incubators and supporting infrastructure to foster innovation, knowledge exchange and economic diversification.

Core Infrastructure

- An inland port's core infrastructure typically includes container terminals, intermodal transfer facilities, warehousing spaces and transportation networks (e.g., roads, rail lines). The emphasis is on facilitating the efficient flow and transfer of goods between different modes of transportation.

- An AMZ features a range of infrastructure tailored to support advanced manufacturing processes. This includes specialized manufacturing facilities, research and development centers, technology incubators and other amenities designed to foster innovation and collaboration among manufacturing stakeholders.

Focus: Logistics vs. Manufacturing

- The primary focus of an inland port is optimizing logistics operations, supply chain management and transportation efficiency. It aims to facilitate the movement of goods, reduce transit times and enhance overall supply chain performance.

- An AMZ prioritizes the development of advanced manufacturing capabilities and industries. It focuses on attracting manufacturing companies, fostering innovation, promoting research and development and supporting the growth of high-value-added manufacturing activities.

Economic Development Objectives

- An inland port's economic development objectives are primarily centered around trade facilitation, attracting logistics-related businesses and enhancing regional connectivity. It aims to generate employment opportunities, stimulate trade and contribute to regional economic growth through improved supply chain efficiency.

- The economic development objectives of an AMZ revolve around fostering innovation, creating high-quality jobs, promoting technology transfer and driving economic diversification. It aims to attract advanced manufacturing industries, support research and development activities and nurture a skilled workforce.

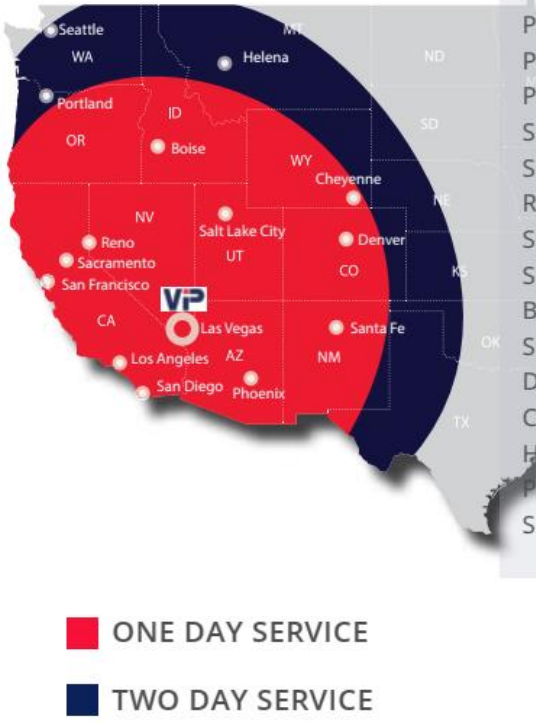
While there will be overlap in the four aspects above, the core difference between the two types of projects lies in the primary function and focus of an inland port on logistics and supply chain efficiency, while an AMZ prioritizes advanced manufacturing activities, innovation and economic diversification. As will be addressed later in this Report (see “Analysis and Comparison of Options”), the choice of an inland port versus an AMZ will align the Project with distinct economic development objectives—objectives that should shape the planning and infrastructure development needed for each type of development.

Overview of the Apex Industrial Park

1. Location and Accessibility of the Park

Located 15 miles northeast of downtown Las Vegas, the Park is bordered by Interstate 15 to the east/southeast and U.S. Highway 93 to the north/northeast. The proximity to I-15 provides convenient connectivity to the Southern California market as well as to Salt Lake City. The Park is less than a 30-minute drive from Harry Reid International Airport, an hour's drive from the proposed Southern Nevada Supplemental Airport in Jean, 300 miles from the Ports of Los Angeles and Long Beach and a day's drive to 10 major U.S. cities as well as the border with Mexico (see Figure 1 below).

Figure 1: Distances & Drive Times to Major U.S. Markets in the West



City	Distance (mile)	Time (est.)
Los Angeles, CA	294	4h 20m
Port of Long Beach	309	4h 43m
Port of Los Angeles	310	4h 45m
Phoenix, AZ	327	5h 8m
San Diego, CA	355	5h 21m
Salt Lake City, UT	401	5h 39m
Reno, NV	460	7h 9m
San Francisco, CA	592	8h 53m
Sacramento, CA	594	8h 45m
Boise, ID	600	9h 13m
Santa Fe, NM	661	9h 45m
Denver, CO	729	11h 1m
Cheyenne, WY	814	12h 2m
Helena, MT	882	12h 31m
Portland, OR	991	16h 11m
Seattle, WA	1,090	17h 5m

