MARINE PROGRAM FEASIBILITY STUDY

Prepared for

DEXTER COMMUNITY SCHOOLS

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Executive Summary

This feasibility study assesses the potential for Dexter Community Schools and Whitmore Lake Public Schools to establish two complementary initiatives: (1) a Career and Technical Education (CTE) pathway in marine industries and (2) a high school sailing program. Based on comprehensive analysis of economic data, industry trends, demographic factors, and operational requirements, we conclude that both programs are highly feasible when implemented as a consolidated effort between the two school districts.

As part of the project we also considered opportunities to consolidate services in the districts. In doing so we determined that each district has differing approaches to payroll and human resources services, limiting any consolidation opportunity there. We also assessed opportunities to consolidate community education programs and found that community specific funding sources would present a barrier. As such we focused this feasibility study on a consolidated effort between Dexter Community Schools and Whitmore Lake Public School to create and operate a Marine Industry CTE program and a recreational and racing youth sailing program. The model presented in this study can be applied to other CTE and CTE-type programs.

Key Findings

1. **Strong Economic Foundation**: Michigan's recreational boating industry generated $11.7 billion in annual economic activity and supported approximately 45,000 jobs in 2023. In the Dexter and Ann Arbor areas specifically, recreational boating contributed $693 million to the local economy while supporting 60 businesses and 2,800 jobs.
2. **Critical Workforce Needs**: The marine industry faces a significant skills gap as current technicians approach retirement age. Marine technicians are described as "one of the most coveted resources of the boating industry," with employers reporting persistent difficulty filling these positions.
3. **Educational Opportunity Gap**: Despite Michigan's water-rich environment with 11,000 inland lakes and 3,288 miles of Great Lakes shoreline, our scan identified no dedicated high school marine CTE programs in Washtenaw and Livingston Counties, or even in the greater Southeast Lower Michigan area. This presents a clear first-mover advantage.
4. **Growing Recreational Interest**: Michigan is one of the fastest-growing regions for high school sailing in the nation, with 44 active high school teams already competing through the Midwest Interscholastic Sailing Association (MISSA). Recreational boating as a whole has also seen steady growth in recent years supporting interest among students and families.
5. **Strong Partnership Potential**: Multiple stakeholders have expressed interest in, or are well positioned for, supporting initiatives that will prepared a future workforce for the industry, including the Michigan Boating Industries Association (MBIA), American Boat &

Yacht Council (ABYC), local marinas, and the Michigan Sailing Club (based on Baseline Lake in Dexter).

6. **Financial Viability**: Multiple funding streams exist through Perkins V federal funding, state grants, industry partnerships, and community contributions. Industry partnerships are a particularly cost effective strategy to pursue, as has been demonstrated by the Power Sports CTE program hosted by the Wexford-Missauke ISD in mid-Michigan. A phased implementation approach can limit initial investment while building toward sustainable programs.

Recommendations

1. **Implement a Consolidated Program**: Proceed with establishment of both the marine Industry CTE pathway and high school sailing program as a joint venture between Dexter, Whitmore Lake Public Schools, and the ISD, leveraging complementary resources and creating critical mass for sustainable programming.
2. **Adopt a Phased Approach**:
    - Begin with a pilot marine technology course led by a part-time instructor and using existing facilities, or, if funding is available, acquire, construct, or renovate a facility.
    - Approach the Michigan Sailing Club and Portage Yacht Club, along with the University of Michigan Sailing Team, about their willingness to partner in the creation of a recreational and racing sailing program for high school students in the area.
    - Expand to a full two-year CTE pathway and competitive sailing team as interest and resources grow.
3. **Develop Strategic Partnerships**:
    - Formalize relationships with MBIA and ABYC for curriculum development and industry certification.
    - Partner with Michigan Sailing Club, Portage Yacht Club, and/or Whitmore Lake marina facilities for sailing program facilities and CTE programming.
    - Engage local marine businesses, as well as Yamaha, for equipment purchases and donations, internships, and mentorships.
4. **Secure Diverse Funding**:
    - Apply for Perkins V funding through Washtenaw ISD
    - Pursue Michigan state grants targeting high-demand career fields or consolidation of programs and services.
    - Develop industry sponsorship program with tiered benefits
    - Establish a marine program foundation fund for community contributions
5. **Create Program Synergy**:
    - Design schedules to allow student participation in both programs
    - Integrate sailing equipment maintenance into marine technology curriculum
    - Develop joint marketing to highlight the comprehensive "marine culture" being developed

Conclusion

The proposed marine industry CTE pathway and high school sailing program represent a unique opportunity for Dexter and Whitmore Lake Public Schools to address industry workforce needs, enhance student engagement, and strengthen their educational offerings. By working together, these districts can establish financially sustainable programs that would be difficult to implement independently.

Our analysis confirms that with proper planning, phased implementation, and strategic partnerships, both the marine technology career pathway and recreational/competitive sailing programs are feasible and would provide significant value to students, the districts, and the broader community. We recommend proceeding with immediate planning and stakeholder engagement to capitalize on this opportunity.

Environmental Scan

Marine Industry Overview: *U.S., Michigan, Southeast Michigan*

The marine industry is a key economic sector in the United States and across several of its states, including Michigan. The prominent sectors in the industry include boat building, marinas, marine equipment, shipping, and water-based recreation. Based on the recent economic impact analyses in 2023:

1. Recreational boating generated about $230 billion in annual economic impact in the U.S. These activities also supported over 36,000 businesses and 812,000 jobs nationwide.
2. Michigan's recreational boating industry produced $11.7 billion in annual economic activity and about 45,000 jobs in 2023. These activities supported nearly 1,500 businesses statewide.
3. Southeast Michigan is a key region in the state for several marine industry employers. These businesses primarily include marina operators, marine service and repair shops, boating retailers, and tourism operators. In the Dexter and Ann Arbor areas, recreational boating generated $693 million in annual economic activity in 2023. These activities also supported around 60 businesses and 2,800 jobs surrounding the two cities.[1]

Michigan's Water Resources

Michigan is one of the world's most water-rich regions, which underpins its marine and boating economy. The state has over 11,000 inland lakes and about 3,288 miles of Great Lakes shoreline, more than any state except Alaska. More than 80 public harbors, 400+ private marinas, and 1,300 boat launch sites across Michiganmake boating and water recreation highly accessible.[2]

