BOARD OF HIGHER EDUCATION
REQUEST FOR BOARD ACTION

NO.:BHE 26-23

BOARD DATE: October 1, 2025

APPROVAL OF LETTER OF INTENT OF MOUNT WACHUSETT COMMUNITY COLLEGE TO AWARD THE HYBRID/ELECTRIC VEHICLE CERTIFICATE AND AUTHORIZATION FOR FAST TRACK REVIEW

MOVED: The Board of Higher Education (BHE) has evaluated the Letter of Intent of **Mount Wachusett Community College** to award the **Hybrid/Electric Vehicle Certificate** and has determined that the proposal aligns with BHE criteria. Accordingly, the BHE authorizes the Commissioner to review the program and to make a final determination on degree granting authority pursuant to the Fast-Track review protocol.

VOTED: Motion adopted by the BHE on 10/1/2025.

Authority: Massachusetts General Laws Chapter 15A, Section 9(b); AAC 18-40

Contact: Richard Riccardi, Sc.D., Deputy Commissioner for Academic Affairs and Student Success

BOARD OF HIGHER EDUCATION
Mount Wachusett Community College
Letter of Intent
Hybrid/Electric Vehicle Certificate

DEGREE TITLE ABSTRACT ON INTENT AND MISSION OF PROGRAM

Mount Wachusett Community College is committed to preparing students for a range of professional opportunities in the rapidly evolving Electric Vehicle (EV) industry. Expanding on its current certificate program in combustion engine technology, Mount Wachusett intends to offer a Hybrid/Electric Vehicle Certificate designed to meet the growing demand for skilled technicians in North Central Massachusetts. Students will gain extensive hands-on experience in scanning, diagnosing, servicing, and repairing both hybrid and battery-powered vehicles. The proposed certificate program also emphasizes mastery of key theoretical concepts such as battery safety and construction, thermal systems, regenerative braking, and electric drive units. Through this comprehensive training, Mount Wachusett enhances students' job readiness and supports regional workforce needs in the automotive sector.

The proposed Hybrid/Electric Vehicle Certificate was approved by Mount Wachusett's Board of Trustees on February 3, 2025. The LOI was circulated on June 9, 2025. No comments were received.

A. **ALIGNMENT WITH MASSACHUSETTS GOALS FOR HIGHER EDUCATION**

Address Gaps in Opportunity and Achievement in Alignment with Campus-Wide Goals

In collaboration with campus and community stakeholders including employers, the Automotive Department utilized the Advisory Board, labor market, and workforce data to respond to the need for a more skilled workforce. Mount Wachusett sought input to develop the curriculum, knowledge, skills and abilities (KSAs); and made significant efforts to seek and leverage resources and funding for the proposed certificate program.

The Automotive Department is the cornerstone of Mount Wachusett's vocational training efforts. The campus has prioritized growing student interest in this field including recruiting diverse students. While female students outpace male students in college enrollment, the inverse is true for enrollment in the Automotive academic programs. The Automotive Technology program grew rapidly over the last five years, with over 106% more students enrolling in 2024 than in 2020. Through intentional recruitment and outreach with marketing and admissions, Mount Wachusett has seen small but steady increases in students who identify as female enrolling in the program. Other demographics will be collected to establish baseline date and target growth projections. These efforts will be replicated for the proposed certificate program.

Program or Department Supports to Ensure Student Retention and Completion

Mount Wachusett's Spring 2025 enrollment is 3,966 students which is up 17% compared to last spring. During the same period, the Automotive program headcount (Associate and Certificate) is 80 students, and has been on a steady growth trajectory post-COVID. The Automotive Department is located at a satellite campus. To improve access and success for Automotive students, efforts have been made to connect campus resources to streamline students access to resources including advising, career services, financial aid, food pantry, and childcare resources. Mount Wachusett's Fall 2023 to Fall 2024 persistence rate is 50.25%. The Automotive program's Fall 2023 to Fall 2024 persistence rate is 80%, indicative of the quality of the academic program coupled with wrap-around support ensuring student success.

Alliances and Partnerships with PK-12, Other IHE's, Community Employers

The Automotive Department is supported by the college as well as the Mount Wachusett Community College Foundation. The department has a strong and active Advisory Board which consists of automotive dealers throughout the state. The Advisory Board provided guidance to develop an EV technology proposal for the 2023 National Science Foundation Advanced Technological Education Grant (NSF/ATE) competition. Working with the Advisory Board, the proposal was developed outlining the curricular work, the infusion of EV technology in existing classes, and the expansion of new courses to be developed to create a Hybrid/Electric Vehicle Certificate. A 2023 Mass Skills Capital grant was sought to support the expansion of the service area to include services bays, equipment, and supplies for the proposed certificate program.