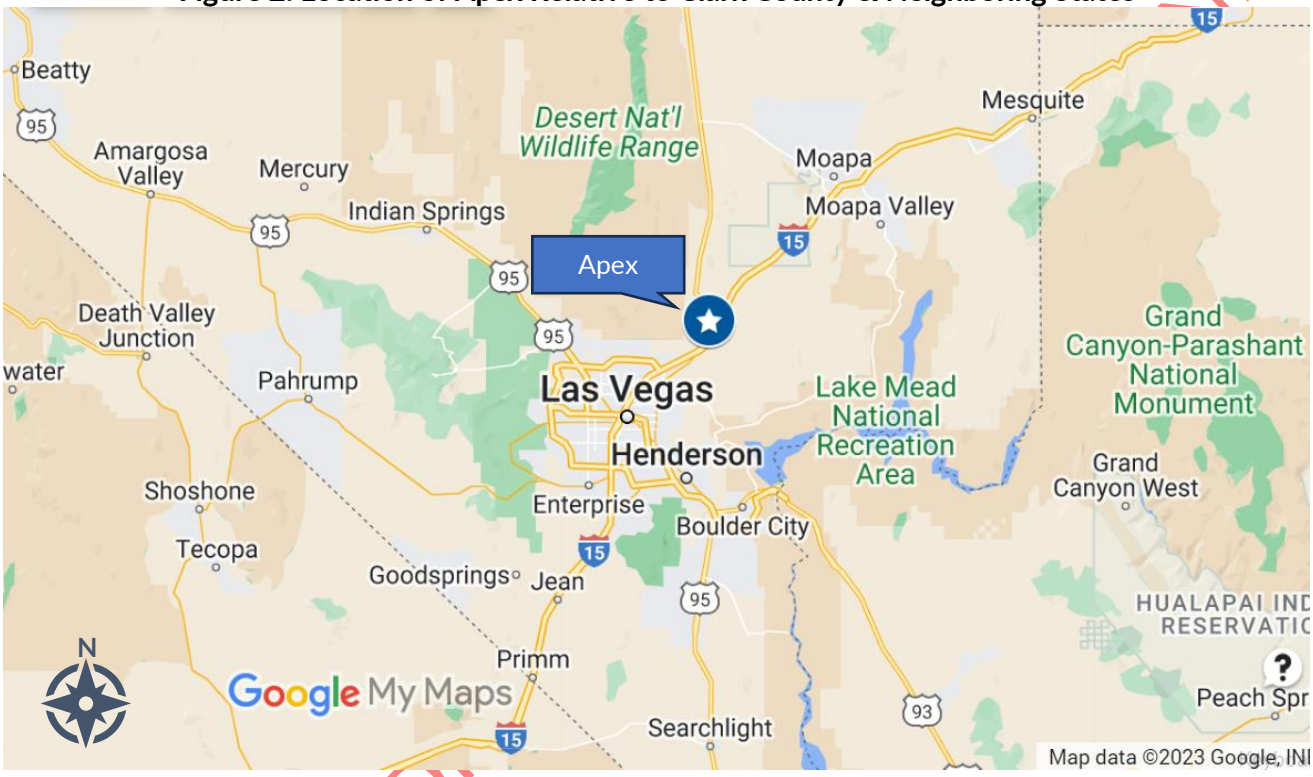
Source: TRES Advisory Group[1]

In addition to road access, Apex benefits from rail connectivity. The Park is located adjacent to Union Pacific's main rail line, providing access to the extensive Union Pacific rail network. Figures 2 and 3 below display the location and transportation linkages to the Park. For inland ports in North America, rail companies like Union Pacific have played a decisive role, with the intermodal terminal component "mostly in the hands of rail operators. Each

[1] "Development Overview: Vegas Industrial Park," TRES Advisory Group

decision thus takes place with much more consideration being given to market potential as well as the overall impact on their network structure. The decision of a rail company to build a new terminal or expand existing facilities commonly marks the moment where regional stakeholders, from real estate developers to logistics service providers, readjust their strategies" to align economic development with an inland port.[2]

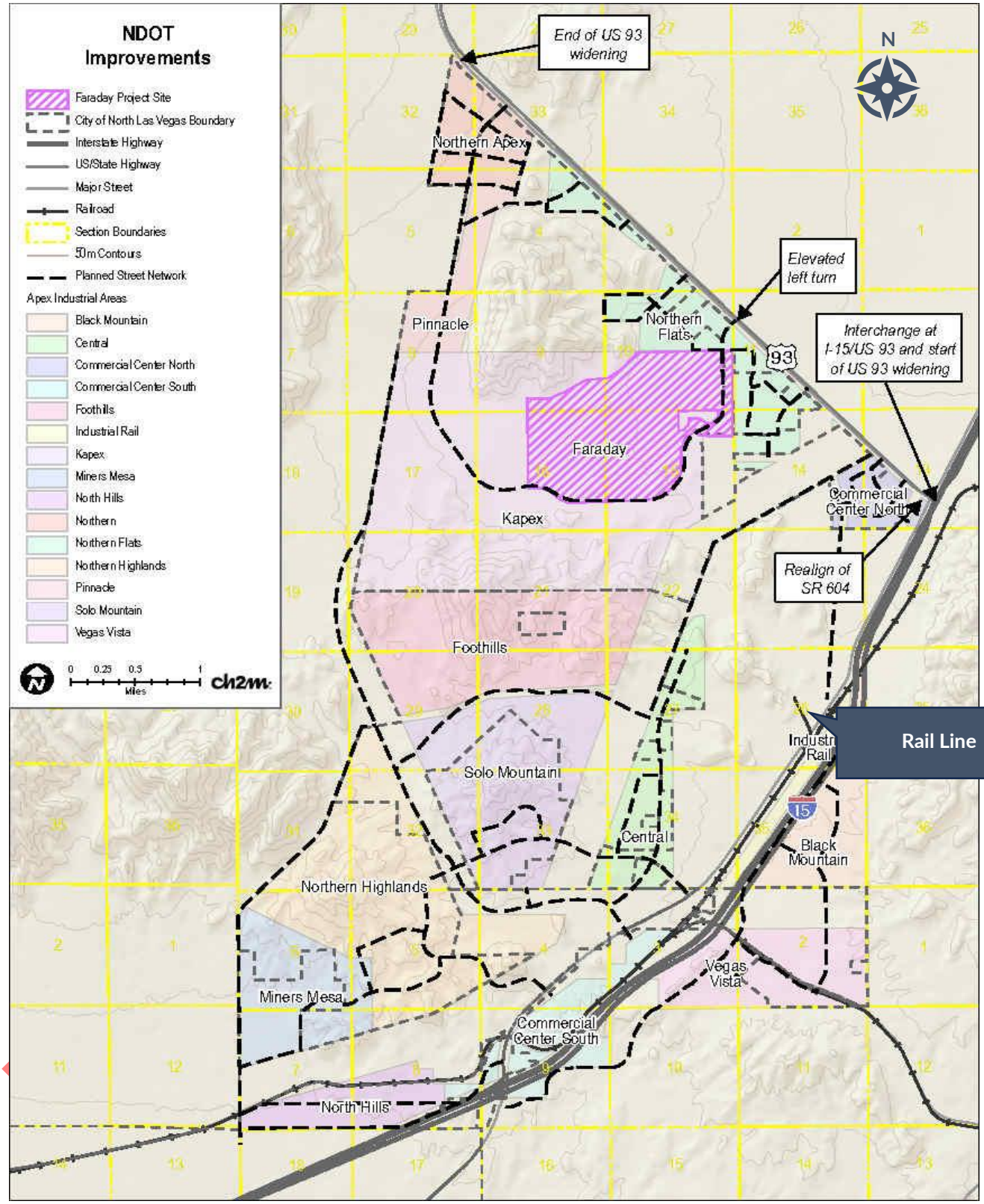
Figure 2: Location of Apex Relative to Clark County & Neighboring States