In Southeast Michigan, residents are never more than ~85 miles from a Great Lake and are often only minutes from an inland lake or river. This abundance of waterways has fostered a strong boating culture and a sizable market for recreational marine services, creating a favorable environment for programs related to marine careers. *See Exhibit I below.*

[1] *National Marine Manufacturers Association*, “Economic Impact Infographics by State,” accessed at www.nmma.org/statistics/publications/economic-impact-infographics.
R.J. King, “Study: Michigan Boating Industry Drives $10.2B in Economic Activity, 45,000 Jobs,” *DBusiness*, Dated May 23, 2023, accessed at www.dbusiness.com
[2] *Michigan Water Stewardship Program*, “Surrounded by Water,” accessed at miwaterstewardship.org/we-play-in-it/

Exhibit I. Map of Michigan Lakes and Rivers



Source: Michigan Maps via Geology.com; accessed during analysis.

The Decade of Growth for Recreational Boating

In the U.S., activities related to boating, such as canoeing, kayaking, fishing, sailing, and similar recreations, increased in value from $19 billion in 2012 to a little over $27 billion in 2023. A significant growth occurred during the 2020 pandemic. *See Exhibit II below.*

The recent popularity of recreational boating also raised the demand for the workforce from the marine trades. In particular:

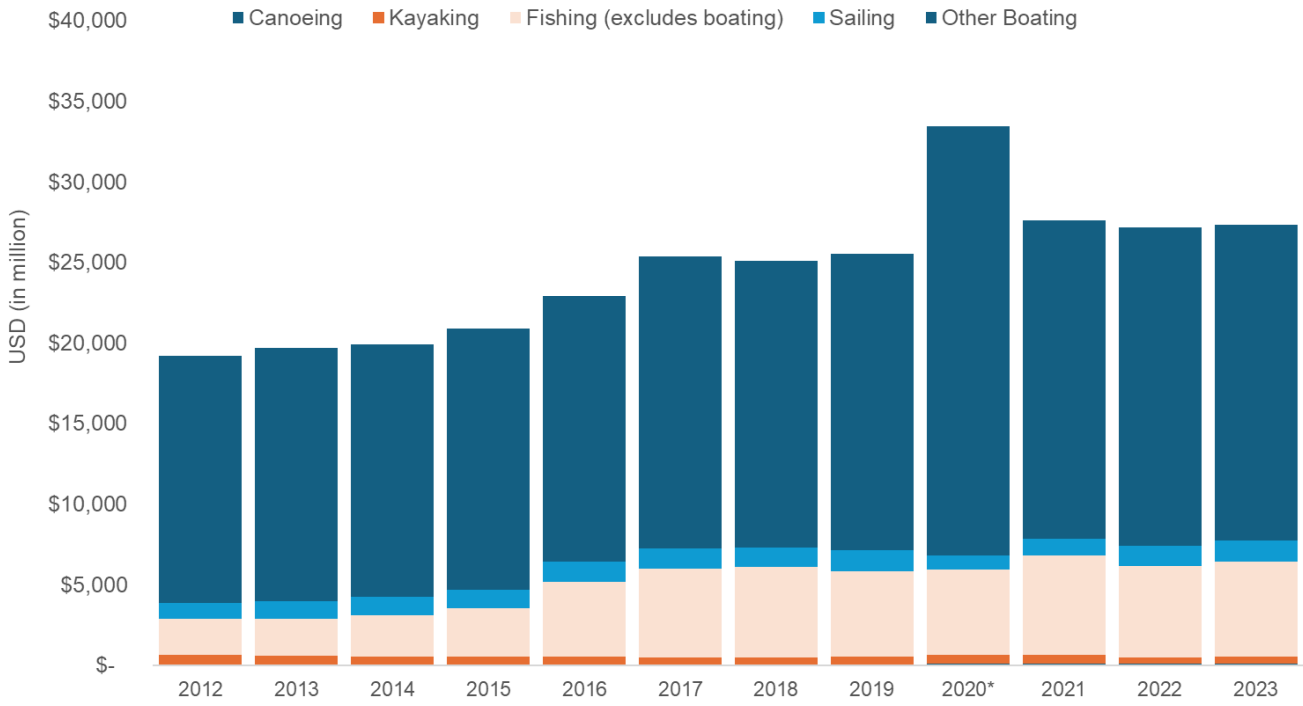
1. The growth in the industry revealed the aging workforce in marine trades, as reported by several employers. As many current technicians approach retirement, these businesses

now seek young, qualified marine technicians and skilled trades workers.[3]

2. The industry's growth also revealed the high demand for marine service technicians nationwide. The industry characterizes marine technicians as "one of the most coveted resources of the boating industry," emphasizing that a shortage of new entrants is a pressing issue.[4]

3. The growth in the industry also revealed a broader skilled trades gap, as reported by several employers. The businesses suggest developing career opportunities for students entering the marine industry through formal educational programs.[5]

Exhibit II. Real Value of Recreational Boating Activities, U.S. 2012-2023



** COVID-19 Pandemic Year*
Note: Value is calculated by the source in real dollars chained in 2017.
Source: U.S. Bureau of Economic Analysis (Real Outdoor Recreation Value Added by Activity)
Analysis: Michigan Virtual

[3] *Marine Retailer Association of the Americas*, "Workforce," accessed at mraa.com/workforce/
[4] Eric Haun, "Help Wanted: U.S. Marine Industry Struggles to to Fill Key Gaps," *Marine Link*, accessed at www.marinelink.com/news/help-wanted-us-maritime-industry-513964
[5] *Marine Retailer Association of the Americas*, "Workforce," accessed at mraa.com/workforce/

Marine Industry Career and Technical Educational Programs

A review of marine industry CTE programs suggested that in Michigan and its Southeast Region, where Dexter and Ann Arbor residents live, career development programs lag behind the opportunities available to residents and students.