The Advisory Board continues to meet. They provide valuable input on the program goals, knowledge skills and abilities (KSAs), and curriculum. They work with the department chair to identify sites for student internship placements. They contribute to efforts to leverage new resources, including grants to ensure the department has access to state-of-the-art technology and infrastructure.

Relationship to MassHire Regional Blueprints

The U.S. Department of Labor cites a strong demand for qualified automotive technicians and master technicians as there are more automotive jobs available than there are qualified graduates to fill them. Transportation, logistics, and warehousing are one of the top three regional workforce priority industries identified by the Central MA Regional Workforce Blueprint 2023-2027. The proposed certificate program has a clear economic development benefit for North Central Massachusetts and has strong community support from automotive employers and the regional community. Through the proposed certificate program, Mount Wachusett will be able to expand its academic program to prepare the next generation of automotive technicians, a critical need as the skilled labor force enters retirement age. With newer automobiles having more and more computerized components, technicians are in need of proper training to service these vehicles. According to the Lightcast Job Posting Analytics report, between March 2024 and March 2025, there were over 709 unique job postings in the region, with nearly two positions currently open for every qualified candidate. The proposed certificate program will increase the number of trained and qualified automotive technicians in the region who are meeting the needs of regional employers. With an average median advertised salary of $54,980, the automotive technicians trained will support the economic growth and workforce development of the region.

Through intentional recruitment and outreach with Marketing, Admissions, Dual Enrollment, and Advisory Board members, the proposed certificate program will be promoted to students and employees seeking to further develop their skills.

References:

Commonwealth of Massachusetts (2023). Central Region Workforce Blueprint 2023-2027. https://www.mass.gov/lists/regional-workforce-blueprints

Lightcast. (2025). Automotive Service Technicians and Mechanics in 3 Counties. https://lightcast.io/

United State Department of Labor. (2025). Automotive Service Technicians and Mechanics, Occupational Outlook Handbook. https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and mechanics.htm#:~:text=in%20May%202024.-,Job%20Outlook,on%20average%2C%20over%20the%20decade.

Duplication

As the table below indicates, while there are Associate and Certificate programs in the region, few have infused EV/hybrid technology into their courses, and even fewer have specific EV/Hybrid associate and Certificate programs.

Institution Name	Automotive Tech Assoc.	Automotive Tech Cert.	Hybrid/EV Assoc.	Hybrid/EV Cert.	EV infused curriculum
Benjamin Franklin Inst. of Technology, MA	X	X	X		X
MassBay Community College, MA	X	X			X
Quinsigamond Community College, MA	X	X			
Manchester Community College, NH	X	X			
Nashua Community College, NH	X	X			

Gateway Community College, CT	X	X		X	
New England Institute of Technology, RI	X				
Vermont Technical College, VT	X				
Northern Maine Community College, ME	X	X			X
SUNY Canton, NY	X				
Monroe Community College, NY	X	X			
Hudson Valley Community College, NY	X				
Suffolk County Community College, NY	X	X			X
Alfred State College, NY	X				X
Lincoln Tech, NY	X	X			X
Pennsylvania College of Technology, PA	X				X
Universal Technical Institute, PA	X	X	X	X	X
Northampton Community College, PA	X	X			

Institution Name	Link
Benjamin Franklin Inst. of Technology, MA	https://franklincummings.edu/academics/academic-programs/automotive-technology/
MassBay Community College, MA	https://www.massbay.edu/academics/automotive
Quinsigamond Community College, MA	https://www.qcc.edu/installation-maintenance-and-repair-technologies/automotive-technology
Manchester Community College, NH	https://mccnh.edu/program/automotive-technology/
Nashua Community College, NH	https://nashuacc.edu/program/automotive-technology/
Gateway Community College, CT	https://catalog.ctstate.edu/preview_program.php?catoid=19&poid=7417
New England Institute of Technology, RI	https://www.neit.edu/academics/associate-degrees/automotive-technology-as

Vermont Technical College, VT	https://vermontstate.edu/academic-programs/automotive-technology-aas/
Northern Maine Community College, ME	https://www.nmcc.edu/academics/programs/academic-programs/automotive-technology/
SUNY Canton, NY	https://www.canton.edu/csoet/auto/
Monroe Community College, NY	https://www.monroecc.edu/academics/majors-programs/stem/automotive---multi-manufacturer-automotive-aas/
Hudson Valley Community College, NY	https://www.hvcc.edu/programs/all/stem/automotive-management-aas.html
Suffolk County Community College, NY	https://www.sunysuffolk.edu/explore-academics/majors-and-programs/automotive-technology/#AUTB-AAS
Alfred State College, NY	https://www.suny.edu/attend/find-a-suny-program/undergraduate/?CampusID=30
Lincoln Tech, NY	https://info.lincolntech-usa.com/programs/automotive/automotive-technology/
Pennsylvania College of Technology, PA	https://www.pct.edu/academics/et/automotive/automotive-technology
Universal Technical Institute, PA	https://www.uti.edu/programs/automotive

Innovative Approaches to Teaching and Learning

The proposed certificate program has been strategically designed to incorporate significant innovative and experiential learning approaches. The course structure integrates lectures with corresponding lab sessions, ensuring that theoretical concepts are immediately reinforced through hands-on practice.