Source: Google Maps

[2] Notteboom, Theo, Athanasios Pallis and Jean-Paul Rodrigue, *Port economics, management and policy*, Routledge, 2022. https://porteconomicsmanagement.org/pemp/contents/part2/dry-ports/

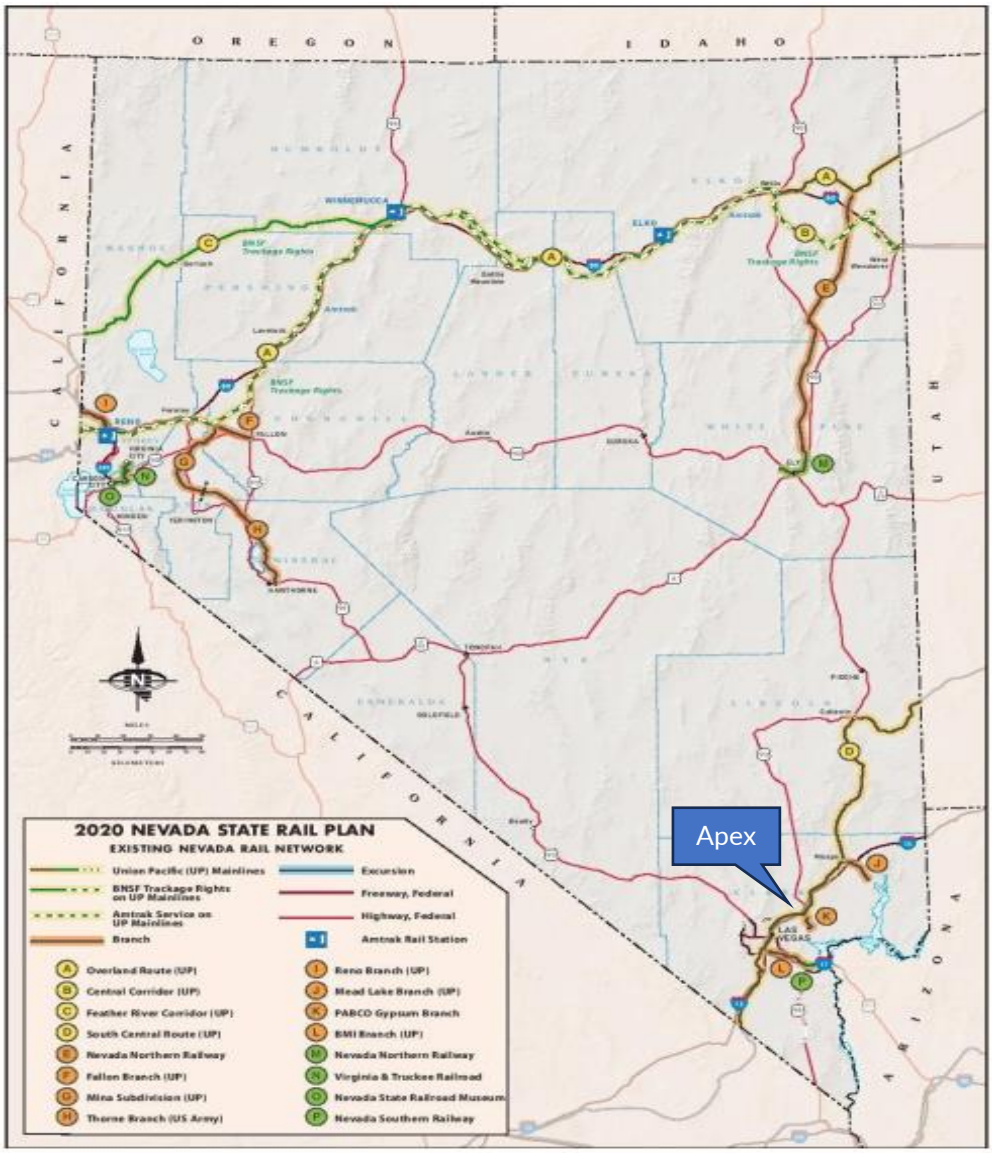
Figure 3: Map of Transportation Linkages & Apex Industrial Areas



Source: CH2M

Figure 4, below, displays Nevada's rail network (yellow, green and orange lines), including Union Pacific's South Central Route (D) that connects Apex to the rail network.

Figure 4: Nevada Rail Network (as of 2020)



Source: 2020 Nevada State Rail Plan

2. Current State of Development and Infrastructure

Apex is in the early stages of development. Seven-thousand acres have "adequate topography and access for development. [As of 2022], about 17 diverse users occupy the site [Apex]. They range from small land users of a few acre holdings to large operations on many hundreds of acres. Land ownership over the entire property is varied and parts continue to change hands between investors and speculators. The City of North Las Vegas has

applied General Industrial Park (M2) zoning to the entity of the park. APEX Overlay District (1-A) zoning restrictions also apply, codifying Nellis fly zone restrictions and limiting water-intensive land uses. Uses permitted on the site are restricted primarily to industrial functions, with some supporting retail and sales services. Residential development is strictly prohibited."[3]

The Park already has some access to public infrastructure and power, with additional projects in process. For example, the City of North Las Vegas ("CNLV") has invested more than $63 million to bring water and sewer infrastructure to the Park. Phase 1 of the water line currently serves "Southern Apex." Phase 2, which serves "Central Apex," is currently under construction and is slated for completion by the end of 2023.[4] Phase 3 is in design and is expected to be completed in 2024.

In January 2023, CNLV and the Southern Nevada Water Authority approved a $37 million investment in the Garnet Valley Water and Wastewater Systems, which will return wastewater from the Park to the Las Vegas Valley to be treated and recycled into Lake Mead.[5] The Park is served by a sewer line that is connected to the City of North Las Vegas's sewer system. Power is provided to the park by NV Energy. The Park has two substations that provide power to businesses in the area. In addition to water, sewer, and power, the Park also has access to telecommunications and broadband internet.