The Gap. The Michigan Boating Industries Association (MBIA) has recognized this gap and is close to finalizing, with the Michigan Department of Education, a Classification of Instructional Programs (CIP) code for marine technology in high schools.[6] Currently, schools might only touch on marine concepts as part of small engine or auto tech classes. In addition, very few K-12 programs in Michigan focus on marine industry careers, which presents an opportunity for Dexter and Whitmore Lake to lead in this niche. A scan of the immediate two-county area (Washtenaw and Livingston Counties) and Southeast Michigan did not identify any dedicated high school marine CTE programs. Traditional high school career-tech centers in the region offer courses in automotive technology or small engine repair, but marine-specific training is absent. As a result, students interested in boating industry careers have had limited exposure at the high school level.

The Opportunity. Overall, the lack of existing marine CTE programs in Michigan combined with successful examples nationwide underscores both the need and the opportunity. Dexter and Whitmore Lake can draw on these models to create a program that fits the region. This lack of local programs means a new initiative in Dexter/Whitmore Lake would fill a regional void that aligns with industry demand. *See Table I below.*

Table I: Summary Review of Marine Industry CTE Program;
Selected Programs - U.S. and Michigan

Geography	Academy/Programs	State of the CTE Programs
United States		
New York City, NY	New York Harbor School	The New York Harbor School in New York City is a public high school centered on maritime careers. Students there choose among seven CTE pathways in marine science and technology, learning boat operations, marine biology, vessel maintenance, and more, all while getting on-water experience in New York Harbor.[7]
Toledo, OH	Maritime Academy of Toledo	It is a charter school with the first state-approved Maritime CTE program in

[6] Heather Steinberger, "A Great Awakening: Workforce Development, Part III: Building for the Next Generation," *Lakeland Boating*, accessed at https://lakelandboating.com/a-great-awakening/
[7] *U.S. Department of Transportation: Maritime Administration*, "K-12 Maritime Educational Programs," accessed at www.maritime.dot.gov/maritime-workforce/maritime-training

		the U.S., offering pathways in maritime careers alongside a standard curriculum. These schools show that integrating hands-on maritime training with academics is feasible and can attract students. Closer to Michigan, the Toledo Academy indicates a regional interest in marine education.[8]
Broward County, FL	Marine Service Technician Programs	Florida's demand for marine mechanics, noted as being among the highest in the country, has driven these programs, which can serve as a curriculum and industry partnership template. Several high schools or technical centers offer marine service technology programs in coastal states like Florida, where boating is year-round. For instance, in Broward County (FL) and the Fort Myers area, high school programs teach outboard engine repair, marine electronics, and rigging. These programs often partner with industry (receiving donations of engines from manufacturers like Yamaha or Mercury) and prepare students for entry-level technician certifications.[9]
North Providence, RI	Marine Trades Program	Some states have niche programs such as the marine trades program in Rhode Island (e.g., at North Providence High School, which expanded to include middle school) and various marine vocational courses in coastal New England supported by industry associations. Additionally, the American Boat & Yacht Council (ABYC) offers a marine service technology curriculum and an accreditation program for secondary schools, which has been implemented in several schools nationally. These national examples provide best practices, such as aligning with industry certification standards (e.g., ABYC, Yamaha), providing plenty of hands-on shop time, and leveraging local marine

[8] Ibid.
[9] *Pinellas County Schools*, “Marine Service Technology: Program Overview,” accessed at www.pcsb.org/Page/29755
Broward County Public Schools, “Technical Program: Marine Service Technology,” accessed at www.browardschools.com/Page/35788

		businesses for internships.[10]
Michigan		
Cedarville	Marine Trades Institute	One notable program is the Marine Trades Institute (MTI) in Cedarville, MI, which is a private post-secondary school offering marine technician training. GLBBS has partnered informally with some high school career centers (hosting field trips or short courses). MTI's President has been raising awareness among high school students and counselors about marine careers, indicating growing interest. She reported that while marine CTE in high schools lacks a specific program code, the state is working on curriculum and competency standards to support such programs.[11]
Warren	Marine Maintenance Technician Program	The marine maintenance technician program offered by Macomb Community College is a popular workforce and continuing education program in the southeast Michigan region. The program lasts seven weeks and is prepared with the contribution of the American Boat and Yacht Council, the Michigan Boating Industries Association, and local marinas.[12]
Traverse City	Marine Technology Program (Northwest Michigan College)	Northwestern Michigan College's Marine Technology major is a highly specialized degree in the global marine industry. The program helps students establish marine-related technical competencies and project management skills to work on marine mapping and hydrographic surveying, marine data processing and management, marine platforms and instrumentation, and marine project management.[13]

[10] *North Providence High School*, "CTE Pathways," accessed at npsd.k12.ri.us/nphs-cte-programs/home
[11] Marine Trades Institute, "About Us," accessed at marinetrades.edu/about-us/
[12] *Macomb Community College*, "Marine Maintenance Technician: Dockside Diagnostics," accessed at www.macomb.edu/programs-courses/programs/marine-maintenance-technician.html
[13] *Northwestern Michigan College*, "Marine Technology Program Information, " accessed at www.nmc.edu/programs/academic-programs/marine-technology/index.html

Benton Harbor,	Marine Maintenance Technician Program (Lake Michigan College)	The Marine Maintenance Technician program is also developed in collaboration with the American Boat and Yacht Council, the Michigan Boating Industries Association, and local marinas. The program trains individuals for a job as a Marine Maintenance Technician in seven weeks.[14]
Wexford County	Wexford-Missauke Power Sports and Equipment CTE Program	While not solely dedicated to Marine industries, the PowerSports and Equipment program at the WMCTC trains students in small engine repair and maintenance for equipment including inboard and outboard marine engines.