A key component of the proposed certificate program is the emphasis on live work, where students engage in real-world scenarios involving the scanning, diagnosing, servicing, and repairing of hybrid and battery electric vehicles. This experiential learning model not only enhances student engagement but also develops practical, job-ready skills aligned with current industry needs.

The proposed certificate program also incorporates a stackable credential framework, allowing students to earn Certificates and associate degrees in Automotive and Hybrid/EV systems. This approach supports flexible learning pathways, enabling students to build competencies progressively and align their education with evolving career goals and industry demand.

These elements collectively reflect a forward-thinking, competency-based educational model that blends digital, hands-on, and career-aligned innovation.

B. ALIGNMENT WITH CAMPUS STRATEGIC PLAN AND MISSION

Mount Wachusett's vocational training efforts are centered on the Automotive Technology Programs and will expand via the Hybrid/EV Certificate. The proposed certificate program addresses a growing industry demand for automotive repair and maintenance technicians trained in hybrid and electric vehicle technology in the North Central Massachusetts region.

The proposed certificate program is aligned with several pillars of our Operational Plan outlined below:

GOAL 1: EQUITY AND INCLUSION IN OPPORTUNITY, ACCESS, AND AFFORDABILITY

The Automotive department will partner with admissions, marketing, Dual Enrollment, and the Advisory Board to promote the proposed certificate program to underrepresented students.

GOAL 2: EQUITABLE AND INCLUSIVE STUDENT SUCCESS AND ACHIEVEMENT

Efforts will continue to streamline Automotive students' access to campus resources including advising, career services, financial aid, food pantry, and childcare resources.

GOAL 3: EQUITABLE AND INCLUSIVE PEDAGOGY, FACILITATION, AND ACADEMIC PROGRAMMING

Department faculty have had access to professional development and industry experts to ensure innovative and experiential learning approaches are utilized in the proposed curriculum.

GOAL 4: REGIONAL AND ECONOMIC DEVELOPMENT LEADER

The proposed certificate program will position Mount Wachusett as a regional leader in automotive education, equipping students for in-demand careers while strengthening employer partnerships and addressing local labor market needs.

GOAL 5: INSTITUTIONAL CAPACITY BUILDING FOR EQUITABLE- DECISION MAKING AND INCLUSIVE ENGAGEMENT

The Automotive Technology department will use labor market and workforce data, in collaboration with campus and community partners, to expand academic programs that meet regional employment needs. Efforts will focus on leveraging resources to grow the Automotive satellite campus offerings, enhance degree and Certificate programs—including Hybrid and EV—and invest in advanced technologies.

Goals and Objectives (Form B)

Student Learning Outcomes: Upon successful completion of the proposed certificate program, students will be able to:

1. Apply safety protocols by identifying high-voltage (HV) hazards and selecting appropriate tools and procedures, demonstrating critical reasoning in risk assessment and mitigation.
2. Interpret the construction, chemistry, and function of HV and 12V battery systems using precise technical vocabulary and schematics to support accurate diagnostics and servicing.
3. Analyze the operation of electric drive units in various drivetrain configurations, predicting system behavior based on principles of electrical and mechanical energy transfer.
4. Evaluate the roles and interactions of inverters, IGBT modules, capacitors, and regenerative braking systems within EV architectures, demonstrating system-level thinking.
5. Demonstrate proficiency in HV battery management procedures, including startup and shutdown sequences, with emphasis on logical sequencing and technical accuracy.
6. Compare and contrast EV battery charging technologies, explaining how charger types and levels impact efficiency, safety, and performance using quantitative and conceptual reasoning.
7. Utilize diagnostic and scan tools to collect, interpret, and synthesize data from EV/HEV systems, formulating evidence-based troubleshooting strategies.
8. Perform routine service and component replacement tasks in accordance with manufacturer specifications, justifying steps based on diagnostic outcomes and repair standards.
9. Navigate service manuals and interpret complex wiring diagrams for PHEV, FHEV, and BEV platforms, translating symbolic information into actionable procedures.
10. Explain the function and integration of major EV subsystems, including regenerative braking, HVAC, and battery thermal management, illustrating how they impact overall system performance.

