



**NORTHERN MICHIGAN
UNIVERSITY**



**MICHIGAN STATE
UNIVERSITY**

U.P. Food Hub
Aggregation, Distribution, & Light Produce
Processing Feasibility Study (Feb 2022 – Jan 2023)

Feasibility Final Report (Executive Summary)

New Venture Advisors

PROJECT PARTNERS

New Venture Advisors conducted the feasibility study in partnership with the lead partners in a project funded by a planning grant from the Michigan Health Endowment Fund.

 <p>CENTER FOR RURAL HEALTH NORTHERN MICHIGAN UNIVERSITY</p>	<p>The Northern Michigan University Center for Rural Health (NMU-CRH) seeks to improve the health and well-being of Upper Peninsula residents and communities by developing collaborative partnerships that improve the access and availability of affordable, quality healthcare services.</p>
 <p>U.P. FOOD EXCHANGE upfoodexchange.com</p>	<p>The U.P. Food Exchange (UPFE) is a resource portal for farmers, businesses, and individuals looking to participate in the local food system. The UPFE supports local food projects of all kinds, including policy work, community education, food safety, business development, farm to school, and more. Key to the work of the U.P. Food Exchange is the UPFE Online Marketplace, a food hub that aggregates local food products for institutions and retail in Michigan’s Upper Peninsula. The U.P. Food Exchange is a collaboration between many businesses and organizations working together to support local food and the goals of the Michigan Good Food Charter.</p>
 <p>FEEDING AMERICA West Michigan</p>	<p>Feeding America West Michigan (FAWM) is at the center of a united community effort driven by the core beliefs that hunger is unacceptable, and meals can change lives. Feeding America West Michigan is one of 200 food banks in Feeding America’s nationwide network and one of seven Feeding America member food banks located in Michigan. FAWM has been serving communities in need in Michigan since 1981 by gathering and distributing food to relieve hunger and increase food security in West Michigan and the Upper Peninsula.</p>
 <p>MSU Extension</p>	<p>The Michigan State University Upper Peninsula Research and Extension Center (MSU-UPREC) is a hub for sustainable agriculture innovation and education that is relevant to the environment, economy, and needs of UP communities. The UPREC was established in 1899 at Chatham, Michigan, to conduct, "experiments pertaining to agriculture and horticulture...beneficial to the agricultural interests of the Upper Peninsula." For over 120 years, the UPREC has spearheaded research investigating the breadth of Upper Peninsula crops and livestock and delivered educational programming serving generations of Upper Peninsula farmers and community members.</p>
 <p>CUPPAD</p>	<p>The mission of the Central Upper Peninsula Planning and Development (CUPPAD) Regional Commission is to foster cooperative analysis, planning, and action for economic, social, and physical development and conservation within the central Upper Peninsula. Dedicated planners, economic developers, and GIS professionals are passionate about the prosperity of the region. Acting as an advocate, they help communities prosper with sound planning practices, federal funding opportunities, technical assistance, and much more.</p>
 <p>NEW VENTURE ADVISORS LLC</p>	<p>New Venture Advisors (NVA) is a consulting firm that specializes in food system planning and infrastructure development. Since 2009, New Venture Advisors has helped hundreds of communities across North America identify strategies to develop food systems, food enterprises, and food policies that are good for farmers, food entrepreneurs, consumers, and the intermediaries that connect them.</p>

MISSION & VISION

MISSION

- The **mission** of the proposed multi-purpose facility would be to support those working in both local and charitable food distribution. The feasibility study was designed to determine if the facility is needed, if it is economically viable, and, if so, how to build a collaborative aggregation and distribution system within which the facility would play a central role.

VISION

- The project partners have a **shared vision** of a facility that increases the resiliency of the food system in the U.P. This would assist by growing sales of products (raw farm and value-added foods), increasing accessibility of food, and decreasing costs to do so through charitable distribution networks, while supporting the health and wellness of U.P. residents.

IS THIS A FIT FOR THE UPPER PENNINSULA?