Table Analysis: Michigan Virtual

Youth Sailing Programs: Michigan and Relevant Regions

Sailing is a very popular recreational boating activity subcategory. It continues to grow in popularity among high school students. In the Midwest, high school sailing teams have been experiencing expansion. In particular, in recent years, Michigan has been widely considered to be one of the fastest-growing regions in the nation for high school sailing.[15]

Role of Sailing Associations. High school sailing is typically organized as a club sport (not MHSAA-sanctioned), but schools can field teams that compete in regional regattas through the Interscholastic Sailing Association (ISSA). Michigan is part of the ISSA's Midwest district (MISSA), which currently has 122 active high school teams in the Midwest and about 44 teams in Michigan. This includes teams from both public and private schools, often clustered around areas with accessible water.[16]

Table II: Summary Review of the Youth Sailing Programs, *Selected Programs*

Geography	Areas	State of the Youth Sailing Programs
West Michigan	Grand Rapids; Holland; Muskegon	Schools in the Grand Rapids, Holland, and Muskegon areas have numerous teams (e.g., East Grand Rapids HS, Holland HS, Spring Lake HS) supported by local yacht clubs and foundations.
Mid Michigan	Lansing	The Lansing Sailing Club hosts teams from several

[14] *Lake Michigan College*, “Marine Maintenance Technician,” accessed at www.lakemichigancollege.edu/academics/manufacturing-industrial-technology/marine-technology
[15] *West Michigan Youth Sailing Association*, “High School Sailing,” accessed at westmichiganyouthsailing.org/
[16] Ibid.

		schools across the area, including Bath, East Lansing, Okemos, Haslett, Lansing Catholic, and others. The program practices on Lake Lansing and often collaborates with the Michigan State University Sailing Center and sailing club for practices and coaching.[17]
Southeast Michigan	Detroit Metro	The Detroit metro area also has several established teams, such as those associated with Grosse Pointe South & North, West Bloomfield, Troy Athens, Brother Rice/Marian, Cranbrook Kingswood, and Detroit Country Day. These teams often practice on Lake St. Clair or inland lakes. For example, Grosse Pointe schools partner with the Grosse Pointe Yacht Club, and some Oakland County schools partner with the Pontiac Sailing Education Foundation and Pontiac Yacht Club on Cass Lake. There does not appear to be an active program in Washtenaw or Livingston counties.
Neighboring States	Ohio, Illinois, Wisconsin	Surrounding Great Lakes states like Ohio, Illinois, and Wisconsin also have high school sailing; for instance, Chicago-area schools have a robust sailing league, and in Ohio, programs in Toledo and Cleveland compete (a recent spring regatta on Lake Erie drew teams from across Ohio and Michigan). A Dexter team would have ample competition opportunities within a few hours' drive.[18]

Other Community Sailing Programs: In addition to school teams, Michigan has many community sailing programs that introduce youth to sailing. For example, the Traverse Area Community Sailing program, the Pontiac Sailing Education Foundation, and the Detroit Community Sailing Center offer lessons and junior racing. Many private clubs, including Bayview Yacht Club, Crescent Sail Yacht Club, the North Star Sail Club, and several others also offer junior sailing camps and competitive racing teams each summer. These teams compete as part of the Detroit Regional Yacht-Racing Association (DRYA) junior sailing circuit.

In the Dexter/Ann Arbor area, the Michigan Sailing Club (based on Baseline Lake in Dexter) is a cooperative club affiliated with the University of Michigan that welcomes local sailors. Such organizations could be key partners, providing access to sailboats and coaching for a new high school club. Whitmore Lake itself is a sizable lake that could host a sailing practice – a local boating club or marina there might be engaged to support a Whitmore Lake/Dexter sailing club.

[17] *Lansing Sailing Club*, accessed at lansingsailing.clubexpress.com
[18] Lonnie Huhman, "The Michigan Sailing Club Offers a Fun, Unique Experience, " *The Sun Time News*, Dated April 22, 2024, accessed at thesuntimesnews.com/the-michigan-sailing-club-offers-a-fun-unique-experience/

Demographic Analysis

Student Enrollment Trends

Dexter Community Schools: The schools in the community serve the City of Dexter and surrounding townships. The student enrollment across the school district represents around 8% of Washtenaw County's Intermediate School District (ISD). The overall K-12 enrollment trends in recent years show a decline from 3,600 students in 2019-2020 to 3,300 in 2024-2025. Dexter High School is the largest in the district and enrolls just over 1,000 students each year. See Table III below:

Table III. Student Enrollment Trends, Dexter Community District, 2019-2025

Type of Schools	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Dexter Alternative School	11	11	13	16	18	13
Creekside Intermediate School	522	475	474	513	522	479
Wylie Elementary School	495	483	497	454	449	486
Mill Creek Middle School	579	552	524	505	498	525
Dexter Early Elementary Complex	823	710	743	760	767	734
Dexter High School	1,186	1,151	1,160	1,116	1,091	1,053
Total Dexter Community School District (a)	3,638	3,398	3,427	3,386	3,367	3,311
Memo:						
Regional Share of Dexter Community School District	*2019-2020*	*2020-2021*	*2021-2022*	*2022-2023*	*2023-2024*	*2024-2025*
As a Share of Michigan	*0.2%*	*0.2%*	*0.2%*	*0.2%*	*0.2%*	*0.2%*
As a Share of Washtenaw ISD	*7.8%*	*7.6%*	*7.8%*	*7.8%*	*7.8%*	*7.7%*

(a) Includes students representing all schools listed in the school district.
Source: Michigan School Data (2019-2025); U.S. and Regional Share (Michigan Virtual)
Analysis: Michigan Virtual

Whitmore Lake Public School District: The schools in this district serve a smaller population than Dexter and represent less than 2% of Washtenaw County's Intermediate School District (ISD). In recent years, the overall K-12 enrollment trends show a marginal increase from 650 students in 2019-2020 to 672 in 2024-2025. See Table IV below:

Table IV. Student Enrollment Trends, Whitmore Lake Public School District, 2019-2025

Type of Schools	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Whitmore Lake High School	310	301	289	254	252	271
Whitmore Lake Elementary School	340	352	335	371	389	401
Whitmore Lake Public School District	650	653	624	625	641	672
Memo:						
Regional Share of Whitmore Lake Public School Distric	*2019-2020*	*2020-2021*	*2021-2022*	*2022-2023*	*2023-2024*	*2024-2025*
As a Share of Michigan	*0.04%*	*0.05%*	*0.04%*	*0.04%*	*0.04%*	*0.05%*
As a Share of Washtenaw ISD	*1.4%*	*1.5%*	*1.4%*	*1.4%*	*1.5%*	*1.6%*

(a) Includes students representing all schools listed in the school district.
Source: Michigan School Data (2019-2025); U.S. and Regional Share (Michigan Virtual)
Analysis: Michigan Virtual

Economic Outlook (Washtenaw & Livingston Counties)

Dexter and Whitmore Lake sit at the junction of Washtenaw County (Dexter and Ann Arbor area) and Livingston County (a portion of Whitmore Lake). The analysis of the key economic indicators for the counties suggests:

1. **Counties Population Growth Reflects Statewide Trends.** Amongst the two counties, Livingston County experienced growth in population when its residents increased from nearly 193,500 in 2019 to a little under 196,800 in 2023. Washtenaw County experienced a decline in its population in 2023 compared to 2019 figures, a trend also noticed statewide.

