

Gardner Municipal Airport

DRAFT AIRPORT MASTER PLAN UPDATE

Chapters 1-3
AIP No. No. 3-25-0020-022-2023
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Contents

Chapter 1 – Introduction

1.1 Gardner Municipal Airport Background	1-1
1.1.1 Governance	1-1
1.1.2 Airport History.....	1-1
1.1.3 Master Planning History	1-2
1.2 National Plan of Integrated Airport Systems	1-3
1.2.1 Airport Master Plan Update Funding.....	1-4
1.2.2 History of Federally Funded Projects.....	1-4
1.3 Master Plan Process	1-6
1.3.1 Public Involvement.....	1-7
1.4 How to Read this Report	1-7

Chapter 2 – Inventory of Existing Facilities

2.1 Geometry Standards	2-1
2.1.1 Current Runway Design Code and Critical Aircraft.....	2-1
2.2 Airside Facilities.....	2-3
2.2.1 Runway 18-36.....	2-3
2.2.2 Runway Safety Area.....	2-3
2.2.3 Runway Object Free Area (ROFA)	2-3
2.2.4 Runway Protection Zone (RPZ)	2-3
2.2.5 Approach Procedures.....	2-4
2.2.6 MassDOT Pavement Management Program	2-4
2.2.7 Taxiways and Taxilanes.....	2-5
2.2.8 Airport Lighting.....	2-6
2.2.9 Airfield Guidance Signs.....	2-6
2.2.10 Navigational and Approach Aids.....	2-6
2.2.11 Aprons	2-7
2.2.12 Airfield Pavement Markings	2-8
2.2.13 Airfield Signs.....	2-9
2.2.14 Hangars	2-10
2.2.15 Snow Removal Equipment Building.....	2-11
2.2.16 Fuel.....	2-11
2.3 Landside Facilities.....	2-12
2.3.1 Administration Building.....	2-12
2.3.2 Airport Business	2-12
2.4 Miscellaneous Facilities and Equipment.....	2-13
2.4.1 Airport Utilities	2-13
2.4.2 Airport Equipment.....	2-13
2.4.3 Vehicle Parking.....	2-14

2.4.4 Fencing and Gates	2-14
2.4.5 Leasehold Property	2-14
2.4.6 Emergency Access and Maintenance Activities.....	2-14

Chapter 3 – Existing Environmental Conditions and Sensitive Areas

3.1 Environmental Conditions	3-1
3.1.1 Wetlands	3-2
3.1.2 Rare, Endangered or Threatened Species	3-4
3.1.3 Historical, Architectural, Archaeological, and Cultural Resources	3-5
3.1.4 Floodplain	3-5
3.1.5 Land Use	3-5

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CHAPTER 1 – INTRODUCTION

The purpose of this chapter is to introduce the Airport Master Plan and Airport Layout Plan Update project, outline intended objectives, and provide background information about the Gardner Municipal Airport (GDM), including documenting master planning and project history at the airport.

1.1 GARDNER MUNICIPAL AIRPORT BACKGROUND



The Gardner Municipal Airport is a public use airport, owned by the Town of Gardner, Massachusetts, located in the town of Templeton, County of Worcester. The Airport is subject to the rules and regulations of Templeton. Situated in the north central portion of the state, GDM is located approximately 60 miles northwest of Boston, and 30 miles north of Worcester, on Route 2. GDM has one runway – Runway 18-36 (3,000 x 60 ft.). In the Town of

Templeton, Airport property is located in a Residential - Agricultural 2 zoning district.

1.1.1 GOVERNANCE

The Airport is owned by the City of Gardner, operated through and by the Gardner Airport Commission. According to City Bylaws, The Airport Commission shall have the authority, with the approval of the City Council, to institute a system of charges and fees for use of the Gardner Municipal Airport. Current members of the Airport Commission include the following individuals, as appointed by City Council:

James Woods Chair
John Lavoie, Member
Phil Morrissey, Member
David Urquhart, Member

Robert Swartz, Vice Chair
Andre Guertin, Member
Jim Morrissey, Member

1.1.2 AIRPORT HISTORY

Gardner Airport was first developed in or before the 1930s. At that time, the airport was owned and operated by the Gardner Flying Club and consisted of a 1,500-foot dirt airstrip. In 1931, the Airport Operations Building was constructed, and still acts as the Airport terminal building to this day. The Airport was eventually transferred to the control of the City of Gardner. Record keeping of Airport improvements did not begin until 1946, at which time the Federal Aviation Administration (FAA) funded the clearing, grubbing, drainage improvements and turfing of the landing strip, as well as construction of the access road and installation of landing strip markers.

In 1957, major improvements to the Airport included extending the runway to 2,000 feet, re-grading and paving. Five years later, in 1962, the airport was expanded through land acquisitions and the runway was extended to its current 3,000-foot length. As part of these improvements, land and easement rights were acquired in the approach zones to improve Airport safety. Also at that time, obstruction lights were installed to mark hazards in the airspace surfaces. Further upgrades in 1978 included pavement reconstruction and remarking, installation of upgraded runway lighting, reconstruction of the apron, installation of the rotating airport beacon, clearing the approaches, and additional land acquisitions.

Following the completion of the 1984 Master Plan, in 1988, FAA Airport Improvement Program (AIP) funding was used to improve the Airport access road, to construct the paved aircraft tie-down apron and to extend the taxiway to become the full-parallel taxiway it is today. In 1995 and 1998, projects to expand and improve the Airport's aprons occurred. At the same time, runway safety areas (RSAs) were improved to meet FAA standards. The Airport obtained FAA and MAC (now MassDOT, Aeronautics Division) funding assistance to purchase several pieces of snow removal and mowing equipment in 2001, complete crack sealing and marking on Runway 18-36 and the parallel taxiway in 2005, and rehabilitate two T-hangar taxilanes in 2007

1.1.3 MASTER PLANNING HISTORY

The most recent Master Plan Update for GDM was completed in 2008 and made recommendations for safety and infrastructure improvements. Since that time, the Airport has undertaken the following projects:

- Reconstruction of hangar taxilanes
- Removal of underground Avgas tank and installation of aboveground self-serve Avgas system
- Replacement of hazard beacons and installation of new rotating beacon with tip-down pole
- Preparation of an Environmental Notification Form to evaluate proposed projects
- Installation of fencing and gates
- Purchase of snow removal equipment
- Construction of T-Hangars
- Reconstruction of the airport access road
- Reconstruction of Runway 18-36 and Taxiway 'A'