Additionally, some of the entities/tenants located in the Park are displayed in Figure 5 below.

[3] Newmark, 2022 https://images1.loopnet.com/d2/jB5AooOzOfHfPiKPXHCR6jomEOKN8j8Nw58lfdNOAw0/document.pdf
[4] https://www.cityofnorthlasvegas.com/Home/Components/News/News/27/17?locale=en
[5] https://undergroundinfrastructure.com/news/2023/january/nevada-water-authority-approves-70-million-for-water-projects-pipeline-system

Figure 5: Sample of Commercial Entities Currently Located in Apex (South-Facing)

Source: TRES Advisory Group

Benefits and Challenges of an Inland Port

Inland ports are transportation hubs that serve as focal points for the efficient movement and transfer of goods across different modes of transportation—from trucks to trains to air transport. Kansas City may be the most advanced inland port example in North America, combining "intermodal rail facilities from four different rail operators, foreign trade zones, and logistics parks at various locations throughout the metropolitan area. There is even the world's largest underground warehousing facility, Subtropolis, where temperature stable space can be leased."[6]

Figure 6 displays the location of major rail terminals and distribution hubs in North America and Central America.

[6] Notteboom, Pallis and Rodrigue, 2022. https://porteconomicsmanagement.org/pemp/contents/part2/dry-ports/

Figure 6: Major Inland Terminal Clusters in North America & Central America, 2022

Source: Notteboom, Pallis and Rodrigue, 2022

The simplest definition of an inland port is "a logistical hub where goods can be received, processed, and shipped to both domestic and international destinations. The purpose of an inland port is to be an effective extension of seaports and relieve pressure by allowing goods to be removed from cargo ships and moved inland for further processing, including freight consolidation, temporary storage, customs clearance, transportation connections, assembly, and distribution."[7] An inland port thus facilitates efficient transportation and logistics operations, reducing costs and transit times associated with long-distance shipments. As the name suggests, inland ports are strategically positioned inland from and are integrated with maritime terminals to support "more efficient access to the inland market for inbound and outbound traffic. This implies an array of related logistical activities linked with

[7] Kyle Tucker, "Utah's inland port: Assessing the economic and political impact of a commercial hub in the epicenter of the expanding Wasatch Front," *Hinckley Journal of Politics—2019 editorial board* (1998), p. 36.

the terminal, such as distribution centers, depots for containers and chassis, warehouses, and logistical service providers."[8]

The key components and functions of an inland port include:

- **Intermodal Connectivity:** Inland ports are designed to have excellent connections to different modes of transportation. This enables the seamless transfer of goods and efficient movement throughout the supply chain.

- **Transshipment Facilities:** Inland ports typically feature transshipment facilities where containers or cargo are transferred between different transportation modes. These facilities may include container yards, rail sidings, warehouses and distribution centers.

- **Trade and Industrial Zones:** Inland ports can become centers of economic activity, attracting businesses and industries to set up operations in the vicinity. They often feature industrial parks or free trade zones where manufacturing, warehousing and distribution activities are concentrated, creating job opportunities and driving economic growth. Apex, for example, is a designated Foreign Trade Zone, which "allows firms to bring foreign goods or raw materials for manufacturing and/or assembling into the United States without formal customs entry or payment of customs duties."[9]

- **Customs and Logistics Services:** Inland ports often provide customs clearance services and other logistical support to streamline the movement of goods. This includes cargo handling, storage, sorting and value-added services like labeling, packaging and quality inspections.

- **Infrastructure and Technology:** Inland ports require well-developed infrastructure, including road and rail networks, handling equipment, storage facilities and advanced information technology systems. These elements ensure the smooth flow of goods and enable efficient supply chain management.

[8] Notteboom, Pallis and Rodrigue, 2022. https://porteconomicsmanagement.org/pemp/contents/part2/dry-ports/
[9] TRES Advisory Group

Economic Benefits Associated with an Inland Port

The following are key economic advantages associated with the development of an inland port:

- **Cluster Development and Industry Synergies:** The presence of an inland port can lead to the formation of industry clusters and synergies.[10] Businesses within related sectors, such as manufacturing, distribution and logistics, tend to cluster around ports to take advantage of the improved transportation infrastructure and shared services. This clustering effect promotes collaboration, knowledge exchange and innovation, enhancing the competitiveness of industries in the region.

- **Improved Supply Chain Efficiency:** For example, inland ports typically offer consolidation and deconsolidation services, where shipments from multiple origins are combined or separated. This allows for more efficient utilization of transportation capacity, reduced transportation costs and optimized container loads. By consolidating shipments, inland ports enable economies of scale and reduce the number of individual shipments, leading to cost savings and improved supply chain efficiency.

- **Job Creation and Employment Opportunities:** The establishment of an inland port creates a wide range of job opportunities across different sectors, including positions in logistics, transportation, warehousing and distribution. Additionally, the presence of an inland port can lead to job creation in related industries such as manufacturing, retail and services, as businesses are attracted to the area by the transportation infrastructure.

- **Enhanced Foreign Direct Investment ("FDI"):** Inland ports have the potential to attract foreign direct investment due to their strategic location and efficient logistics networks. International companies may establish operations near the port to take advantage of the improved trade connectivity and streamlined supply chain processes. This influx of foreign investment can bring new capital, technology and expertise to the region, further stimulating economic growth.

- **Infrastructure and Ancillary Services:** The development of an inland port requires significant investment in infrastructure, including roads, rail networks, terminals and warehousing facilities. This infrastructure development not only supports the port's operations but also creates opportunities for construction companies, suppliers and service providers, stimulating local economic activity.

It is important to note that the specific economic benefits associated with an inland port can vary based on factors such as the port's location, scale, efficiency and integration with existing trade networks. Thorough planning,

[10] Notteboom, Pallis and Rodrigue, 2022. https://porteconomicsmanagement.org/pemp/contents/part2/dry-ports/

collaboration between public and private stakeholders, and effective marketing and promotion strategies are essential to maximize these economic benefits and ensure sustainable growth.