- **The feasibility study demonstrated strong interest in the region** – from producers, institutional buyers, and wholesale buyers – in both additional storage (infrastructure) and a network which could provide solutions for distribution and logistics problems in the region.

THE FEASIBILITY STUDY CONDUCTED BY NVA

THE STUDY ASSESSED...

- **Community support**
- **Operational viability**
- **Financial sustainability**
- Agricultural, entrepreneurship, and buyer needs across a **15-county study region**, with Marquette County as its' focal point.

KEY RESEARCH TOOLS UTILIZED

- A series of **interviews** with system stakeholders
- Direct data collected via **surveys** of regional producers, small businesses, and wholesale buyers
- Feedback and input from the project team partners during **workshop sessions** to develop and refine a network and infrastructure model.

KEY AREAS ASSESSED

- **Supply and demand for local products** from buyers (wholesale, institutional, and distributors)
- **U.P. farmer and producer landscape** – and what programs, infrastructure, or services are desired
- **U.P. small business and maker landscape**
- **Distribution landscape** – and identifying the systemic constraints this project could provide solutions to.

MODELS ARE BASED ON...

- The models prioritized the **infrastructure and services that best support identified local producer and small business needs.**
- **Crop volume, pricing, and seasonal information** from both farmers and buyers formed the foundation of the structure and financial models.
- The model combines **needed infrastructure and a regional logistics network.**

AGRICULTURAL LANDSCAPE

- There are approximately **2,483 acres** used for vegetable and fruit production in the U.P.
- This includes **184 vegetable** operations, a 17% increase since 2012, and **128 fruit operations**, a 4% increase since 2012.
- The average fruit/vegetable farm size is **8 acres**.
- The top vegetables in production are **apples, potatoes, green beans, winter squash, lettuce, tomatoes, and garlic**.
- The average Income per Operation is **\$7,747**, much lower than the state average of \$31,415.
- **Most farms are selling Direct to Consumers** for a total of \$2,557,000 in sales.
- **Despite Michigan having high agricultural outputs, the Upper Peninsula accounts for only 1% of the state's agriculture sales.**
- There is a noted lack of infrastructure that supports the local food trade, including access to capital for farmers and the lack of packing, processing, aggregation, and distribution facilities.
- Despite high interest from farmers in growing and scaling production to sell to institutional sales channels – **current local product volumes are well below the existing demand from commercial buyers.***

County	Fruit Operations	Vegetable Operations	Veg/ Fruit Acres
Alger	4	30	61
Baraga	6	7	7*
Chippewa	14	22	230
Delta	20	19	874
Dickinson	13	10	465
Gogebic	5	4	14
Houghton	13	23	91
Iron	4	6	500
Keweenaw	6	0	15
Luce	3	3	6*
Mackinac	8	9	42
Marquette	9	32	61
Menominee	21	20	94
Ontonagon	2	2	10*
Schoolcraft	0	5	13

	Dairy	Meat	Poultry /Eggs	Fruits/ Vegetables
Local quotient	124%	40%	2%	14%
Local food demand	\$31,200,000	\$28,620,000	\$10,189,000	\$78,710,000
Local food supply	\$43,300,000	\$9,945,000	\$202,500	\$12,146,400
Unmet market for local food	-	\$18,759,000	\$9,919,000	\$66,010,000