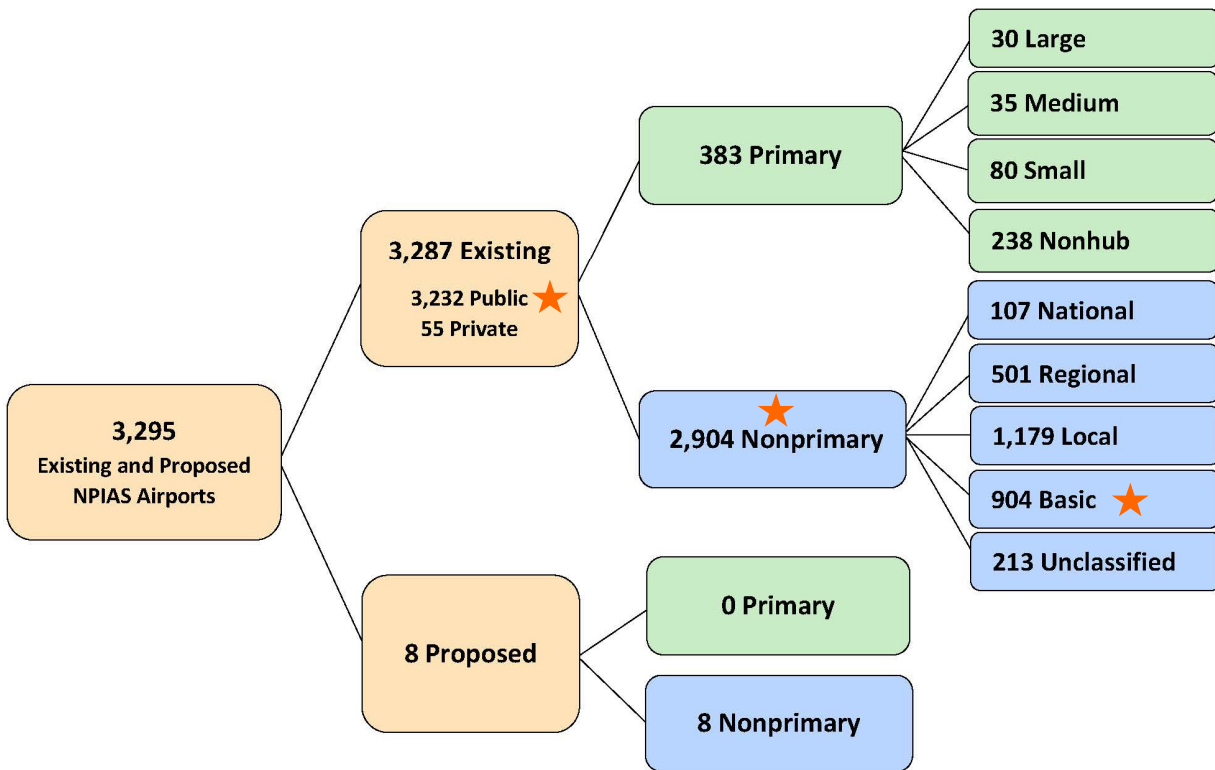
The above projects were proposed in the 2008 AMPU Schedule of Improvements. Projects identified in the 2008 Plan that have not yet been addressed include construction of an SRE building, reconstruction of the parking apron, and acquisition of the leasehold, due to funding constraints and other projects taking priority. These projects will be reevaluated and considered as part of this AMPU. The purpose of this study is to review the adequacy of the Airport's existing facilities with respect to compliance with FAA design and safety standards and their ability to meet current and future demand for the next 20 years. The plan will make recommendations for improvements to address noncompliant designs, safety issues, and capacity shortfalls and develop a schedule of improvements for the short-term (0-5 years), mid-term (6-10 years), and long-term (11-20 years) development periods. This study will be a "focused"

Master Plan Update” with emphasis on reevaluating the Airport’s forecast of operational demand and facility requirements in an effort to guide the Airport Commission in making recommendations for future capital improvements at the Airport.

1.2 NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS

The National Plan of Integrated Airport Systems (NPIAS) is a plan developed by the FAA to identify airports considered important resources to the national transportation system and estimate federal funding for developments required to provide a “safe, efficient, and integrated system of public-use airports.”¹ The NPIAS classifies airports meeting minimum criteria into categories that determine the amount of federal funding each airport is eligible for. To be included in the NPIAS, an airport must exhibit the essential attributes contained in Table 1-1A and 1-1B of FAA Order 5090.5. Currently, 3,287 public-use airports are included in the NPIAS. Airports are grouped into the following categories outlined in Table 1-1 below:

Table 1-1: NPIAS Category and Role



★ = GDM Categories

Because of its size, location, and contribution to the national air transportation system, GDM meets the criteria for inclusion in the NPIAS, making it eligible to receive federal grant money for safety, infrastructure, environmental, planning, and other critical projects. Under the NPIAS, GDM is classified as a public use, nonprimary, general aviation, basic airport. According to the NPIAS, “basic airports fulfill

¹ FAA Order 5090.5, Formulation of the NPIAS and ACIP, September 3, 2019

the principal role of a community airport providing a means for private general aviation flying, linking the community with the national airport system, and making other unique contributions. In some instances, the airport is the only way to access the community and provides emergency response access, such as emergency medical or firefighting and mail delivery. These airports have moderate levels of activity with an average of nine propeller-driven aircraft and no jets. Many of these airports are located in rural areas.”²

1.2.1 AIRPORT MASTER PLAN UPDATE FUNDING

Financing for this AMPU is being provided by the FAA, MassDOT/Aeronautics Division (MassDOT/AD), and the City of Gardner (the Client Group). GDM is eligible to receive Federal funding assistance for this project pursuant to the AIP program. AIP funding is provided through a federal aviation trust fund, funded through “user fees” paid by passengers on commercial flights, aviation fuel tax, cargo fees, and over-flight fees. This project is receiving 90 percent of total project funding through the AIP program. MassDOT/AD is providing an additional 5 percent of total project costs, and the City of Gardner is financing the remaining 5 percent of total project costs.

1.2.2 HISTORY OF FEDERALLY FUNDED PROJECTS

A historic listing of AIP funded projects completed at GDM, which received federal and state funding, is contained in Table 1-2 below:

Table 1-2: History of AIP Funded Projects

<i>Federal Fiscal Year</i>	<i>Project Number</i>	<i>Project Description</i>	<i>Total FAA Grant</i>
1983	3-25-0020-01-1983	Conduct Airport Master Plan Study	\$29,430
1985	3-25-0020-02-1985	Install Apron Lighting, Remove Obstructions, Construct Taxiway	\$175,525
1988	3-25-0020-03-1988	Improve Access Road, Construct Apron, Extend Taxiway	\$399,100
1993	3-25-0020-04-1993	Rehabilitate Runway	\$694,823
1995	3-25-0020-05-1995	Expand Apron, Improve Runway Safety Area	\$124,565
1998	3-25-0020-06-1998	Rehabilitate Apron, Improve Runway Safety Area	\$466,091
2001	3-25-0020-07-2001	Acquire Snow Removal Equipment	\$194,666
2005	3-25-0020-08-2005	Rehabilitate Apron	\$219,154
2006	3-25-0020-09-2006	Update Airport Master Plan Study	\$186,532
2007	3-25-0020-010-2007	Rehabilitate Taxiway (T-Hangar Taxilane)	\$404,823

Source: FAA Records

² NPIAS Report 2023-2027

Table 1-2: History of AIP Funded Projects (Continued)

<i>Federal Fiscal Year</i>	<i>Project Number</i>	<i>Project Description</i>	<i>Funds</i>
2009	3-25-0020-011-2009	Improve Fuel Farm (Install New Avgas System – Phase I)	\$118,221
2009	3-25-0020-012-2009	Install Airport Beacon (Replace Hazard Beacons (3) and Rotating Beacon)	\$281,110
2009	3-25-0020-013-2009	Improve Fuel Farm (Install New Avgas System – Phase II)	\$162,888
2010	3-25-0020-014-2010	Conduct Environmental Study (Bird Survey and Environmental Notification Form)	\$54,54720
2012	3-25-0020-015-2012	Install Fence and Gates (Approx. 3,300 LF)	\$298,970
2016	3-25-0020-016-2016	Purchase Snow Removal Equipment (SRE)	\$169,619
2018	3-25-0020-017-2018	Construct T-Hangars	\$927,504 ³
2020	3-25-0020-018-2020	CARES Act Funds	\$30,000
2021	3-25-0020-019-2021	CRRSA Act Funds	\$9,000
2022	3-25-0020-020-2022	General ARPA	\$22,000
2022	3-25-0020-021-2022	Reconstruct Runway 18-36, Parallel Taxiway 'A' and Stub Taxiways; Install REILS; Construct Vault; and Remove Obstructions	\$4,842,000
2023	3-25-0020-022-2023	Airport Master Plan Update	\$149,810

Source: FAA Records

Table 1-3: History of State Funded Projects

<i>State Fiscal Year</i>	<i>Project Description</i>	<i>Total Cost</i>
1993	Reconstruct Runway 18-36	\$778,000
1996	EA & Design of Safety Area Improvements for R/W 18-36, Paved Apron and Airfield Drainage Improvements (Design-Only)	\$141,000
1999	Construction of Apron & Safety Areas	\$528,016
2002	Purchase Snow Removal Equipment	\$217,000
2006	Crack Seal & Pavement Marking R/W 18-36 & Parallel T/W	\$205,000
2006	Purchase Mowing Equipment and Attachments	\$72,290*
2006	Airport Master Plan & Airport Layout Plan Update	\$198,000