2. **GDP Continues to Grow for Both Counties.** The two counties grew their GDP during the previous five years. In particular, Livingston County's GDP grew from $7.3 Billion in 2019 to $7.8 Billion in 2023. In comparison, Washtenaw County registered a substantial growth when its GDP grew from $25.6 Billion in 2019 to $27.7 Billion in 2023. Due to the economic expansion, the GDP associated with recreational activities in both counties also experienced a boost.

3. **Counties Per Capita Income Remains Above Michigan.** The per capita income of the two counties remains well above Michigan. In 2023, Livingston County's per capita income was $73,173. The income level was significantly higher than the state ($61,144) and slightly below Washtenaw County ($77,537).

Exhibit IV. Key Economic Indicator;
State of Michigan, Livingston County, and Washtenaw County, 2019-2023

Geography	2019	2020	2021	2022	2023
Population					
Michigan	10,078,126	10,070,627	10,038,117	10,033,281	10,037,261
Livingston County	193,466	193,968	195,333	196,134	196,757
Washtenaw County	373,006	371,834	365,013	366,504	365,536
Real GDP (a)					
Michigan	$ 521,085,050	$ 501,893,842	$ 530,380,859	$ 543,720,854	$ 554,256,192
Livingston County	$ 7,265,008	$ 6,970,420	$ 7,561,469	$ 7,614,840	$ 7,752,182
Washtenaw County	$ 25,636,942	$ 24,986,674	$ 26,296,924	$ 26,969,477	$ 27,760,301
Real GDP (Recreation) (b)					
Michigan	$ 4,308,170	$ 3,004,976	$ 3,748,167	$ 4,248,051	$ 4,408,050
Livingston County	$ 46,690	$ 32,337	$ 48,298	$ 53,225	$ 53,360
Washtenaw County	$ 166,436	$ 116,207	$ 149,387	$ 172,189	$ 183,431
Per capita Income					
Michigan	$ 48,577	$ 52,798	$ 56,916	$ 58,009	$ 61,144
Livingston County	$ 58,639	$ 62,009	$ 67,363	$ 68,642	$ 73,173
Washtenaw County	$ 60,743	$ 63,356	$ 70,844	$ 72,867	$ 77,537

(a) Chained in 2017 dollars
(b) The category also includes Arts and Entertainment
Source: Bureau of Economic Analysis
Analysis: Michigan Virtual

Based on the key economic indicators, it is expected that many families in these countries would prefer to engage in outdoor recreation. For example, due to higher per capita income compared to the overall state, residents of these counties may own fishing boats or pontoon boats on local lakes.

The economic trends also indicate a natural interest in a marine-focused program or sailing club amongst households representing the two counties. It also implies a local market for marine services (repair, etc.), and possibly local business owners in the marine sector who are part of the community's socioeconomic fabric.

Marine Industry Workforce Demand & Employment Outlook

There is strong evidence of workforce demand in the marine industry, particularly in the recreational boating sector that this program would emphasize. These are summarized in the table below.

Table V: Summary Review of Marine Industry Demand & Employment Outlook

Geography	State of the CTE Programs
Shortage of Marine Technicians	Based on a review of the key industry stakeholders, several marine industry employers have experienced difficulty attracting qualified technicians. The existing talent is aging out, highlighting the growing demand for younger technicians with marine mechanics, electronics, and systems skills background.
Range of Career Opportunities	While the primary focus is on recreational marine careers (e.g., marine service technician, marina operations, boat sales, marine equipment manufacturing), students could also pursue broader maritime pathways. For instance, a student might start in a high school marine tech program and go to a maritime academy (such as the Great Lakes Maritime Academy at Northwestern Michigan College) to become a ship engineer or deck officer on Great Lakes freighters. Additionally, there are emerging opportunities in marine robotics, environmental science (water quality, aquatic ecosystem management), and marine construction. The program can widen students' perspectives by including exposure to these areas. However, the most immediate local jobs will be in the recreational boating sector – for example: ● Technicians at boat dealerships (fixing engines, installing accessories). ● Crew or staff at marinas and boatyards (launching boats, performing maintenance, fiberglass repair). ● Manufacturing roles (several pontoon and boat manufacturers are in Michigan, and they need assemblers, electricians, etc.). ● Entrepreneurship in boating services (some students might start their own business in boat detailing, canvas work, guiding fishing trips, etc., given the right skills and connections).
Local/Regional Demand	In the Detroit metro and greater Ann Arbor area, dozens of marinas on Lake St. Clair, the Detroit River, and inland lakes (for example, in Livingston County's Chain of Lakes) require skilled labor each season. Southeast Michigan has a concentration of boaters, which supports marine service firms. Furthermore, as boating continues to be popular (Michigan has nearly 1 million registered boats, one of the nation's highest totals, the long-term outlook for marine jobs is positive. Even if new boat sales fluctuate with the economy, the large base of boats in use ensures steady demand for maintenance and repair services.

Transferable Skills	It's also worth noting that many skills in a marine CTE program (engine mechanics, electrical systems, plumbing, fiberglass/composites) are transferable to other industries (auto, small engine, HVAC, etc.). This means students would have a broad employment base, adding to the program's attractiveness. The market analysis indicates that students who complete a marine career program could either enter the workforce immediately – filling much-needed roles – or continue to college/technical institutes with a strong foundation.

Multiple Opportunities

Although Dexter and Whitmore Lake represent a relatively small portion of the Washtenaw ISD's total enrollment, they are well-positioned to collaborate on two distinct but complementary initiatives that would benefit students in both districts and the broader community: a Career and Technical Education (CTE) program focused on marine industry careers, and a youth sailing program, potentially including a competitive high school sailing team. These initiatives present two key opportunities:

1. Collaborative Program Development - By partnering, Dexter and Whitmore Lake Community Schools can co-develop and deliver a CTE program that prepares students for careers in the marine industry—an area that aligns with regional economic opportunities but may be difficult for smaller districts to support independently. At the same time, the districts can collaborate on launching a youth sailing program, providing access to a recreational and competitive sport that promotes student engagement, teamwork, and outdoor learning. Together, these efforts reflect a shared investment in expanding educational and enrichment opportunities.