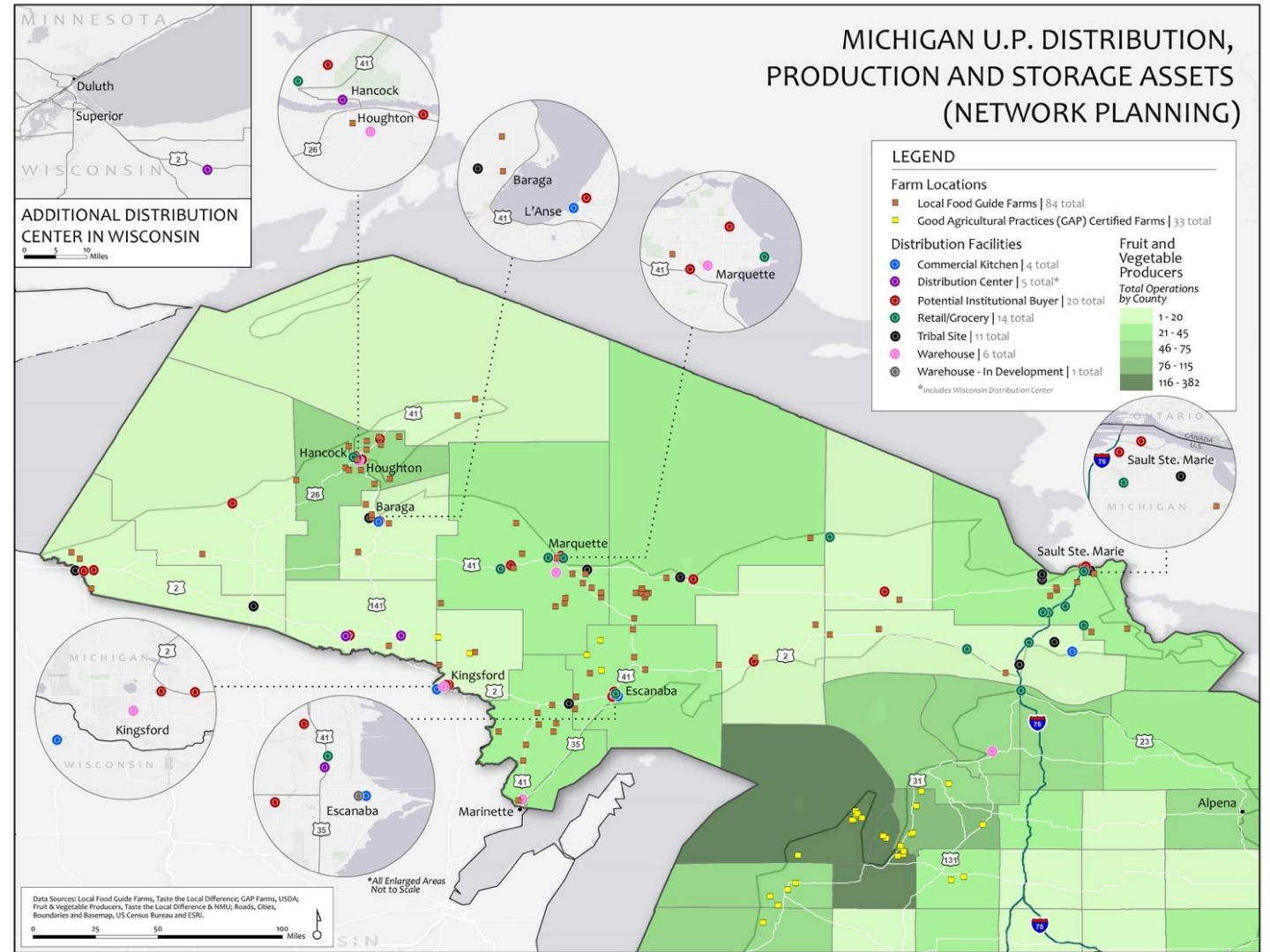
The goal of the expanded distribution research and mapping exercise was to **identify three objectives for a network model**:

1. If the U.P. has enough **potential** buyers, distributors, and infrastructure sites to support a possible network model with or without the proposed food hub infrastructure.
2. The **geographic spread of existing potential buyer and stakeholder sites**.
3. Where existing assets are **in relation to primary growing areas** to help provide solution models for producers accessing markets and sales channels supported by the network model

The conversations with regional distributors, farmers, and buyers identified three opportunities that could be impactful in supporting the network hub model being developed:

1. **Centrally located space was desired** by regional distributors and/or partners (storage or cross-dock space)
2. **Last-mile product distribution** from a central or lower U.P. drop site was of interest to regional distributors
3. **Opportunity to blend routes** with WI or downstate partners exist.