Source: MassDOT Records

*State-funded only, no federal participation

³ This project was funded with both AIP and ASMP funds as follows: AIP Grant \$927,504, ASMP \$532,171

Table 1-3: History of State Funded Projects (Continued)

<i>State Fiscal Year</i>	<i>Project Description</i>	<i>Total Cost</i>
2008	Design and Reconstruction of Two Airport Taxiways	\$450,300
2009	Install self-service Fuel System/ remove UST	\$312,000
2010	Environmental Permitting (ENF) and Rare Species Survey	\$60,000
2013	Install Security Fence and Gates	\$336,000
2017	Purchased SRE	\$190,000
2018	Purchase Loader Bucket for John Deere Tractor*	\$7,500*
2019	Construct T-Hangars	\$900,500
2020	Re-Bid T-Hangars*	\$50,000
2020	Replace Fuel Payment System*	\$21,125
2020	Construct T-Hangars (7,500 sf) ⁴	\$532,171
2023	Reconstruct Runway 18-36	\$5,380,000

Source: MassDOT Records

*State-funded only, no federal participation

1.3 MASTER PLAN PROCESS

Guidance for the AMPU planning process comes from the FAA Advisory Circular (AC) 150/5070-6B, Airport Master Plans, and other relevant FAA ACs, Orders, and Federal Aviation Regulations (FARs), as applicable. Advisory Circulars, or ACs, are non-regulatory documents published by FAA to provide guidance for compliance with regulations, standards, operational, and other requirements. This AMPU planning process considers the needs and demands of airport tenants, users, and the public. This AMPU planning process provides opportunities for airport users, political entities, and the public to participate in the development of the Airport's aviation plans and goals, as outlined in section 1.3.1 *Public Involvement*. These opportunities have been built into the process through public meetings of the Airport Commission. The Client Group responsible for contributing to and approving this Master Plan consists of members of the Airport Commission, the FAA, and MassDOT/AD.

This AMPU process will be broken down into phases at logical decision points:

- Initial data collection and aviation activity forecasts will make up the foundation from which other decisions in this project are made;
- Aviation facility needs analysis and alternative development options will be identified for each of the three planning periods (short, intermediate, and long term); and
- Environmental, financial, and graphical depictions (to be shown on the Airport Layout Plan) of the recommended airport development will complete the process.

⁴ This project was funded with both AIP and ASMP funds as follows: AIP Grant \$927,504, ASMP \$532,171

1.3.1 PUBLIC INVOLVEMENT

Public involvement will be encouraged throughout the development of this Master Plan, in accordance with *FAA Advisory Circular 150/5070-6B, Airport Master Plans, Chapter 4, Public Involvement Program*. In advance of preparing this plan, a public notice announcing the project and defining the public participation process was posted at the airport administration building and published in the City's online announcements. As chapters of this document are developed, they will be posted on the Town's website where the public will be able to submit questions and comments to the Airport Manager. Additionally, all Master Plan chapters will be presented in draft format during regularly scheduled Airport Commission meetings, where the public will be encouraged to attend. The dedicated page on the City website where Master Plan chapters can be viewed is listed below:

<https://www.gardner-ma.gov/264/Airport-Commission>

Documentation of the public involvement program, including copies of advertisements, notices, and other relevant correspondence will be included in Appendix A.

1.4 HOW TO READ THIS REPORT

This report was written and organized so that information is presented in a logical, readable format with minimal duplication of information. The graphics contained in the report are to be found as follows:

Tables- all tables are located in the Chapters and sections to which they apply. At times, cross-references to tables are necessary, but these have been kept to a minimum. The tables are identified in numerical sequence starting with the Chapter number so that the third table in Chapter 3 is identified as Table 3-3, etc.

Figures- all figures are found in the Chapters and report sections to which they apply and are numbered sequentially starting with the Chapter number so that the second figure in Chapter 6 is identified as Figure 6-2, etc.

Sheets- sheets are Airport Layout Plan (ALP) sheets in their various stages of development. All sheets are located at the end of the report, before the appendices. Sheets will be developed in stages as the plan is developed, therefore not all plan sheets may be contained in the report until the full draft report has been prepared for final review by the Airport Commission, FAA, and MassDOT. Below is a listing of ALP contents as required by the Airport Commission, FAA, and MassDOT that will become part of the final Master Plan Report:

- Cover Page
- Data Sheet
- Existing Facilities Plan
- Ultimate Airport Layout Plan
- Approach Plans and Profile
- Part 77 Plan (Using obstruction data from the previous AMPU)
- Runway End Profiles
- Runway Departure Surface Drawing

CHAPTER 2 – INVENTORY OF EXISTING FACILITIES

This chapter documents all facilities and infrastructure on airport property, including dimensions, age, condition, and other information as may be relevant and available for the purpose of providing a comprehensive foundation from which facility requirements and improvement recommendations will be made. This inventory relies on facilities documented in the 2008 Airport Master Plan Update, as-built conditions from recent projects, and updates from the Airport regarding changes to facility conditions. See *Figure 2-1: Existing Conditions Plan* and Sheet 3 of the Airport Layout Plan (ALP) for a depiction of existing facilities.

2.1 GEOMETRY STANDARDS

FAA AC 150/5300-13B, *Airport Design*, provides standards and recommendations for the geometric layout and engineering design of airport facilities including runways and runway associated environments such as Runway Safety Areas (RSAs), Obstacle Free Zones (OFZs), Object Free Areas (OFAs), clearways and stopways, among other elements. Use of the design standards contained within AC 150/5300-13B is mandatory for all projects funded through the federal Airport Improvement Program (AIP).

2.1.1 CURRENT RUNWAY DESIGN CODE AND CRITICAL AIRCRAFT

Airports are designed according to their Runway Design Code (RDC). The RDC is determined in part by the dimensions and approach speed of the airport's "critical aircraft". A critical aircraft, as defined by FAA AC 150/5300-13B is, "the most demanding aircraft type, or grouping of aircraft with similar physical and operational characteristics, that make regular use of an airport. Regular use is 500 annual operations, excluding touch and-go operations." An operation is defined as one takeoff or one landing, so an aircraft that has landed and taken off from the same airport is considered to have made two operations at that airport. The dimensions and speed of the critical aircraft are used to determine the Aircraft Approach Category (determined by approach speed and denoted by letters A through E) and Airplane Design Group (determined by tail height and wingspan and denoted by Roman numerals I through V). Further, aircraft with a maximum takeoff weight (MTOW) lower than 12,500 pounds are categorized as "small" aircraft and are subject to less stringent design standards than larger aircraft. A summary of Aircraft Approach Category (AAC) and Airplane Design Group (ADG) standards can be found in Tables 2-1 and 2-2.

Table 2-1: Aircraft Approach Category

<i>Aircraft Approach Category</i>	<i>Approach Speed</i>
A	Speed less than 91 knots
B	Speed 91 knots or more but less than 121 knots
C	Speed 121 knots or more but less than 141 knots
D	Speed 141 knots or more but less than 166 knots
E	Speed 166 knots or more

Source: AC 150/5300-13B, Table 1-1

***Bold= GDM's Current Aircraft Approach Category**

Table 2-2: Airplane Design Group

<i>Airplane Design Group</i>	<i>Tail Height [ft. (m)]</i>	<i>Wingspan [ft. (m)]</i>
I	< 20' (<6 m)	<49' (<15m)
II	20' - < 30' (6m- <9m)	49' - <79' (15m- <24m)
III	30' - < 45' (9m- <13.5m)	79' - <118' (24m- <36m)
IV	45' - <60' (13.5m- <18.5m)	118' - 171' (36m- <52m)
V	60' - <66' (18.5m- <20m)	171' - <214' (52m- <65m)
VI	66' - <80' (20m- <24.5m)	214' - <262' (65m- <80m)