2. Attracting and Retaining Students - Both the marine-focused CTE program and the youth sailing initiative offer pathways for Dexter and Whitmore Lake to attract and retain students from across the Washtenaw ISD. Students from surrounding communities—such as Ann Arbor, Chelsea, and Pinckney—may be drawn to hands-on career training or the chance to participate in a local sailing league or high school sailing team. These programs enhance the districts' appeal and provide a unique value proposition that sets them apart from larger neighboring schools.

Program Assessment and Design Considerations

Best Practices from Existing Marine CTE Programs

A marine industry careers program for Dexter and Whitmore Lake can be built using best practices from other programs and aligned with industry expectations. Key components include the following:

- Curriculum and Certifications - Effective programs prepare students for recognized industry certifications. For marine technology, this includes credentials like ABYC's Marine Service Technician or Yamaha's outboard technician modules. ABYC provides a standardized curriculum and supporting materials for educators. The Dexter–Whitmore Lake program should adopt similar materials. By aligning instruction with these standards, students will be prepared to test for entry-level certifications by the time they complete the program.[19]
- Hands-On Learning - Marine trades require practical experience. Programs like Great Lakes Boat Building School dedicate significant time to shop work and applied tasks. The Dexter–Whitmore Lake program should do the same. Students should engage in structured projects—such as disassembling and reassembling an outboard motor, wiring a boat's electrical system, or repairing fiberglass sections. When available, instruction should use actual boats and components to keep work relevant.
- On-Water and Field Experience - Marine programs benefit from direct water access. The program should include activities like launching and retrieving boats, basic boat handling, and visits to marinas, boat builders, and marine industry events. For example, students could attend the Detroit Boat Show, which includes a career day organized by MBIA, or tour manufacturing sites like Crest in Owosso, Sunsation in Algonac, and SERO in Marine City.
- Internships and Industry Partnerships - Most high-quality programs incorporate work-based learning. Options include:
    - Summer internships at local marinas
    - Co-op experiences during the school year
    - One-day job shadowing or industry mentor programs

  The Marine Academy of Toledo offers a model, partnering with local businesses to place students in work settings.[20] Early conversations and the experience of the Wexford-Missauke ISD program suggest local marine businesses would be willing to

[19] *American Boating and Yacht Council*, "Education," accessed at abycinc.org/education/curriculum-for-educators/
[20] *Marine Trades Institute*, accessed at www.maritimeacademy.us/academicprograms/setting-sail-cohort-grades-10-12/career-tech-education-program/

support the program by mentoring students, donating equipment, or offering placements. A structured internship between junior and senior year could be a required course element.

Academic Integration

While the program may be a technical elective, it can include interdisciplinary components. Some schools use marine-related content and other CTE programs to reinforce math or science. For example, physics concepts could be taught through boat hull design, or math could be applied through engine diagnostics. Kalamazoo RESA Career Connect has Algebra II in CTE standards available.[21] These academic-to-applied CTE work connections support academic learning while keeping instruction applied and relevant to the trade.

A Two-Year (Grades 11–12) Pathway may look like:

- Year 1: Grade 11
    - Introduction to Marine Technology
    - Marine terminology, safety, boater certification
    - Basic tools and procedures
    - Marine Mechanics & Systems
    - Outboard and small inboard engines
    - Fuel, electrical, and steering systems
    - Students complete lab-based engine teardown and rebuild
    - Aligned with ABYC Fundamentals or Yamaha/Mercury certification prep[22]

- Year 2: Grade 12
    - Marine Systems II and Advanced Applications
    - Electronics, wiring, navigation systems
    - Fiberglass repair, plumbing systems, basic diesel engines
    - Capstone project (e.g., restore or rig a boat)
    - Prepares for ABYC Marine Electrical or Systems certification
    - Work-Based Experience
    - Weekly internship or partner project during spring semester
    - Could be integrated as a senior-year course requirement

Throughout the program, maintain engagement with the marine industry. This could include guest speakers from the U.S. Coast Guard, visits to manufacturers, and coordination with events that offer student programming. These connections support program quality and improve career awareness.

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[21] *Kalamazoo RESA*, accessed at www.kresa.org/Page/2488

[22] Yamaha is a highly recommended partner based on the experience of the Wexford-Missauke ISD Power Sports program. More on the Yamaha program is available at yamahaoutboards.com/newsroom/company-news/yamaha-helps-place-500-qualified-marine-technicians-in-dealerships

High School Sailing Program Structure

The sailing component should serve both recreational participants and competitive student-athletes. The recommended structure includes a general Sailing Club open to a broad range of students and a competitive Sailing Team for those who want to race. Both can operate under a shared framework with a focus on accessibility, skill development, and progression while also reinforcing academic content, especially in STEM curriculums.

Recreational Sailing Club

The Sailing Club would be open to Dexter and Whitmore Lake students in grades 7–12. Over time, the program could expand to include younger students through summer learn-to-sail camps. The club would focus on teaching sailing fundamentals in a welcoming, non-competitive environment. Activities would include fall and spring after-school sessions, basic instruction in sailing skills, and low-key regattas for fun. Sessions could run one to two days a week.

Students would learn core skills such as sailing terminology, rigging, knot-tying, and safety procedures. Many would also complete the state boater safety course as part of the club. Participation should be open to students with no prior experience, in line with guidance from the Interscholastic Sailing Association (ISSA), which encourages all students to get involved regardless of background.

The club will require access to a sailing venue. Two options to explore are:

- Michigan Sailing Club on Baseline/Strawberry Lake (near Dexter), which has dinghies and supporting facilities, as well as the Portage Yacht Club on Portage Lake.
- Whitmore Lake, where a marina or local sailing group may be willing to host boats and provide access. The high school's proximity to the water is a key advantage.

Local sailors, parents, or volunteers can assist with coaching and supervision. During the summer, students could continue developing their skills through community education classes or junior sailing programs offered by area yacht clubs.