Unique Challenges of Developing an Inland Port

While an inland port offers significant economic benefits, there are also challenges associated with its development. Around the country, a competitive tax structure, transportation connectivity and a skilled workforce are three of the necessary characteristics for an inland port project to be successful.[11] It is crucial to carefully consider these and other factors in order to plan and execute such a project effectively, including:

- **Environmental Impact:** The development of an inland port can have environmental implications. Construction activities, increased transportation that consumes fossil fuels and the operation of port facilities may lead to air and noise pollution, habitat disruption and potential impacts on local ecosystems. Appropriate environmental monitoring is needed to ensure that an inland port does not worsen air quality or threaten sensitive environmental areas. A port authority established to oversee the inland port should invest in green energy, transportation and technology.[12] Mitigation measures such as these and adherence to environmental regulations and sustainability practices are essential to minimize adverse environmental effects, meet evolving environmental standards and maintain long-term viability.

- **Permitting and Regulatory Compliance:** Developing an inland port involves navigating various permitting processes and ensuring compliance with relevant regulations and standards. This includes obtaining permits for construction, land use, environmental impact assessments and compliance with zoning and safety regulations. Engaging with local, state and federal authorities is necessary to ensure proper approvals and adherence to regulations.

- **Workforce Development and Skills Gaps:** Operating an inland port requires a skilled workforce capable of managing complex logistics operations, including transportation, customs clearance, warehousing and distribution. Collaboration with educational institutions, vocational training programs and workforce development initiatives is necessary to address this challenge.

- **Integration with Transportation Networks:** Inland ports rely on seamless connectivity with various transportation modes, including rail, road and waterways. Coordinating with transportation authorities, managing traffic flow, optimizing transport routes and ensuring smooth intermodal transfers can be challenging. Collaboration with transportation agencies and private partners is necessary to address these complexities and ensure efficient operations.

[11] Tucker, p. 41.
[12] Tucker, 42.

- **Traffic Congestion:** The port could potentially generate a significant amount of truck traffic, which could add to the already heavy traffic on Interstate 15 and US 93.

- **Market Demand and Sustainability:** The success of an inland port relies on market demand for its services. Analyzing trade patterns, identifying potential customers and securing long-term partnerships are crucial for ensuring sustained growth and utilization of the port's facilities.

It is important to conduct thorough feasibility studies, engage with stakeholders and develop comprehensive plans to address these challenges effectively. Collaboration between public and private entities, robust financial planning and proactive mitigation strategies can help overcome these obstacles and ensure the successful development and operation of an inland port.

Benefits and Challenges of a Mixed-Use Advanced Manufacturing Zone

Unlike an inland port, which, as noted previously, primarily focuses on the efficient movement of goods and serves as a transportation hub, an AMZ encompasses a broader range of activities directly associated with advanced manufacturing processes and technologies. Advanced manufacturing is defined as "the innovation of improved methods for manufacturing existing products and the production of new products enabled by advanced technologies."[13]

The following are the key definitions and characteristics of an AMZ:

- **Definition:** an AMZ refers to a development that integrates manufacturing facilities, research and development (R&D) centers, technology incubators, training and education institutions and complementary commercial and residential components within a single site or a coordinated area. This concept aims to foster innovation, collaboration and the efficient production of advanced products.

- **Manufacturing Facilities:** The core component of an AMZ is the presence of manufacturing facilities, which may include factories, production plants and/or specialized manufacturing spaces. These facilities are equipped with advanced technologies, machinery and equipment to support efficient and high-quality manufacturing processes.

- **Research and Development ("R&D") Centers:** A key characteristic of an AMZ is the integration of research and development activities. R&D centers are dedicated spaces where companies and institutions conduct innovative research, product development and technological advancements. These centers foster

[13] "National Strategy for Advanced Manufacturing," U.S. National Science and Technology Council, October 2022. https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-Advanced-Manufacturing-10072022.pdf

collaboration between academia, industry and government, leading to the creation of cutting-edge manufacturing technologies and processes.

- **Technology Incubators:** AMZs often include technology incubators or innovation hubs. These spaces provide support and resources to startups and entrepreneurs working on emerging technologies and products. They offer shared facilities, mentorship, access to funding and networking opportunities to help foster the growth and success of innovative ventures.

- **Training and Education Institutions:** To meet the evolving needs of the advanced manufacturing industry, an AMZ may incorporate training and education institutions. These can include vocational schools, technical training centers, or research institutes that offer specialized training programs and courses to develop a skilled workforce capable of operating advanced manufacturing technologies.

- **Complementary Commercial and Residential Components:** Unlike an inland port, which primarily focuses on logistics and transportation, an AMZ may lead to the development of commercial and residential components nearby. These can include office spaces, retail centers, restaurants and residential units. These components are designed to support the needs of the workforce, provide amenities and create a vibrant and integrated community.

- **Innovation and Collaboration:** The integration of various functions and stakeholders within a single location facilitates knowledge exchange, collaboration and the sharing of resources. This synergy fosters innovation, accelerates the development of new products and processes and creates a conducive environment for business growth.