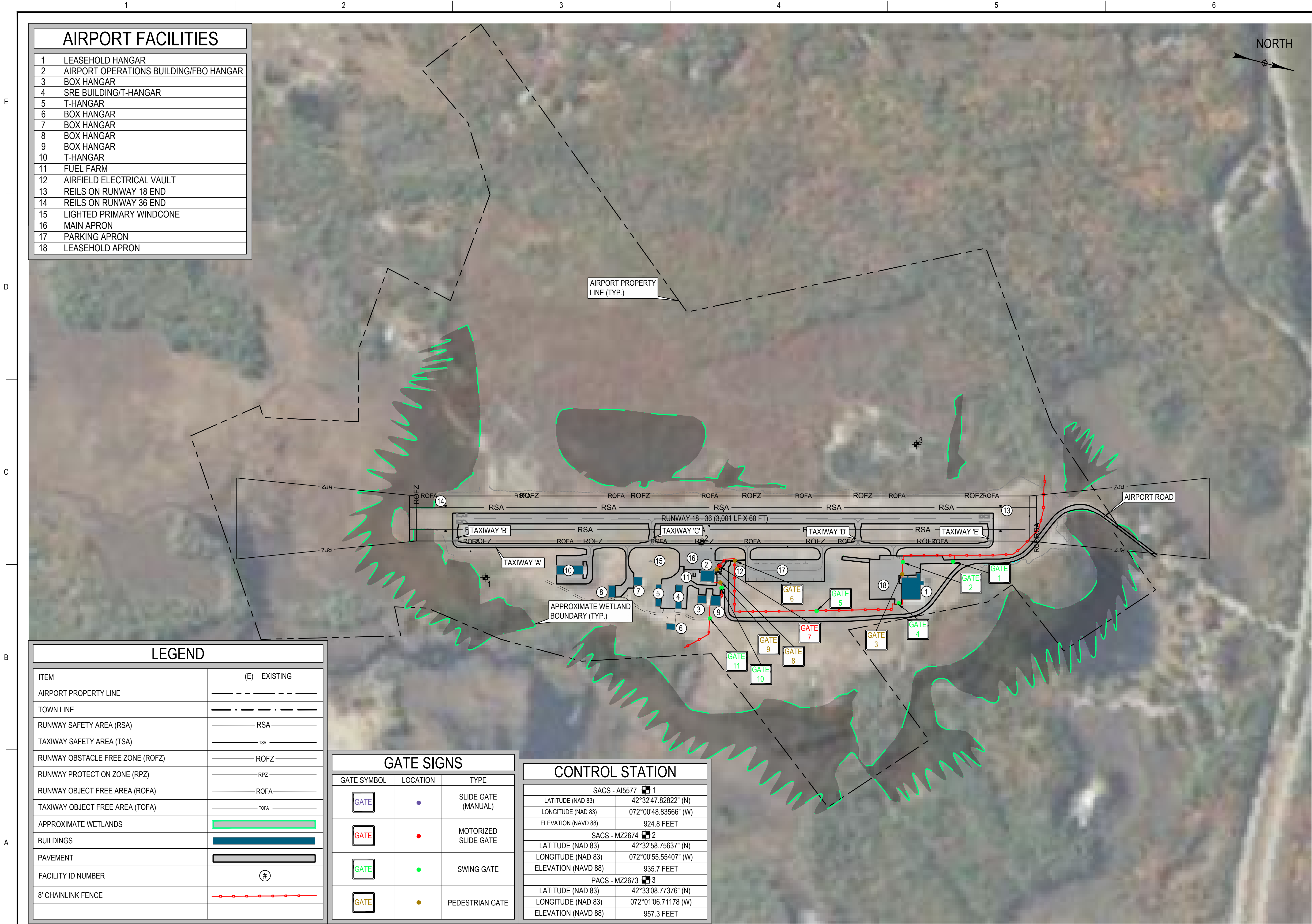
Source: AC 150/5300-13B, Table 1-2

***Bold= GDM's Current Airplane Design Group**

The 2008 AMPU included an Airport Reference Code (ARC) verification, which discussed historic aircraft operations and an inventory of based aircraft at the time. This verification revealed that the Airport's based aircraft inventory was composed of small single and twin-engine aircraft having wingspans under 49 feet and approach speeds of less than 121 knots- aircraft in the A-I and B-I categories. At the time of the 2008 AMPU, the FAA's Terminal Area Forecast, discussions with the Airport Manager, FBO and Airport Commission members indicated that the character of the aircraft using the airport was not anticipated to change through the planning period. Because of limited facilities (lack of Jet-A fuel, relatively short runway, and potentially high instrument approach minima), heavier, larger aircraft were unlikely to make regular use of the airport in the foreseeable future. Therefore, the airport remained designated as a B-I (small) facility: Aircraft Approach Category B (aircraft with approach speeds 91 knots or more but less than 121 knots), Airplane Design Group I (wingspans under 49 feet in length, and tail heights under 20 feet), further designation as "small" due to aircraft 12,500 lbs. or less. The 2023 Runway 18-36 reconstruction project included a component to confirm the critical aircraft as part of the design, which was confirmed to be the Piper Twin Comanche (B-I small).



Figure 2-2: Piper Twin Comanche



AIRPORT FACILITIES	
1	LEASEHOLD HANGAR
2	AIRPORT OPERATIONS BUILDING/FBO HANGAR
3	BOX HANGAR
4	SRE BUILDING/T-HANGAR
5	T-HANGAR
6	BOX HANGAR
7	BOX HANGAR
8	BOX HANGAR
9	BOX HANGAR
10	T-HANGAR
11	FUEL FARM
12	AIRFIELD ELECTRICAL VAULT
13	REILS ON RUNWAY 18 END
14	REILS ON RUNWAY 36 END
15	LIGHTED PRIMARY WINDCONE
16	MAIN APRON
17	PARKING APRON
18	LEASEHOLD APRON

LEGEND	
ITEM	(E) EXISTING
AIRPORT PROPERTY LINE	---
TOWN LINE	- . - . - . - . -
RUNWAY SAFETY AREA (RSA)	— RSA —
TAXIWAY SAFETY AREA (TSA)	— TSA —
RUNWAY OBSTACLE FREE ZONE (ROFZ)	— ROFZ —
RUNWAY PROTECTION ZONE (RPZ)	— RPZ —
RUNWAY OBJECT FREE AREA (ROFA)	— ROFA —
TAXIWAY OBJECT FREE AREA (TOFA)	— TOFA —
APPROXIMATE WETLANDS	
BUILDINGS	
PAVEMENT	
FACILITY ID NUMBER	Ⓢ
8' CHAINLINK FENCE	

GATE SIGNS		
GATE SYMBOL	LOCATION	TYPE
		SLIDE GATE (MANUAL)
		MOTORIZED SLIDE GATE
		SWING GATE
		PEDESTRIAN GATE

CONTROL STATION	
SACS - AI5577 1	
LATITUDE (NAD 83)	42°32'47.82822" (N)
LONGITUDE (NAD 83)	072°00'48.83566" (W)
ELEVATION (NAVD 88)	924.8 FEET
SACS - MZ2674 2	
LATITUDE (NAD 83)	42°32'58.75637" (N)
LONGITUDE (NAD 83)	072°00'55.55407" (W)
ELEVATION (NAVD 88)	935.7 FEET
PACS - MZ2673 3	
LATITUDE (NAD 83)	42°33'08.77376" (N)
LONGITUDE (NAD 83)	072°01'06.71178 (W)
ELEVATION (NAVD 88)	957.3 FEET

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PROJECT	AIRPORT MASTER PLAN AND AIRPORT LAYOUT	
	PLAN UPDATE	
	AIP NO. 3-25-0020-022-2023	
OWNER	GARDNER MUNICIPAL AIRPORT	
	GARDNER, MASSACHUSETTS	

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777121		
CADD FILE	777121-03-EXIST		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	JCM		
DATE	DECEMBER 2023		
DRAWING SCALE	SCALE: 1" = 250'		
GRAPHIC SCALE			
SCALE: 1" = 250'			
SHEET TITLE			

EXISTING
CONDITIONS PLAN

DRAWING NO.

FIG 2-1

2.2 AIRSIDE FACILITIES

The facilities on an airfield that are accessible to aircraft are generally categorized as airside facilities. These areas primarily include runways, taxiways, and aprons and are outlined in the following sections.