MICHIGAN U.P. DISTRIBUTION, PRODUCTION AND STORAGE ASSETS (NETWORK PLANNING)



U.P. VALUE CHAIN - NETWORK AND DISTRIBUTION EVALUATION

OPERATING MODEL IMPLICATIONS

Distribution is strained in the U.P.

- Distribution is a significant issue throughout the U.P. The hub can serve a role related to distribution and logistics in partnership with regional distributors and partners (last-mile distribution).

Production space access interest is limited from most audiences.

- There is limited regional interest in production, processing, or kitchen space amongst producers and small businesses, and the models should consider this for future collaborations or opportunities, but these aspects should not drive the development models.

Storage is a priority.

- Access to cold storage is a priority amongst all audiences. It may offer outside revenue opportunities to partner with local organizations, food access organizations, and commercial distributors to lease or cross-dock at the facility.

Partnerships will be key.

- **Collaborations across the local food system will be needed to drive a network or hub model.**
- Space lease, distribution partnerships and opportunities, support of local producer access, and other needs or outcomes will all rely on programmatic, funding, and operational partnerships being identified.

NETWORK & INFRASTRUCTURE MODELS: CORE BUSINESS

In the model, the **network's core business is the movement (distribution) of goods across the U.P.** The network can generate revenue (to support the operation of infrastructure and other operational costs such as trucks and personnel) through three primary levers:

Distribution/Trucking

- Last-mile delivery of commercial loads and goods is the primary revenue lever. The network can offer this service to commercial distributors, packers, manufacturers, regional organizations, partner organizations, and small business entities. This may also include back-hauling of goods (between lower Michigan, Wisconsin, and the U.P.) and pick-ups/drop-off services related to commercial or producer clients.

Space Rental/Lease

- A secondary lever is a lease or rental of storage and logistics space (cross-dock, parking, etc..) within the facility to outside entities such as food access organizations, local partners, or commercial entities.

Aggregation Income

- Most hubs' primary income is generated via the warehousing and distribution of local food products according to regional retail, institutional, and partner needs.

(Future) Light Produce Processing

- In the future, the facility has the potential to generate limited revenue from offering light produce processing as a service (to local producers) and the sale of lightly processed or value-add products to regional institutional buyers. As analysis demonstrated, there is limited interest in this offering (either via self-access production or as a service, as noted) from both producers and buyers – and once the network is developed, future growth amongst producers might support this additional offering (which would help to diversify revenue opportunities for the hub and network and increase operational sustainability).

NETWORK MODEL

The network model included **THREE** sizing exercises that helped to inform its...

- infrastructure need (storage and related spaces in the hub infrastructure)
- potential vehicle and driver demand (to inform equipment and labor models)
- revenue opportunity (to inform cost and revenue projections)



Regional Asset Mapping



Drivers & Vehicles Needed to Support Routing



Revenue Opportunities and Vehicle Costs

“HUB” MODEL (INFRASTRUCTURE)

BUILDING

~22K SQ FT

BUILDING +
HARD
SURFACE

~33K SQ FT

LOT MINIMUM

2-3 ACRES

HUB SPACE NEEDS

- **Logistics spaces:** loading docks, receiving space, external truck routing space, parking
- **Warehouse and storage spaces:** warehouse, dry storage, equipment storage, cold storage, frozen storage
- **Aggregation spaces:** washing area, packaging/sorting space, holding (isolation space)
- **Office and meeting spaces:** private office, shared office space, and meeting space
- **Support spaces:** toilets, staff welfare space, mechanical/storage space, and transit/circulation space
- **(Future Option) Processing and production spaces:** future processing and/or kitchen space and scullery space