Economic Benefits Associated with an AMZ

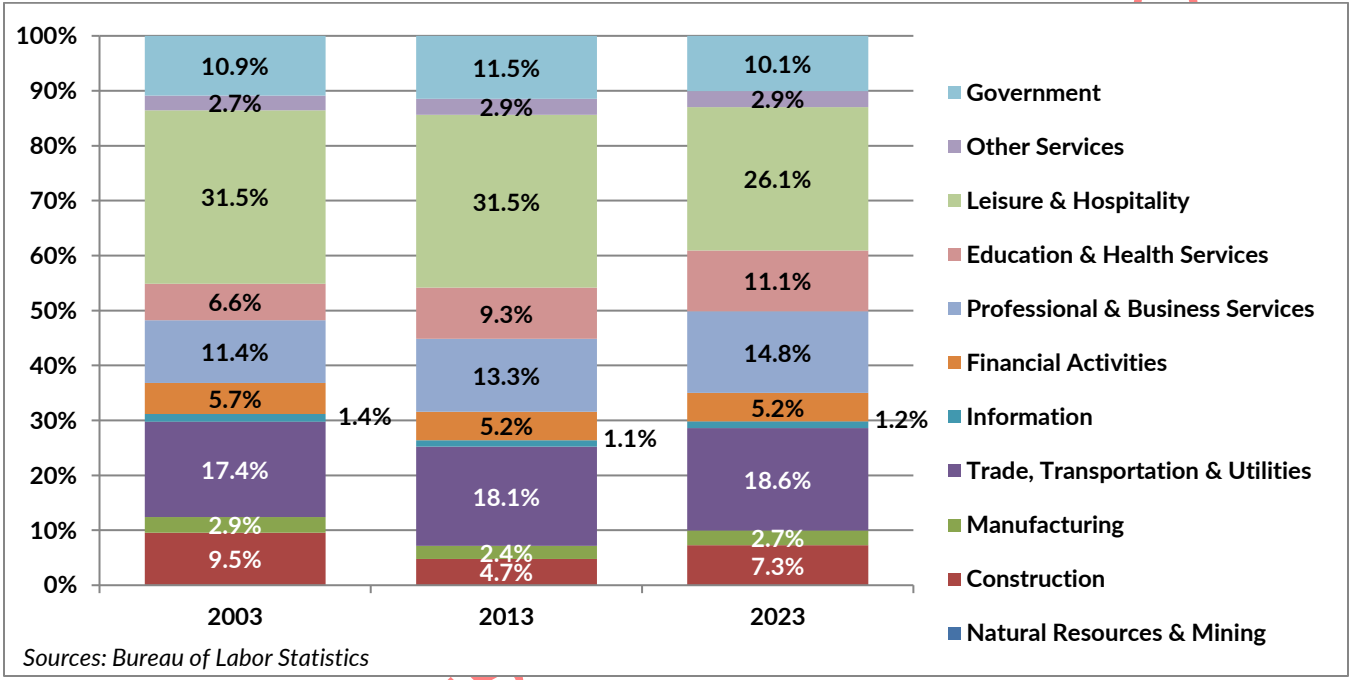
The following are key economic advantages associated with the development of an AMZ:

- **Job Creation and Employment Opportunities:** One of the primary economic benefits of an AMZ is the creation of high-quality, high-paying jobs by bringing together manufacturing facilities, research and development centers and training institutions, all of which require a skilled workforce. This would lead to the generation of employment opportunities, both directly within the Project and indirectly in supporting industries and services.

- **Economic Development/Diversification:** An AMZ would contribute to economic development and diversification by promoting the growth of advanced manufacturing industries. This industry (Manufacturing), that as of Q1 2023, comprised only 2.7 percent of all jobs in the Las Vegas Metropolitan

Statistical Area ("MSA"; see Figure 7 below). Nationwide, Manufacturing accounts for 11 percent of U.S. gross domestic product.[14] By integrating manufacturing facilities, R&D centers and technology incubators, such a project fosters innovation, attracts investments and supports the development of high-value-added products and technologies. Economic development/diversification reduces dependence on traditional industries and enhances the overall economic resilience of the region.

Figure 7: Job Distribution, by Sector: 2003, 2013 & 2023 (as of Q1) Las Vegas MSA



Sources: Bureau of Labor Statistics

- **Technology Transfer and Innovation:** The integration of research and development activities within an AMZ facilitates technology transfer and innovation. Collaboration between academic institutions, industry partners and startups creates an ecosystem conducive to knowledge exchange, the development of new technologies and the commercialization of research findings. This drives innovation, enhances competitiveness and attracts further investment in advanced manufacturing sectors.

- **Industry Clusters and Supply Chain Development:** An AMZ has the potential to attract related industries and create industry clusters. The presence of manufacturing facilities, R&D centers and technology incubators encourages collaboration and synergies among businesses in the supply chain. This cluster effect promotes the development of supporting industries, suppliers and service providers, leading to a vibrant ecosystem that stimulates economic growth.

[14] https://data.worldbank.org/indicator/NV.IND.MANF.ZS

- **Increased Productivity and Competitiveness:** Advanced manufacturing technologies and processes employed within the AMZ can enhance productivity and competitiveness. Automation, robotics, data analytics and other advanced technologies optimize production processes, reduce costs and improve product quality. This enables businesses within a project to compete effectively in domestic and international markets, leading to increased export opportunities and improved trade balance.

- **Enhanced Regional and Global Trade:** An AMZ contributes to regional and global trade by producing high-value-added products and fostering international business partnerships. The AMZ's focus on innovation and advanced manufacturing capabilities enables businesses to expand their market reach and participate in global value chains. This increased trade activity stimulates economic growth, generates foreign exchange earnings and enhances the region's competitiveness.

- **Ancillary Business Development and Support Services:** The establishment of an AMZ would create opportunities for the development of ancillary businesses and support services. These can include logistics providers, equipment suppliers, maintenance and repair services, training institutions and consulting firms. The presence of these supporting businesses generates additional economic activity, employment and revenue streams within the region.

It is important to note that the specific economic benefits associated with an AMZ may vary depending on factors such as the development's scale, specialization and integration with the local and global supply chains. Effective planning, collaboration between stakeholders and investment in research and development are crucial to maximize these economic benefits and ensure sustainable growth.

Unique Challenges of Developing an AMZ

Developing an AMZ entails specific challenges that need to be considered. Here are some key factors that should be addressed:

- **Skilled Workforce Development:** Developing an AMZ requires a skilled workforce capable of operating advanced manufacturing technologies and contributing to research and development efforts. Attracting and retaining a qualified workforce will be a challenge that must be overcome. Investing in workforce training programs, collaborating with educational institutions and implementing talent attraction strategies are crucial to address this challenge. For example, Truckee Meadows Community College and Panasonic Energy of North America recently announced a new workforce development program that will offer "training in advanced manufacturing, production, automation and robotics and further create opportunities

for skilled employment in the Northern Nevada job market" beginning in Fall 2023.[15]

- **Collaboration and Partnerships:** Creating an AMZ involves collaboration and partnerships between various stakeholders, including government entities, academic institutions, industry players and research organizations. Building and maintaining these partnerships can be complex and time-consuming, as it requires aligning different interests, negotiating agreements and fostering a culture of collaboration.