2.2.1 RUNWAY 18-36

The Airport's primary runway, Runway 18-36, is 3,000 feet long and 60 feet wide. The reconstruction of Runway 18-36 is currently underway as of the summer of 2023. All "existing conditions" contained in this Master Plan will be documented based on the assumption that the runway reconstruction will be complete by the time this report is finalized.

According to MassDOT/AD's 2021 Pavement Management Program (PMP) assessment, the runway had a Pavement Condition Index (PCI) rating of 48 out of 100 (poor) in 2021 and was expected to drop to a PCI rating of 45 (poor) by 2023. The MassDOT/AD PMP and PCI rating scale is further described in section 2.2.9, *MassDOT/AD Pavement Management Program*.

Insert Photo of new Runway 18-36

Figure 2-3: Runway 18-36

2.2.2 RUNWAY SAFETY AREA

According to FAA Advisory Circular 150/5300-13B, a runway safety area (RSA) is "a defined area surrounding the runway consisting of a prepared surface suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway." The existing Runway 18-36 RSA is 120 feet wide, centered on the runway centerline, running parallel along the entire width of the runway, and extends 240 feet beyond each runway end.

2.2.3 RUNWAY OBJECT FREE AREA (ROFA)

A Runway Object Free Area (ROFA) is a protected area surrounding the runway that is required to be maintained clear of protruding objects (e.g. structures, vegetation, terrain), with the exception of those required for air navigation or aircraft ground maneuvering. The ROFA at GDM is 250 feet in width, centered on the runway center line, and extends 240 feet beyond each displaced threshold.

2.2.4 RUNWAY PROTECTION ZONE (RPZ)

A Runway Protection Zone (RPZ) is a trapezoid-shaped area at the end of a runway intended to enhance protection of people and property on the ground. FAA prefers that Airports acquire property interest in RPZs to control these areas and maintain them clear of incompatible objects and activities. Dimensions of the RPZ and other critical areas can be found on Figure 2-1, Existing Conditions Plan.

2.2.5 APPROACH PROCEDURES

Table 2-3 presents a summary of the approach procedures available via Runway 18-36 at the Airport:

Table 2-3: Circling Approach Procedures

Category*	Minimums by Aircraft Category**			
	A	B	C	D
RNAV (GPS)-B CIRCLING	1800-1¼ 846 (900-1¼)	1800-1¼ 846 (900-1¼)	1980-3 1026 (1100-3)	
VOR-A CIRCLING	1760-1 805 (900-1)	1760-1¼ 805 (900-1¼)	1980-3 1025 (1100-3)	








*Terminal Instrument Procedures (TERPS), Aircraft Categories (ceiling in feet, visibility in nautical miles). Aircraft Categories A-D are defined in Table 2-1: Aircraft Approach Category

** Minimums given by either (ceiling in feet- visibility in miles) or ceiling height/Runway Visibility Range
Source: U.S. Terminal Procedures- NE-1, 10 AUG 2023 to 07 SEP 2023

2.2.6 MASSDOT PAVEMENT MANAGEMENT PROGRAM

In 2022, the MassDOT Aeronautics Division conducted a statewide assessment of airfield pavements under its Airport Pavement Management Program (PMP) to provide pavement condition index (PCI) information and recommendations for maintenance and rehabilitation for all airports across the state. The PMP contains “detailed information about each individual airport including inventory information, condition data, work history information, photographs, the proposed maintenance and rehabilitation plan, and a copy of the individual airport report.”¹ Each segment of airport pavement is rated based on the scale summarized in Table 2-4 below:

**Table 2-4: MassDOT Aeronautics Division
Pavement Management Program (PMP) Rating Scale**

PCI Rating	
	100-86
	85-70
	69-55
	54-41
	40-26
	25-11
	10-0

Source: MassDOT/AD Pavement Management System

Unless otherwise indicated, PMP condition reports are the basis for all pavement conditions documented in this chapter. According to the PMP, the appropriate repair action for any pavement above the state’s “critical PCI” of 70 is localized preventative maintenance, while major rehabilitation is

¹ <https://idea.appliedpavement.com/hosting/massachusetts/>

recommended for pavement below the critical PCI. These ratings will assist in developing recommendations for improvements to airfield pavements in *Chapter 5, Facility Requirements*.

2.2.7 TAXIWAYS AND TAXILANES

Taxiways and taxilanes serve the purpose of moving aircraft between the runway, other taxiways/taxilanes, aprons, and other areas of the airfield. GDM currently has a system of five taxiways and several hangar taxilanes as indicated in Table 2-5.

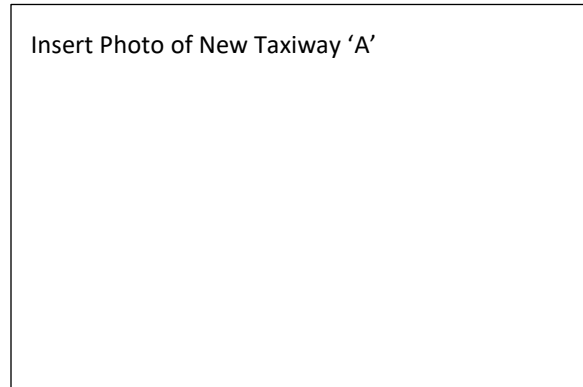


Figure 2-4: Taxiway A

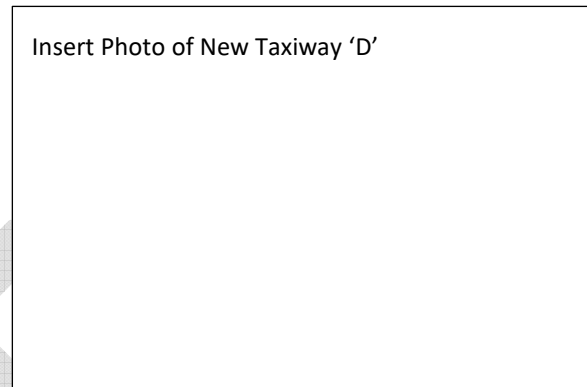


Figure 2-5: Taxiway 'D'

Table 2-5: Inventory of Taxiways

Facility	Segment	Year*	PCI**
Taxiway 'A' Full Length parallel taxiway to Runway 18-36 (3,001 feet x 25 feet)	Parallel Taxiway	2023	100
Taxiway 'B' Stub Taxiway (Approx. 90 feet x 25 feet)	Runway 36 end stub	2023	100
Taxiway 'C' Stub Taxiway (Approx. 90 feet x 25 feet)	Stub between Runway 36 end and Main Apron	2023	100
Taxiway 'D' Stub Taxiway (Approx. 90 feet x 25 feet)	Stub between Runway 18 end and Main Apron	2023	100
Taxiway 'E' Stub Taxiway (Approx. 90 feet x 25 feet)	Runway 18 end stub	2023	100
Taxilanes Taxilanes serving various hangar buildings	SRE Building T-Hangars	2005	77
	Hangar 7 and 8 Taxilanes	1963	0
	2021 T-Hangar Taxilanes	2021	97

*Most recent construction or rehabilitation

**MassDOT/AD APMS 2023 Projection

2.2.8 AIRPORT LIGHTING

Insert Photo of New Runway Light

Airfield lighting at GDM consists of medium intensity runway lights (MIRLs) along the edge of the entire length of Runway 18-36 and medium intensity taxiway lights (MITLs) along the edges of all taxiways. The lighting system was installed as part of the 2023 Runway 18-36 reconstruction project and is in new condition.

Figure 2-6: Runway Light

2.2.9 AIRFIELD GUIDANCE SIGNS

New airfield guidance signs were installed as part of the Runway 18-36 reconstruction project. An inventory of guidance signs can be found in Table 2-X below.

Insert Photo of New Guidance Sign

Figure 2-7: Airfield Guidance Sign

2.2.10 NAVIGATIONAL AND APPROACH AIDS

Navigational and approach aids assist pilots by providing navigational, visual, and communication guidance to locate the airport in support of safe airport operations. The navigational and approach aids at GDM are further described below:

Insert Photo of New Windcone

2.2.10.1 Windcone

A windcone provides visual information to pilots about wind direction and speed on the airfield. The Airport has one lighted windcone, installed in 2023 as part of the Runway 18-36 reconstruction project, which is located adjacent to the Main Apron.