Competitive Sailing Team

As skills develop within the club, students interested in racing can form the Dexter/Whitmore Lake Sailing Team. Since neither district currently has a team, a combined team would help ensure strong participation and allow the group to meet regatta eligibility requirements. Many high school sailing teams are already formed from multiple schools.

The team would practice more frequently—likely two to three times per week—especially leading up to competitions. Practice sessions would focus on race preparation, boat handling, tactics, and drills such as starting sequences and mark roundings. The team would register with

the Midwest Interscholastic Sailing Association (MISSA), which governs high school sailing in the region.

The team would aim to compete in several regattas per season, including the Michigan State Championship in both fall and spring. Regattas are typically sailed in two-person dinghies, with teams rotating through multiple boats over the course of a day. Participation requires meeting MISSA eligibility and coaching requirements, including having a school-approved faculty advisor present. Teams also pay modest fees for membership and regatta entry.

Coaching and Oversight

A head coach should be appointed to lead both the club and competitive team. Ideally, this person would be a certified sailing instructor (US Sailing Level 1 or higher). The coach could be a community member with sailing experience or a school staff member taking on the role part-time.

A faculty advisor is also needed to serve as a liaison with school administration and ensure proper oversight. The coach can be supported by advanced student leaders or parent volunteers. As the program grows, splitting coaching responsibilities between the beginner and advanced levels may be necessary to meet student needs.

Equipment and Facilities

To start, the program should look to borrow, purchase, or lease boats from a host facility. Many high school teams operate this way, using a fleet provided by a local yacht club or sailing school. If that isn't feasible, the program could acquire 4–6 used dinghies from collegiate programs that are upgrading their equipment. These small sailboats (typically 420s) are the standard for high school racing and allow for efficient instruction and transportation.

For safety, a coach's motorboat (such as an inflatable RIB) should be on the water during every practice. Support for this may come from a local marina or the county sheriff's department. If the program becomes more popular, fundraising efforts could support purchasing a dedicated fleet and other gear.

Club Operations and Student Leadership

The sailing club can be organized under a local Community Education program, as part of an existing sailing club in the area like the Michigan Sailing Club, or as an official school club. Either structure would support flexibility in operations and allow for independent fundraising. Including student leadership roles—such as team captains or club officers—would encourage peer mentorship and provide help with logistics like boat maintenance and event coordination.

Lessons from Lansing

Structuring the sailing program this way creates a pipeline from learn-to-sail to competitive sailing while leveraging existing assets and expertise. This is similar to other programs across

the state, including one formed nearly 10 years ago at the Lansing Sailing Club. The high school and middle school program (grades 7-12) was built in partnership with the Sailing Club's youth learn-to-sail program and with the Michigan State University Sailing Club, with boats borrowed from both clubs and volunteer coaches provided by both clubs. The program today includes several schools from around the area sailing out of the Lansing Sailing Club and competing in regattas across the state.

Synergy Between the Marine CTE and Sailing Programs

While the marine careers program and the Sailing team can exist independently, there is an opportunity for synergy. Students in the marine tech classes might naturally be interested in sailing and vice versa. For instance, a student who learns to sail may become curious about how engines work on powerboats, or a student fixing engines may want to try their hand at sailing as another form of seamanship. We can schedule the programs to allow participation in both (e.g., marine classes during school hours, sailing as an after-school activity). Additionally, the sailing team could provide boats/projects for the marine students to work on (like off-season maintenance on the dinghies or installing hardware). This cross-pollination would strengthen both initiatives and build a real "marine culture" at Dexter and Whitmore Lake.

In summary, the program analysis recommends implementing a **comprehensive marine CTE curriculum** based on proven models (hands-on training, industry certification focus, internships) and a **dual-tier sailing program** (club + competitive team) that maximizes student participation. These programs should be structured with flexibility to start small (pilot phase) and scale up as interest grows. By adhering to best practices, we ensure educational quality and student safety, while also tailoring the program to our local context (leveraging nearby lakes and industry partners). The next section will examine financial considerations for bringing these ideas to reality.

Financial Estimates

CTE Programming

Launching a marine industry CTE program and a high school sailing program will require funding for equipment, facilities, training, and operations. The figures below provide general planning estimates based on comparable programs. Detailed budgets would be developed during a later phase. Note that the estimates provided here are based largely on 2024 prices.

Startup/Capital Costs

The largest initial expense is outfitting a marine technology lab. If an existing facility—such as an auto shop—is available, startup costs focus mostly on equipment. If a new space needs to be created or significantly renovated (e.g., adding a garage bay near Whitmore Lake High School or repurposing space at Dexter High), costs will be higher.

Equipment needs may include:

- Outboard engines (new 50–150hp 4-strokes typically cost $5,000–$10,000 each, though donations are possible)
- Cutaway or demo engines (often provided by manufacturers)
- Inboard engine/transmission assembly (possible donation from a local shop)
- Service tools: compression testers, diagnostic software, engine stands, lifts, etc.
- Marine wiring practice boards and fiberglass/gelcoat repair kits

Outfitting a basic marine lab is estimated at $75,000–$100,000. A more complete setup with multiple engines and a trailerable boat for hands-on projects could reach $200,000–$250,000. However, donations and used equipment from local marine businesses and manufacturers (Yamaha, etc) may significantly reduce costs.

Facility Setup

A new dedicated lab (e.g., pole barn-style building) would be a major capital project, potentially exceeding $2.5 million. If modifying an existing shop, updates might include ventilation improvements, appropriate power access, and a basic indoor flush system for engines. These changes might cost several thousand dollars. Overall, acquiring and refitting a space for the program is likely to be the most significant start-up cost.

Curriculum and Training

ABYC curriculum kits and initial student certification exam fees are relatively low, estimated at $2,000–$5,000. Instructor training, such as attending an ABYC course, may cost another $1,000.[23] These expenses could be covered through curriculum development grants.

Annual Operating Costs

Once the program is running, recurring expenses include:

- Instructor salary: Estimated at $150,000 annually including benefits. This may vary based on whether the role is full-time or part-time and could be shared between districts.
- Supplies and maintenance: Estimated at $15,000–$20,000 per year for consumables (engine parts, safety gear, lubricants, etc.).
- Student certifications and competition: Budget around $2,000 annually for exam fees and SkillsUSA event participation.
- Transportation: A few thousand dollars annually for trips to boat shows, marinas, or industry sites.