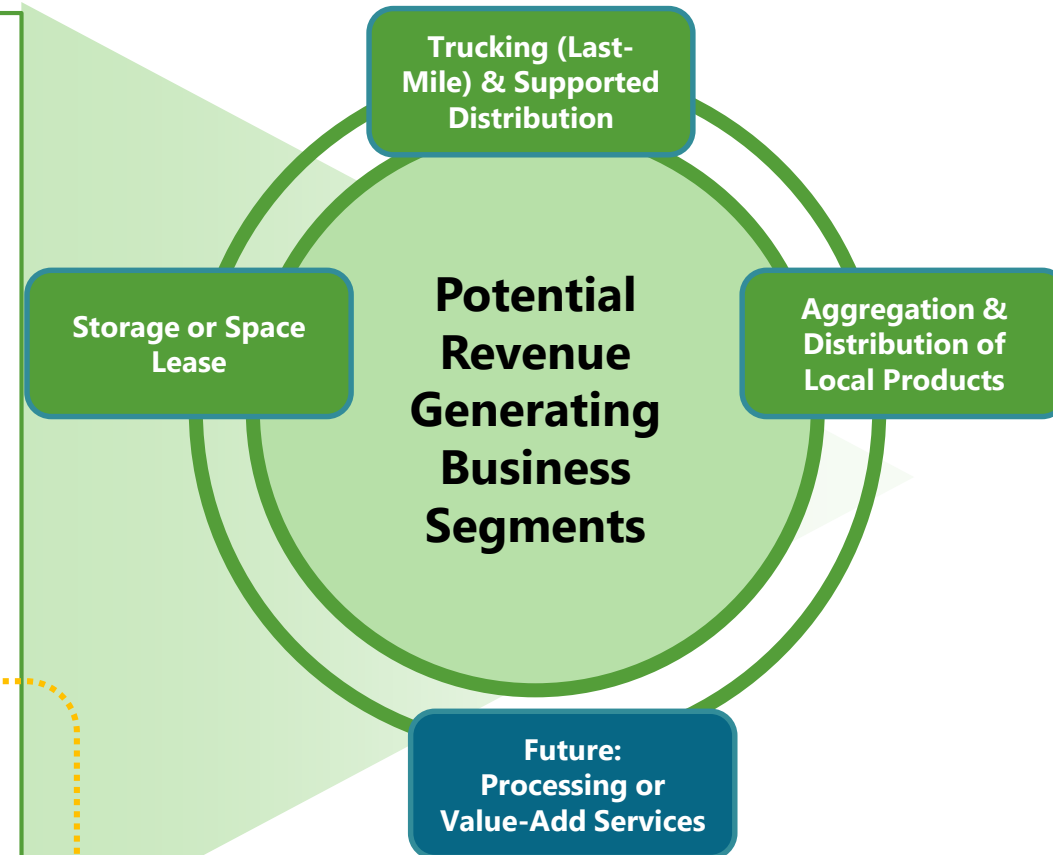
Financial Model SCENARIOS

To examine the potential of the NETWORK and HUB INFRASTRUCTURE models to operate sustainably over time, NVA created two initial financial models:

1. **Network Only Model** – no new infrastructure is developed; the network offers distribution, trucking (last mile), pick-up/drop-off, and related logistics services at a fee.
2. **Network PLUS Hub Infrastructure Model** – the network operates as outlined above, but a central “hub” infrastructure site is added to the network to support network operations better.

The second model – **Network + hub** - was identified by project leads to best meet project objectives. THREE HUB SIZES were created based on **projected volumes that might be moved through the hub to support all the potential business segments** (outlined in the graphic to the right).

The MEDIUM (Scenario “B”) and LARGE (Scenario “C”) size hubs were deemed the best fit for the project’s objectives and are detailed in the following slides across COST MODELING and BREAK-EVEN MODELING.



COST MODEL

- The accompanying tables summarize the total **upfront build budget and project costs for the proposed food hub infrastructure** across the original three sizing scenarios.
- Soft costs (working capital)** are included in the budget to cover working capital needs as the facility ramps up operations.