Figure 2-8: Windcone



Figure 2-9: Hazard Beacon Installation 2010

2.2.10.2 Hazard Beacon

The Airport's three (3) hazard beacons are located off Airport property to the west of the airfield. The beacons are located on private properties in which the Airport has existing easements granting the Right of Use of the designated land for a hazard beacon(s). The beacons were installed in 2010, and all three beacons are no longer functional.

2.2.10.3 Rotating Beacon

A rotating beacon is used to indicate the location of the Airport at night or during periods of low visibility to pilots. The Airport's rotating beacon, installed in 2010, consists of alternating green and white lights mounted on a tip-down pole, located to the north of the Airport Administration Building. The rotating beacon is in good condition.



Figure 2-10: Rotating Beacon

2.2.11 APRONS

The Airport currently offers three areas for aircraft parking on its paved aprons, which are capable of accommodating approximately 31 aircraft. The Main Apron is located adjacent to the Administration building and does not include delineated spaces, the Tie-Down Apron is located north of the main parking lot, and the Leasehold Apron is located adjacent to the leasehold hangar, north of the Tie-Down Apron. An inventory of aprons, available tie-downs, and pavement conditions can be found in Table 2-6 below:

Table 2-6: Inventory of Aprons and Tie-Down Areas

<i>Facility</i>	<i>Tie-Down Spaces</i>	<i>Size</i>	<i>Year*</i>	<i>PCI**</i>
Main Apron	N/A	22,944 sf.	1978	56
Tie-Down Apron	18	53,124 sf.	1996	67
Leasehold Apron	13	55,151 sf.	1958	14

*Most recent construction or rehabilitation

**MassDOT/AD APMS 2023 Projection



Figure 2-11: Main Apron



Figure 2-12: Tie-Down Apron

2.2.12 AIRFIELD PAVEMENT MARKINGS

Table 2-7 below presents an inventory of pavement markings on the airfield:

Table 2-7: Inventory of Pavement Markings

<i>Location</i>	<i>Marking</i>
<i>Runway 36 End</i>	Runway 36 Designation Marking
<i>Runway 18-36</i>	Runway Centerline
<i>Runway 18 End</i>	Runway 18 Designation Marking
<i>Taxiway 'B' (36 End)</i>	Holding Position Marking
<i>Taxiway 'A' (at TW 'C' Intersection)</i>	Holding Position Marking
<i>Taxiway 'A' (at TW 'D' Intersection)</i>	Holding Position Marking
<i>Taxiway 'E' (18 End)</i>	Holding Position Marking
<i>Taxiway 'A'</i>	Taxiway Centerline
<i>Taxiway 'B'</i>	Taxiway Centerline
<i>Taxiway 'C'</i>	Taxiway Centerline
<i>Taxiway 'D'</i>	Runway Hold Line
<i>Taxiway 'D'</i>	Taxiway Centerline
<i>Taxiway 'E'</i>	Runway Hold Line
<i>Tie-Down Apron</i>	Tie-Down Markings
<i>Tie-Down Apron</i>	Taxilane Centerline Markings
<i>Leasehold Apron</i>	Tie-Down Markings
<i>T-Hangar 10 Taxilanes</i>	Taxilane Centerline Markings

Source: Facility Inventory

2.2.13 AIRFIELD SIGNS

Table 2-8 below presents an inventory of lighted signs on the airfield:

Table 2-8: Inventory of Lighted Signs

<i>Location</i>	<i>Sign</i>
<i>Taxiway 'B' at Runway 36 End</i>	Taxiway B and Runway 36 Location Sign
<i>Taxiway 'A' at Taxiway 'B' Intersection</i>	Taxiway A Location and Taxiway B Directional Sign
<i>Taxiway 'B' at Taxiway 'A' Intersection</i>	Taxiway B Location and Taxiway A Directional Sign
<i>Runway 36 End at Taxiway 'B' Intersection</i>	Taxiway B Directional Sign
<i>Runway 18-36 at Taxiway 'C' Facing RW 18 End</i>	Taxiway C Directional Sign
<i>Runway 18-36 at Taxiway 'C' Facing RW 36 End</i>	Taxiway C Directional Sign
<i>Taxiway 'A' at Taxiway 'C' Facing RW 18 End</i>	Taxiway C and Runway 36-18 Location Sign
<i>Taxiway 'A' at Taxiway 'C' Facing RW 36 End</i>	Taxiway C and Runway 36-18 Location Sign
<i>Taxiway 'C' at Taxiway 'A' Intersection</i>	Taxiway C Location and Taxiway A Directional Sign
<i>Taxiway 'A' at Taxiway 'C' Facing RW 18 End</i>	Taxiway A Location and Taxiway C Directional Sign
<i>Taxiway 'A' at Taxiway 'C' Facing RW 36 End</i>	Taxiway A Location and Taxiway C Directional Sign
<i>Runway 18-36 at Taxiway 'D' Facing RW 18 End</i>	Taxiway D Directional Sign
<i>Runway 18-36 at Taxiway 'D' Facing RW 36 End</i>	Taxiway D Directional Sign
<i>Taxiway 'A' at Taxiway 'D' Facing RW 18 End</i>	Taxiway D and Runway 36-18 Location Sign
<i>Taxiway 'A' at Taxiway 'D' Facing RW 36 End</i>	Taxiway D and Runway 36-18 Location Sign
<i>Taxiway 'D' at Taxiway 'A' Intersection</i>	Taxiway D Location and Taxiway A Directional Sign
<i>Taxiway 'A' at Taxiway 'D' Facing RW 18 End</i>	Taxiway A Location and Taxiway D Directional Sign
<i>Taxiway 'A' at Taxiway 'D' Facing RW 36 End</i>	Taxiway A Location and Taxiway D Directional Sign
<i>Taxiway 'E' at Runway 18 End</i>	Taxiway E and Runway 18 Location Sign
<i>Taxiway 'A' at Taxiway 'E' Intersection</i>	Taxiway A Location and Taxiway E Directional Sign
<i>Taxiway 'E' at Taxiway 'A' Intersection</i>	Taxiway E Location and Taxiway A Directional Sign
<i>Runway 18 End at Taxiway 'E' Intersection</i>	Taxiway E Directional Sign

Source: Facility Inventory

Runway location sign

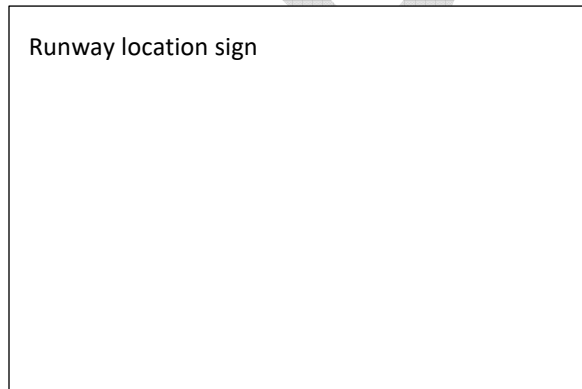


Figure 2-13: Runway Location Sign

Taxiway Directional Sign

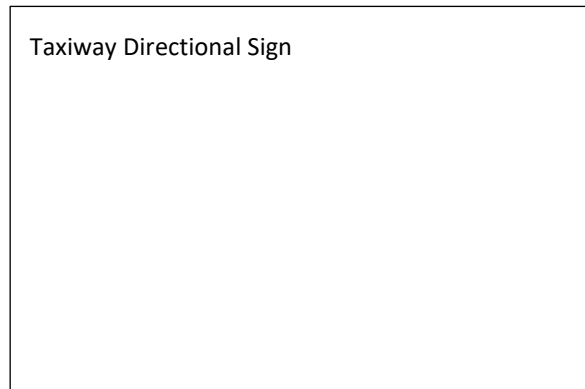


Figure 2-14: Taxiway Directional Sign

2.2.14 HANGARS

Hangars on airport property include a combination of T-hangars and box hangars capable of accommodating from 26 to 36 aircraft. Hangar condition and capacity information can be found in Table 2-9, below:

Table 2-9: Hangar Inventory

Hangar ID	Hangar Type	Ownership	Hangar Use	Aircraft Capacity	Area (sf.)	Construction Date	Condition
1	Box Hangar	Privately Owned	Aircraft Maintenance, Aircraft Storage	4-8	12,000±	Unknown	Poor
2	Maintenance Hangar	Airport lease to FBO	Aircraft Maintenance, Airport Operations	4-8	4,700±	1931	Fair
3	Box Hangar	Privately Owned	Aircraft Storage	1	2,000±	2000±	Good
4	T-Hangar 4 (SRE Building)	Airport Owned	Aircraft Storage, SRE Storage	4	3,800±	1980±	Poor
5	T-Hangar	Privately Owned	Aircraft Storage	3	3,600±	1990±	Good
6	Box Hangar	Privately Owned	Aircraft Storage	1	1,400±	1986±	Good
7	Box Hangar	Privately Owned	Aircraft Storage	1	2,300±	2005	Good
8	Box Hangar	Privately Owned	Aircraft Storage	2	2,220±	1995±	Good
9	Box Hangar	Privately Owned	Aircraft Storage	2	2,650±	2008	Good
10	T-Hangar	Airport Owned	Aircraft Storage	6	7,350±	2021	Good

Source: Airport Records



Figure 2-15: T-Hangar 10

2.2.15 SNOW REMOVAL EQUIPMENT BUILDING

The Airport's Snow Removal Equipment is currently being stored in Hangar Building 4, which was constructed in the 1980s. The building is in poor condition and crowded with equipment. Prior to being stored in Hangar Building 4, snow removal equipment was being stored outside and being exposed to the elements.



Figure 2-16: SRE Hangar

2.2.16 FUEL

The Airport's fuel system consists of a 6,000-gallon Avgas aboveground fuel storage tank (AST) with tank monitoring and a self-serve dispensing system, which was installed in 2010. The AST is a "skid type" system on a concrete pad surrounded by bollards and chain link fence. The system includes a credit card activated fueling system. The AST is located adjacent to the Airport's terminal apron. The Airport does not currently offer Jet-A fuel.



Figure 2-17: Fuel Facility

2.3 LANDSIDE FACILITIES

The facilities on an airfield that are inaccessible to aircraft are generally categorized as landside facilities, which are outlined in the following sections.

2.3.1 ADMINISTRATION BUILDING

The current airport administration building is a lean-to structure attached to the original hangar that was constructed in 1931. The administration building is approximately 1,000 square feet within the 4,700 square foot maintenance hangar/terminal building. It is located east of the runway, approximately at the runway midpoint. The facility includes two rooms which hold several chairs and tables, as well as an observation area, and restrooms. These rooms are also used by the Commission to conduct business and hold meetings. The electric and bathrooms are not up to code – wiring is knob and tube, and many of the hangars are included on the Airport’s electrical meter, which means the Airport is currently paying for electricity for those tenants. In 2023, the Airport took steps to upgrade the interior of the administration building including new flooring including removal of asbestos, painting the walls.



Figure 2-18: Administration Building

2.3.2 AIRPORT BUSINESS

GDM supports a variety of aviation activities and offers a range of amenities to the flying community. There is currently one aviation business operating on the airfield, as follows:

Gardner Aviation Services, Inc.: Fixed Base Operator (FBO) providing A&P IA airplane maintenance services, avionics installations and repairs, annual 100-hour inspections, major and minor repairs, engine or cylinder replacement, and aircraft broker services.

2.4 MISCELLANEOUS FACILITIES AND EQUIPMENT

In addition to airside and landside facilities, the Airport has various support facilities and equipment to aide in safe and efficient operations. Miscellaneous facilities and equipment are outlined in the following sections.

2.4.1 AIRPORT UTILITIES

2.4.1.1 Water

The Airport is not connected to the municipal water system. Water is supplied from a well on Airport property, located directly behind the Administration Building/Maintenance Hangar. A leach field is located between Hangars 3 and 4, behind the Administration Building/Maintenance Hangar.

2.4.1.2 Electric

The Airport's electricity is provided by Templeton Light and Power and supports the runway and taxiway lighting system, beacon, lighted windcone, administration building, and hangars. There is no natural gas available at the Airport, and generally electricity is used to heat buildings.

2.4.2 AIRPORT EQUIPMENT

An inventory of maintenance and snow removal equipment (SRE) can be found in Table 2-10 below. It should be noted that many of the snow removal attachments are aging and in need of replacement.

Table 2-10: Inventory of Maintenance and Snow Removal Equipment (SRE)

<i>Year</i>	<i>Make</i>	<i>Condition</i>
2017	Freightliner 108SD Dump Truck with Fixed Angle Rollover Plow*	Good
2005	Brush Hog**	Good
2005	Zero Turn Mower**	Poor
2005	John Deere 5420 Tractor with 15' Mower Deck Attachment **	Good
2002	John Deere 44H Loader with Stewart & Stevenson Snowblower Attachment*	Good
2002	Ford F-350 Dump Truck with Plow Attachment*	Fair

* AIP Project with State and Local Share

**MassDOT Project with Local Share

Source: Airport Records



Figure 2-19: 2017 Freightliner Dump Truck with Plow

2.4.3 VEHICLE PARKING

Designated vehicle parking for the Airport's administration building is located outside of the fence, north of the building and has capacity for 8 vehicles. There is also a designated parking lot outside of the fence, adjacent to the leasehold Hangar, which can accommodate several vehicles. The pavement was reconstructed as part of the 2021 access road project and is in good condition.

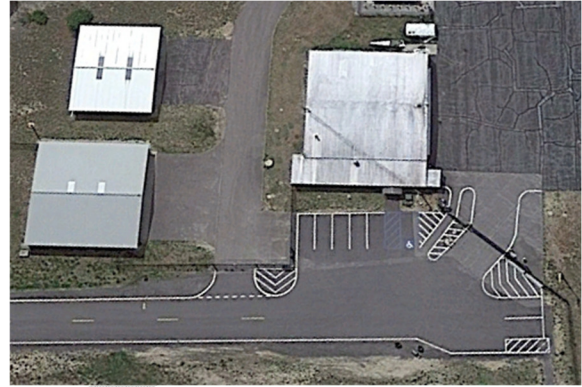


Figure 2-20: Administration Building Parking Lot

2.4.4 FENCING AND GATES

In 2012, the Airport installed 3,061 LF of fencing around a portion of Airport property. The fence begins in the terminal area, separating the parking lot from the Administration Building and Main Apron, runs along the perimeter of Airport Road, and terminates north of the Runway 18 end. The 2012 project also included installation of one (1) motorized slide gate with digital keyless entry near the primary access point to the airfield, as well as six (6) double swing gates and four (4) pedestrian gates located at key points to allow continued access as needed by airport staff and users.



Figure 2-21: Completed Fence in Terminal Area

2.4.5 LEASEHOLD PROPERTY

The leasehold property at the northernmost quadrant of the airport includes an office and hangar facility of nearly 12,000 square feet as well as an aircraft and automobile parking area of approximately 40,000 square feet. The current lease on the property is an agreement made in 1979 and expires in 2039. Currently, the terms of the lease require that only 50% of the operations at the property be aviation related. The leasehold hangar and attached gambrel-style structure appear to be in fair shape, but the paved apron, automobile parking area, and taxiway are in poor condition. A portion of the attached gambrel/office space is believed to violate the FAR Part 77 Transitional Surface to the runway. It is unknown to what extent this building penetrates the transitional surface. An aerial or ground survey is required to determine the exact setback and heights of buildings on the Airport.

2.4.6 EMERGENCY ACCESS AND MAINTENANCE ACTIVITIES

At this time, a direct abutter of the Airport has access to the airport and uses the runway for general aviation purposes. He assists the Commission with mowing, snow-blowing and other general airport maintenance and acts as a "watchman" at the Airport when staff are not on-site.