C. ALIGNMENT WITH OPERATIONAL AND FINANCIAL OBJECTIVES OF INSTITUTION

Enrollment Projections (Form C)

The proposed certificate program will begin with an initial student population of 36 students consisting of almost 16 new students and 20 continuing students. Based on recruitment efforts noted in the LOI, Mount Wachusett expects the enrollments to grow significantly over the next five years, anticipating five times the student population by Year 5 with a mix of 58% new students and 42% continuing students.

Resources and Financial Statement of Estimated Net Impact on Institution
(Form D, Appendices)

The proposed certificate program is well supported by Mount Wachusett, planning to expand faculty resources to full-time positions by Year 3. With low administrative and facility costs, the proposed certificate program is projected to be profitable in the first year of its inception, with significant growth in revenue projected over the last two years of the LOI.

STAFF REVIEW AND VALIDATION

Staff thoroughly reviewed the **LOI** proposing full degree granting authority for the **Hybrid/Electric Vehicle Certificate** program submitted by **Mount Wachusett Community College**. Staff validate that the **LOI** includes all data required by the Massachusetts Board of Higher Education. Staff recommendation is for BHE authorization for the Commissioner to review the program pursuant to the Fast-Track review protocol.

Form A: Curriculum Outline

Required (Core) Courses in the Major (Total # courses required** = 0**)		
Course Number	Course Title	Credit Hours
AUT 125	Engine Repair	6
AUT 123	Electical 1	4.5
AUT 124	Electrical 2	4.5
AUT 127	Steering & Suspension	5
AUT 122	Brakes	5
AUT 204	Heating and Air Conditioning	3
AUT 205	Automotive/EV Cooperative	3
AUT 161	Introduction to EV Technology	3
AUT 271	EV Battery Frameworks	4
AUT 281	EV Components & Electric Drive Motors	4
Curriculum Summary		
	Total number of courses required for the degree	10
	Total credit hours required for degree	42
Prerequisite, Concentration or Other Requirements:		
ENG 098, FYE 101, MAT 092 or MAT 096 (or corequisite), RDG 098, or placement.		

Form B: LOI Goals and Objectives

Goal	Measurable Objective	Strategy for Achievement	Timetable
Develop recruitment procedures & meet enrollment targets	Meet enrollment targets. Use timelines & benchmarks in coordination with Admissions & Marketing	Assigned to Dean, Admissions, & Marketing.	On-going with regular review
Maintain high quality faculty teaching	Review of syllabi & course materials. Regular communication with faculty.	Assigned to Department Chair. Use NSF & Advisory Board resources for professional development.	On-going, with continuous review
Develop, offer, & assess effectiveness of all courses and programs.	All courses in program offered. Student success rate at or above institutional average. Collect artifacts to evaluate program learning outcomes	Assigned to Department Chair. Assess through program review process, student & partner feedback.	On-going through program review cycle.
Successful outcomes for graduates	Graduates progress to assoc. degree or obtain relevant employment within one year of graduation.	Assigned to Department Chair & Career Services.	Annual

Form C: LOI Program Enrollment

	Year 1	Year 2	Year 3	Year 4	Year 5
New Full-Time	8	14	20	32	44
Continuing Full-Time	10	12	16	23	32
New Part-Time	8	14	20	32	44
Continuing Part-Time	10	12	16	23	32
Totals	36	52	72	110	152

Form D: LOI Program Budget

One Time/ Start Up Costs						
		Annual Enrollment				
	Cost Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
	Full Time Faculty *(Salary & Fringe)*			103,600	108,780	114,219
	Part Time/Adjunct Faculty *(Salary & Fringe)*	48,309	72,463	10,352	10,870	11,413
	Staff (lab tech)	9,199	13,798	81,599	85,679	89,963
	General Administrative Costs	1,200	1,200	1,200	1,200	1,200
	Instructional Materials, Library Acquisitions	1,000	1,000	1,000	1,000	1,000
	Facilities/Space/Equipment	5,500	5,500	5,500	5,500	5,500
	Field & Clinical Resources					
	Marketing					
	Other (Specify)					
One Time/Start-Up Support		***Annual Income***				
	Revenue Sources	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
	Grants	169,000	100,000	TBD	TBD	TBD
	Tuition	22,400	36,400	50,400	77,000	106,400
	Fees	192,640	313,040	433,440	662,200	915,040
	Departmental					
	Reallocated Funds					
	Other (specify)					
	TOTALS	384,040	449,440	483,840	739,200	1,021,440