Cost & Structure Financial Models --->			
Uses	Scenario A	Scenario B	Scenario C
Land	21,000	21,000	21,000
Building	2,515,236	3,621,466	5,897,435
Equipment	338,370	338,370	451,270
Working Capital	415,595	1,212,915	1,430,674
Total	3,290,202	5,193,751	7,800,380
Uses (Detail)			
Use	Scenario A	Scenario B	Scenario C
Land Cost	21,000	21,000	21,000
Min Viable Acreage	3.0	3.0	3.0
Avg. Cost per acre	7,000	7,000	7,000
Building Cost	2,515,236	3,621,466	5,897,435
Total facility space	13,578	20,117	33,410
Avg. Cost per sq. ft	185	180	177
Equipment	338,370	338,370	451,270
Working Capital	615,595	1,512,915	1,830,674
6 months of COGS/ Opex	NA	434,943	552,946
Support facility till breakeven		179,409	-
Purchase of trucks	200,000	300,000	400,000
Pre-occupational capital expenses (@20% of PP&E)	215,070	298,038	477,203
Total	3,290,202	5,193,751	7,800,380

ALL BUSINESS SEGMENTS: CONSOLIDATED P&L (EBT)*

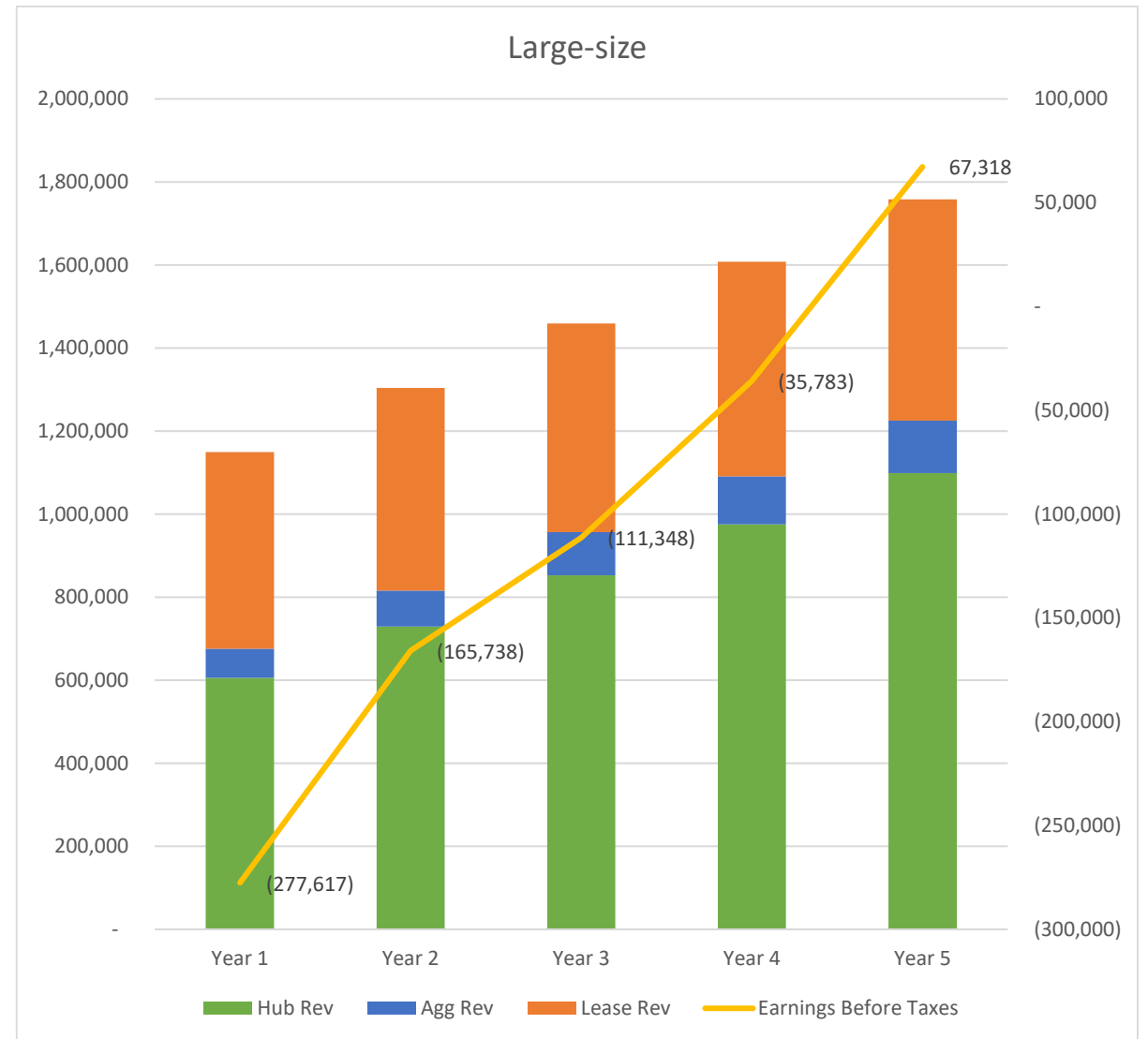
*INCLUDES IMPACT OF DEBT AS PART OF FUNDING STACK.