- **Risk Management and Financial Planning:** Developing a large mixed-use advanced manufacturing industrial/business park involves inherent risks and uncertainties. It is crucial to have effective risk management strategies in place to mitigate potential risks, such as technological obsolescence, market fluctuations and regulatory changes. Additionally, comprehensive financial planning is necessary to ensure adequate funding throughout the project's development and operational phases.

- **Community and Stakeholder Engagement:** Large mixed-use commercial projects can have a significant impact on local communities and stakeholders. Engaging with the community, addressing concerns and ensuring transparent communication are essential to gain local support and mitigate potential conflicts. Proactively involving stakeholders in the decision-making process and considering their perspectives can contribute to project success.

- **Environmental Sustainability:** Developing an AMZ also requires considering environmental sustainability factors. Mitigating potential environmental impacts, minimizing carbon footprint and implementing sustainable practices are crucial to ensure long-term viability. Compliance with environmental regulations, incorporating green technologies and promoting resource efficiency are important aspects of sustainable project development.

It is also important to undertake comprehensive feasibility studies, conduct rigorous planning and engage with relevant stakeholders to effectively address these challenges. By doing so, developers can optimize the benefits, navigate potential obstacles and establish a sustainable and successful AMZ.

Analysis and Comparison of Options

To evaluate the highest and best use of the Project's 900 acres, RCG used its economic modeling software (IMPLAN), an input-output model, to analyze the interdependencies between industries within the Clark County economy. Input-output models track the flows of goods, services and expenditures between industries, households

[15] https://www.marketscreener.com/quote/stock/PANASONIC-HOLDINGS-CORPOR-6492473/news/Truckee-Meadows-Community-College-and-Panasonic-Energy-Join-Together-to-Promote-Advanced-Manufacturi-44082434/

and institutions in a given region and the tables the models produce provide valuable information on how changes in one industry affect other industries, including supply chain linkages and the "ripple effects" throughout the economy. Using IMPLAN, RCG has developed estimates of the effect on the Clark County economy of the development of the Project into an inland port or an AMZ.

Methodology

For the analysis in this report, RCG utilized IMPLAN's Industry Contribution Analysis ("ICA"). An ICA focuses on the economic contributions and linkages of individual industries within a regional economy. It quantifies the effects of changes in a specific industry, like growth in manufacturing, providing insights into that industry's economic importance and its interdependencies with other sectors. ICA is frequently used in the following situations:

- **Assessing supply chain linkages:** Understanding the interdependencies between industries within the regional economy and the potential impacts of changes in one industry on others.

- **Targeted industry development:** Evaluating the economic potential and feasibility of developing specific industries or sectors within a region.

- **Comparative analysis:** Comparing the economic contributions and impacts of different industries to inform policy decisions or investment strategies.

Based on the use of land at the Project as either an inland port or an AMZ, RCG estimated three types of economic benefits accruing to Clark County from the Project's operations: direct, indirect and induced. The concept of a direct benefit is straightforward and well-understood. However, the concepts of indirect and induced benefits, while critically important in assessing the totality of benefits associated with the Project, are often underappreciated in assessing the benefits of commercial/industrial developments, industry activities.

Fundamentally, indirect and induced benefits are based on an extension of the direct economic output (the annual value of goods and services produced at the project location) generated by the project's ongoing annual operations. Each type of benefit is briefly described below:

- ***Direct benefits*** include the employment, earnings (both wages/salaries and proprietor's income) and output generated at the Project site.

- ***Indirect benefits*** arise from the wholesale purchases of goods and services resulting from the direct spending at the Project site. For example, spending on materials and services by manufacturers at an AMZ will cause suppliers to replenish inventories, etc.

- ***Induced benefits*** are the output (the value of the induced industries' production), employment and earnings growth generated by the employees of a project's vendors as they consume goods and services within the local economy. For example, if a worker is employed as a machinist or technician at the Project, his or her personal income spent locally will cycle through the local economy as it is exchanged between local area merchants, inducing additional spending (e.g., retail, food, gas, etc.) and employment in the region.

It is important to note that IMPLAN's employment estimates are jobs "supported," not necessarily jobs created, i.e., the ongoing employment of workers financially supported by the project. "IMPLAN follows the BEA [U.S. Bureau of Economic Analysis] job definitions, which include full-time, part-time and seasonal jobs. Generally speaking, "unless there are large numbers of jobs reported in the Indirect and Induced Effects [of a project], … these [Indirect and Induced] impacts are largely supported rather than created."[16] Furthermore, jobs are counted in "person-years"—full-time equivalent jobs multiplied by years, i.e., one rail worker employed for five years equals five person-years.

Inland Port

To estimate the effect of developing an inland port at the Project, RCG selected three of the most common industries to be operating at such a port: Rail Transportation, Truck Transportation and Warehousing & Storage. Next, RCG assigned a value of $1 million to the economic output generated by those three industries; this was done to develop a ratio of economic benefits per $1 million in output, as shown in Table 1.

Table 1: Estimated Annual Economic Benefits of an Inland Port per $1 Million in Operational Output

	Employment*	Earnings	Output
Direct	5.7	$350,000	$1,000,000
Indirect	2.2	$130,000	$410,000
Induced	1.9	$110,000	$360,000
Total	**9.9**	**$590,000**	**$1,770,000**
Multiplier	***1.7***	***1.7***	***1.8***

**Note: Employment in person-years*
Sources: IMPLAN, RCG

For example, $1 million in economic output generated at an inland port would result in an output multiplier of approximately 1.8. This means that for every dollar of operational output, an additional $0.80 would "ripple" or "multiply" through the Clark County economy. The multipliers measure the total increase in output, total employment and earnings generated in the wider economy per dollar in direct output, per new jobs supported

[16] https://support.implan.com/hc/en-us/articles/115009510967-Employment-Data-Details

directly and per dollar increase in direct earnings. Note: operational benefits are calculated on an ongoing, annual basis.