Pilot vs. Full-Scale Implementation

A low-cost pilot could launch with one course, a limited group of students, and a focus on essential tools and instruction. Estimated costs for a pilot phase: $75,000–$100,000 for equipment and supplies, with staffing handled by a cross-trained existing teacher. This phase could be delivered as an after-school or summer program.

A full-scale CTE pathway would require investment in staffing and a more complete equipment inventory. First-year costs could reach $150,000 or more, with recurring annual costs around $150,000—comparable to other technical education programs like automotive technology. Grants and industry partnerships would be critical to offset district contributions.

High School Sailing Program Costs

Pilot Club Costs

A pilot sailing club can operate on a modest budget, particularly if partnered with an existing sailing facility. Key costs include:

- Coaching stipend: $4,000–$5,000 per season (fall and spring). May be reduced if a teacher volunteers.

[23] *American Boating and Yacht Council*, “Education,” accessed at abycinc.org/education/curriculum-for-educators/

- Facility use: If practicing at a yacht club or sailing center, expect $2,000–$3,000 per season for access or membership. Some organizations may waive fees in exchange for volunteer help.
- Boats: In a pilot phase, the club could borrow boats. If purchasing used 420 dinghies, plan for $2,000–$4,000 per boat. Two boats would cost about $5,000–$6,000.
- Coach boat: A small inflatable with an outboard motor may be needed for safety. A used one might cost $5,000–$10,000. In the pilot phase, this could be borrowed or provided by a partner.
- Additional gear: Life jackets, basic tools, and racing marks may add $500–$1,000. Dry suits, sailing gloves, and dingy boots will also be required for colder weather sailing at a cost of approximately $500 per student. These can be purchased by the club and provided for a seasonal rental fee to participants, or left to participants to purchase.
- Regatta participation: Plan for $1,000 per season to cover regatta fees, fuel, and team apparel.

In total, a pilot club could launch for under $25,000 if equipment is borrowed and facility fees are minimal. Some costs could be offset through a participation fee of $200–$300 per student per season, with financial waivers available to ensure access.

Full Program Costs

As the sailing team grows, additional expenses will include expanding the fleet, increasing coaching time, and hosting or traveling to more events.

- A six-boat fleet of used 420s could cost $18,000 over time (approximately $3,000 per used boat). You may be able to borrow or lease boats from existing programs in the area.
- Annual maintenance (repairs, sails, upgrades) may run $1,000–$3,000.
- Storage infrastructure—such as a boat rack, trailer, or shed—might add a $2,500 - $5,000 dollars unless space is donated.
- Competitive travel, including regional or national events, would require additional funds for transportation, lodging, and meals.
- An established team might operate on an annual budget of $10,000–$20,000 per season.

Many established teams fundraise through boosters and secure sponsorships from marine businesses. For example, a sponsor might donate sails in exchange for logo placement or other forms or recognition.

Funding Sources and Partnerships

The marine careers and sailing programs will be funded through a combination of educational funds, grants, industry partnerships, and community contributions. Diversifying funding sources reduces reliance on district budgets and supports program sustainability.

State and Federal Education Funding

The marine careers program qualifies as a Career and Technical Education (CTE) initiative and is eligible for Perkins V federal funding. Perkins funds can cover approved startup costs, including equipment, curriculum materials, and instructor training. Allocation of Perkins dollars would be coordinated through the Washtenaw ISD. An example allocation of $20,000 would cover a substantial portion of marine technology lab equipment.

The State of Michigan also periodically offers competitive grants targeting high-demand career fields. Prior initiatives, such as the Marshall Plan for Talent, supported new CTE programs. With Michigan's focus on expanding the outdoor recreation economy, programs related to the marine trades align well with current state workforce development priorities.

Industry and Trade Associations

Several industry organizations provide direct support to CTE and sailing programs:

- Michigan Boating Industries Association (MBIA): Offers curriculum assistance, small grants, and sponsorship opportunities through its foundation.
- National Marine Manufacturers Association (NMMA): Supports workforce development initiatives through grants and donations.
- American Boat & Yacht Council (ABYC): Offers discounted educator packages and grants to schools implementing marine technician training.
- Local businesses, including boat dealers and marinas, frequently contribute by donating engines, boats, or technical equipment. Formal sponsorship levels, such as naming rights or promotional recognition at events, can be structured to encourage business participation.

Government and Nonprofit Grants

Additional funding support is available through government and nonprofit organizations:

- Maritime Administration (MARAD): Provides visibility and occasional grant support for secondary maritime education efforts.
- Sea Grant and Great Lakes Observing System programs: Offer grants for projects that integrate Great Lakes environmental education with technical training.
- US Sailing grants: Available for community-based sailing programs to support youth participation and equipment needs.
- Interscholastic Sailing Association (ISSA) resources: Support new high school sailing teams through equipment access and startup funding assistance.

Community Partnerships and In-Kind Contributions

Local education foundations and service clubs contribute significant support to school programs:

- Rotary, Lions, and similar service clubs often sponsor youth development and career readiness programs.
- University of Michigan's Naval Architecture and Marine Engineering department and the U-M Recreational Sports Sailing Club offer expertise and potential facility access for marine-related education.
- Community-led fundraising activities, such as boating days or merchandise sales, can generate additional funds to support program operations and expansion.
- The Michigan Sailing Club and University of Michigan Sailing Team offering equipment, facilities, and expertise.

In-kind support helps reduce financial demands across several areas:

- Local marinas offering free winter storage for boats.
- Parent volunteers assisting with maintenance or coaching support.
- The U.S. Coast Guard Auxiliary providing free safety courses and equipment donations.
- Members of local sailing clubs offering coaching, equipment, and mentorship.

Student and Family Contributions

For the sailing program, it is standard practice to assess participation fees to help offset program costs. A fee structure of approximately $200–$300 per sailor per season is typical, with financial assistance available to ensure access for all students. The marine careers CTE program would not require student fees for core participation. Optional expenses, such as certification exams or field trips, could be covered through fundraising activities or voluntary contributions.

By combining education funds, grants, industry support, community partnerships, and in-kind contributions, the marine careers and sailing programs are positioned for strong financial viability.