Revenue	Mid-size					Large-size				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Network/Distribution	435,275	520,725	608,850	696,975	787,775	605,975	729,250	852,525	975,800	1,099,075
Aggregator	35,807	44,258	53,183	58,691	64,482	70,182	86,745	104,239	115,035	126,385
Lease	274,233	282,460	290,934	299,662	308,652	473,640	487,850	502,485	517,560	533,086
Total Revenue	745,316	847,443	952,967	1,055,329	1,160,909	1,149,798	1,303,845	1,459,249	1,608,395	1,758,547
Costs										
Vehicle Overhead Cost	80,266	88,973	97,681	106,389	115,096	96,098	107,972	138,210	150,084	161,958
Labor Costs	421,655	434,305	447,334	489,134	503,808	421,655	434,305	486,908	529,895	545,792
SG&A	51,837	53,392	54,994	56,644	58,343	63,127	65,021	66,971	68,981	71,050
Utilities (\$10/sq.foot)	172,433	177,606	182,935	188,423	194,075	286,371	294,962	303,811	312,925	322,313
Taxes & Insurance (\$2/sq.foot)	143,695	148,005	152,446	157,019	161,729	238,642	245,802	253,176	260,771	268,594
Total Op Costs	869,886	902,282	935,389	997,608	1,033,052	1,105,893	1,148,061	1,249,075	1,322,655	1,369,707
Op Profit/(Loss)	(124,570)	(54,839)	17,579	57,721	127,858	43,905	155,784	210,174	285,739	388,840
Depreciation	143,274	143,274	143,274	143,274	143,274	226,666	226,666	226,666	226,666	226,666
Interest payment	46,401	45,631	44,826	43,984	43,103	69,689	68,532	67,323	66,058	64,735
Debt Amortization	16,757	17,527	18,332	19,175	20,055	25,168	26,324	27,533	28,798	30,121
Earnings Before Taxes	(331,002)	(261,271)	(188,853)	(148,711)	(78,574)	(277,617)	(165,738)	(111,348)	(35,783)	67,318

CONSOLIDATED P&L (EBT) (LARGE SIZE MODEL)

As illustrated in the figure, the large-size model has the potential to break even only if all business segments are utilized to generate revenue.

The large-size model (Scenario "C") demonstrates potential earnings before taxes of ~\$67K in year 5.



CONCLUSION

The study presents a viable financial and operational model for a large-sized aggregation and distribution facility at the center of a regional distribution network model.

The facility offers an infrastructure that can support identified community, regional producer, and small business needs and potentially help to provide needed support for regional distribution.

The feasibility study identified a significant need for solutions-based approaches to logistic and trucking issues for commercial, nonprofit, and regional agricultural operators.

The NETWORK + HUB model presents a potential solution but will require collaboration and significant investment (both financial and mission support) by all project partners and regional partners.

In summary, this project **creates a vital link in the local food value chain** – supporting greater connections to fresh, locally grown, produced products for consumers.