AMZ

To estimate the effect of developing the Project into an AMZ, RCG selected three manufacturing subsectors commonly associated with an AMZ: 1) computer and electronic product manufacturing (NAICS 334); 2) electrical equipment, appliance and component manufacturing (NAICS 335); and 3) transportation equipment manufacturing (NAICS 336).[17] These three industries often involve advanced manufacturing techniques, such as precision machining, robotics, automation and additive manufacturing. Next, RCG assigned a value of $1 million to the economic output generated by those three industries; this was done to develop a ratio of economic benefits per $1 million in output, as shown in Table 2.

Table 2: Estimated Annual Economic Benefits of an AMZ per $1 Million in Operational Output

	Employment	Earnings	Output
Direct	2.0	$240,000	$1,000,000
Indirect	1.6	$130,000	$370,000
Induced	1.5	$90,000	$280,000
Total	**5.1**	**$460,000**	**$1,650,000**
Multiplier	***2.6***	***1.9***	***1.7***

**Note: Employment in person-years*
Sources: IMPLAN, RCG

For example, $1 million in economic output generated at an AMZ would support approximately two jobs at the Project and result in an employment multiplier of approximately 2.6. This means that for every job supported at Apex, an additional 1.6 jobs would "ripple" or "multiply" through the Clark County economy.

[17] See https://extendedstudies.ucsd.edu/UCSDExtension/media/UCSDExtensionsMedia/community-and-research/center-for-research-and-evaluation/San-Diego-Labor-Market-Analysis-Advanced-Manufacturing.pdf

Comparison

Comparing the two tables of economic benefits yields some interesting insights (see Table 3).

Table 3: Comparison of Estimated Annual Economic Benefits (Direct, Indirect & Induced) of an Inland Port vs. an AMZ, per $1 Million in Operational Output

Economic Multiplier	Inland Port	AMZ	% Difference	Notes
Employment*	9.9	5.1	92%	higher for an inland port
Earnings	$590,000	$460,000	28%	higher for an inland port
Output	$1,770,000	$1,650,000	7%	higher for an inland port

**Note: Employment in person-years*
Sources: IMPLAN, RCG

At first glance it would appear that an inland port is the clear choice: jobs supported in Clark County are almost double, total earnings (both wages/salaries and proprietor's income) are over 25 percent higher, and total output is greater. That said, RCG computed the weighted average compensation per worker (including benefits) and arrived at $66,500 per worker for an inland port development versus $103,600 per worker for an AMZ development.[18] In large part this is because workers in an AMZ's most prevalent occupational category ("Production Occupations") earn in excess of $86,000 per year (including benefits), while workers in an inland port's most prevalent occupational category ("Transportation and Material Moving Occupations") earn approximately $56,000 per year (including benefits).

In other words, an inland port would support almost twice as many workers (direct, indirect and induced) in Clark County as an AMZ, but those workers would earn roughly two-thirds of the compensation that jobs supported by an AMZ would earn, on average.

A second factor to consider in evaluating an AMZ compared to an inland port development at Apex is emerging competition for a similar port in Barstow, California, 200 miles closer to the ports of Los Angeles and Long Beach. The Barstow International Gateway ("BIG") is a $1.5 billion, 4,500-acre integrated rail facility being developed by BNSF Railway on the west side of Barstow, adjacent to the BNSF mainline and the Alameda Corridor.[19] BIG will consist of a railyard, intermodal facility and warehouses for transloading freight from smaller international containers to larger domestic containers.[20] The railyard is planned to accommodate up to 100,000 containers per year, and the intermodal facility will be able to handle up to 200,000 containers per year. Additionally, the warehouses will be able to store up to 1 million square feet of freight. BIG is expected to create thousands of direct jobs and generate millions of dollars in economic activity for Southern California. The project is currently in the permitting process, but BNSF expects to begin construction in 2023.

[18] Note: these are compensation averages across all occupations supported by the Project—direct, indirect and induced.
[19] https://www.railwayage.com/freight/class-i/bnsf-going-big-in-barstow%EF%BF%BC/
[20] https://www.bnsf.com/news-media/railtalk/service/barstow-big.html

Because Barstow is located on I-15 - Apex's link with the ports of Southern California - BIG has the potential to reduce demand for services of an inland port at Apex. Although cargo destined for Salt Lake City and points east, for example, would still create demand for services at an Apex inland port, total demand is likely to be much less once BIG is operational.

Conclusion

The development options for the Project offer both significant potential for economic growth and job creation in Southern Nevada. An inland port would provide significant economic benefits, attract new employers to the region and greatly enhance Southern Nevada's transportation infrastructure. An AMZ would also bring significant economic benefits, new employers and higher-paying jobs than an inland port. Both will require extensive infrastructure investments from the public and/or private sector and both can have adverse environmental impacts if proper care is not taken.

It should also be noted that the choice to develop an inland port does not preclude the development and operations of advanced manufacturing at the Project, i.e., a "hybrid" development. The practical implication is that, if higher-paying jobs are the desired economic benefit of the Project, then for every additional $1 million in direct output from advanced manufacturing operations at the Project, the hybrid development would support approximately 5.1 of those higher-paying jobs, annually. A 50-50 split between an inland port land and AMZ-oriented business/industrial park is one of many possible hybrid uses that would generate annual economic benefits similar to those in Table 4.

Table 4: Estimated Annual Economic Benefits of a 50-50 Hybrid Inland Port/AMZ per $1 Million in Operational Output

	Employment	Earnings	Output
Direct	3.9	$295,000	$1,000,000
Indirect	1.9	$130,000	$390,000
Induced	1.7	$100,000	$320,000
Total	**7.5**	**$525,000**	**$1,710,000**
Multiplier	***1.9***	***1.8***	***1.7***

Sources: IMPLAN, RCG

Ultimately, the optimal mix of uses and the necessary infrastructure investments for the Project demands careful consideration of the economic, environmental and infrastructure factors identified herein, not the least of which is the pending competition for inland port services from BIG. The success of the Project will require a targeted business attraction strategy, a broad workforce reskilling program and a long-term commitment to the strategy and

program. By taking a comprehensive and inclusive approach to planning and development, the Project can be optimized to generate long-term, sustainable economic and community benefits for Southern Nevada.

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7219 West Sahara Avenue, Suite 110

Las Vegas, Nevada 89117

Tel: 702-967-3188 Ext. 101

www.rcgecon.com