The ability to build a viable facility and achieve the benchmarks of a sustainable model **is contingent on several factors being met:**

- The distribution network is a significant component of the model's design and revenue derivation. **Identifying and establishing cooperative network partnerships is the principal driver of that network's success.** The project team must support the development of these partnerships (as outlined in the following section, Strategic Partnerships) to ensure the viability of the network and this model.
- The model is also structured around the identification of a potential anchor tenant or tenants who could lease space in the facility – such as partners, commercial entities, or farmers/producers in the region. As with the above note, **identifying these potential tenants will require initial outreach by the project team and is important in realizing the utilization parameters set by the model.**
- Finally, the model is conservatively built to represent a greenfield site or new build. The project team and partners **must identify a compatible site or existing facility (for redevelopment) for the infrastructure piece to move forward.** As noted in the financials, this may have additional implications on the total cost for development and thus should be pursued before finalizing funding.

KEY ACTIONS - IMPLEMENTATION

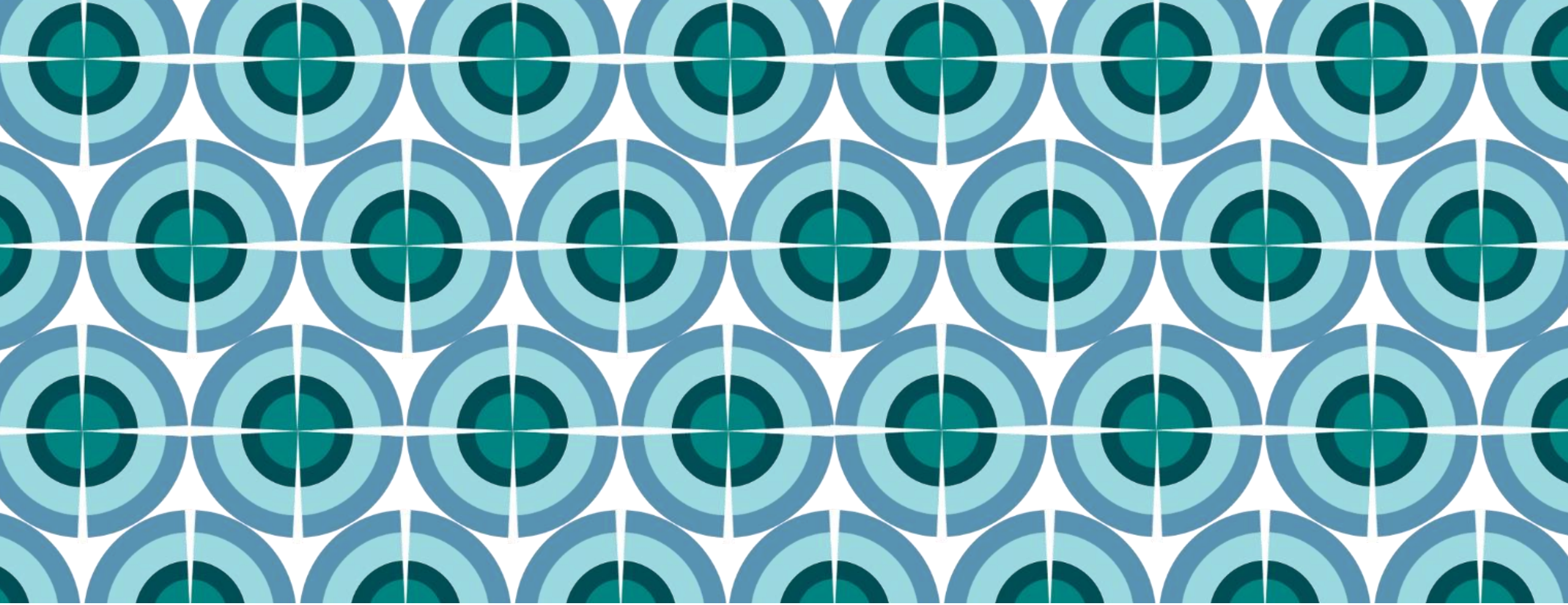
Continue to develop and clarify the network through the identification of partners and network assets.

Support of agri-business and growth of farms across the U.P.

Business Plan development.

Site identification and development.

Fundraising!



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