Table 2-11: Facility Conditions

<i>Facility</i>	<i>Date of Construction, Last Rehab. or Purchase</i>	<i>Condition/PCI*</i>	<i>AIP Useful Life</i>	<i>End of Useful Life and Eligible for Replacement</i>
<i>Runway 18-36</i>	2023	100	20 Years	2043
<i>Taxiway 'A'</i>	2023	100	20 Years	2043
<i>Taxiway 'B'</i>	2023	100	20 Years	2043
<i>Taxiway 'C'</i>	2023	100	20 Years	2043
<i>Taxiway 'D'</i>	2023	100	20 Years	2043
<i>Taxiway 'E'</i>	2023	100	20 Years	2043
<i>SRE Building Taxilanes</i>	2005	77	20 Years	2025
<i>Hangar 7 & 8 Taxilanes</i>	1963	0	N/A	N/A
<i>2021 T-Hangar Taxilanes</i>	2021	97	20 Years	2041
<i>Runway Lights</i>	2023	Good	20 Years	2043
<i>Taxiway Lights</i>	2023	Good	20 Years	2043
<i>Windcone</i>	2023	Good	20 Years	2043
<i>Rotating Beacon</i>	2010	Good	15 Years	2025
<i>Hazard Beacons (3)</i>	2010	Failed	10 Years	2020
<i>Main Apron</i>	1978	56	20 Years	1998
<i>Tie-Down Apron</i>	1996	67	20 Years	2016
<i>Leasehold Apron</i>	1958	14	N/A	N/A
<i>Fuel Facility</i>	2010	Good	N/A	N/A
<i>Administration Building</i>	1931	Poor	N/A	N/A
<i>Parking Lot</i>	Unknown	Good	N/A	N/A
<i>Fence and Gates</i>	2012	Good	20 Years	2032
<i>Hangar Buildings</i>	See Table 2-9			
<i>Airport Equipment</i>	See Table 2-10			

CHAPTER 3 – EXISTING ENVIRONMENTAL CONDITIONS AND SENSITIVE AREAS

This chapter documents the existing environmentally sensitive areas and key environmental issues at the Airport using data from previously completed Master Plan studies, planning studies, environmental studies, and other readily available sources. This information is an integral component to the master planning process as consideration of environmental factors is critical to the evaluation of airport development alternatives and understanding subsequent environmental permitting requirements.

FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, provide policies and procedures for compliance with the NEPA, and requirements for airport actions pursuant to FAA authority. It is important to note that the environmental analysis included in this Master Plan Update is not a document intended to satisfy the need for formal NEPA analysis. Prior to the implementation of a proposed action, the Airport will need to coordinate with the FAA to determine the appropriate level of NEPA review. Depending on the required level of review, the following list of applicable environmental impact categories outlined in FAA Order 1050.1F may need be addressed:

- Air Quality
- Biological resources (including fish, wildlife, and plants)
- Climate
- Coastal resources
- Department of Transportation Act, Section 4(f)
- Farmlands
- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archeological, and cultural resources
- Land use
- Natural resources and energy supply
- Noise and compatible land use
- Socioeconomic, environmental justice, and children's environmental health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

3.1 ENVIRONMENTAL CONDITIONS

The most recent comprehensive documentation of environmental conditions at the Airport occurred as part of the 2008 Airport Master Plan Update. The 2008 AMPU included a Wetland Resource Area and Wildlife Habitat Assessment (WRA/WHA) conducted by Baystate Environmental Consultants (BEC) to document the presence of wetlands and endangered and threatened species habitat on airport property. Further, in 2011, the Airport completed an Environmental Notification Form (ENF) to review projects proposed by the 2008 AMPU for potential impacts to NHESP resources. The 2011 ENF also included a Grassland Bird Survey to verify the presence or absence of threatened species at the Airport. The following sections outline known environmental impact categories that may be present at GDM and should be considered as future capital improvements are pursued.

3.1.1 WETLANDS

According to the Airport's 2008 Airport Master Plan Update, several classes of wetlands are present on airport property. There are a total of 12 wetland resource area complexes located on and around the airport. A summary of these wetlands is provided below, and a detailed description of each area can be found in the Wetland Resource Area and Wildlife Habitat Assessment attached to Appendix XX of this Master Plan:

- Wetland Area A: A forested wetland approximately 2.5 AC in size, located approximately 200 feet from the paved runway/taxiway and extending outside of the airport property boundary.
- Wetland Area B: A small isolated vegetated wetland approximately 40 feet by 20 feet in size, located within a larger forest patch approximately 200 feet northeast of the Airport property boundary.
- Wetland Area C: A small isolated vegetated wetland approximately 70 feet by 30 feet in size, located within a larger forest patch approximately 75 feet northeast of Wetland Area B.
- Wetland Area D: An emergent wetland approximately 5 AC in size, located to the northeast of the Airport, likely just outside of the Airport property boundary.
- Wetland Area E: A small emergent wetland approximately 0.2 AC in size, located within the Airport boundary, south of the intersection of the airport access road and a dirt road extending east toward Wetland Area D.
- Wetland Area F: An emergent wetland with large areas of open water and extensive beaver activity located to the west of Airport property.
- Wetland Area G: An open water emergent and shrub wetland approximately 0.8 AC in size, located within the eastern boundary of Airport property.
- Wetland Area H: An open water emergent shrub wetland, similar to Wetland G, approximately 0.4 AC in size, located 330 feet south of Wetland Area G.
- Wetland Area I: An open water emergent shrub wetland, similar to Wetlands G and H, approximately 0.6 AC in size, located to the east of the Runway 36 end.
- Wetland Area J: An extensive emergent and wet meadow wetland system located at the southern end of Airport property.
- Wetland Area K: Primarily a shrub wetland with some emergent wetland and open water approximately 4.5 AC in size, located 100 feet west of the runway.
- Wetland Area L: An emergent vegetative community with some shrubs approximately 1.3 AC in size, located approximately 100 feet west of the paved runway and 900 feet north of Wetland Area K.

These areas are further depicted on Figure 3-1: Wetland Resource Area Map¹ below.

¹ BEC Consultants, Wetland Resource Area and Wildlife Habitat Assessment, February 2007

Figure 3-1: Wetland Resource Area Map



3.1.2 RARE, ENDANGERED OR THREATENED SPECIES



NHESP Grasshopper Sparrow

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), several Massachusetts Endangered Species Act (MESA)-listed threatened, special concern, and endangered species have been observed and documented in the towns of Gardner and Templeton. A complete listing of MESA-listed species can be found in Figure 3-2: Massachusetts Endangered Species Act (MESA) Species. NHESP's MassMapper tool was consulted as part of the research for this Master Plan, which shows that a portion of Airport property is designated as PH 1679 (Priority Habitat of Rare Species) as well as Estimated Habitat of Rare Wildlife. These areas are noted on Figure 3-3: Natural Heritage and Endangered Species Program Map. According to the 2008 WLA/WHA, these areas are potential habitat for two threatened birds, the vesper sparrow and the grasshopper sparrow. As part of the 2011 ENF submission process, NHESP

determined that the proposed improvements – including installation of navigational aids, construction of an SRE building, reconstruction of the airport access road, and construction of fencing – could be conditioned to minimize impacts and avoid a “take” of the state-listed grassland bird species. At that time, it was determined that preparation of an Environmental Impact Report (EIR) would not be required. Further, the 2011 Grassland Bird Survey completed as part of the ENF project reported that no vesper sparrows or grasshopper sparrows were present or breeding at the airport during the survey, and that the habitat may not be sufficient to support these species, at least not a consistent basis.

An IPaC Resource List was downloaded from the U.S. Fish and Wildlife Service (USFWS) as part of this Master Plan to document federally regulated species that may be present on or around airport property. According to the USFWS, no federally regulated endangered species are known or believed to occur on or around Airport property. One federally regulated threatened species, the Northern Long-eared Bat, and one candidate species, the Monarch Butterfly, are listed as “potentially affected by activities in this location.” Additionally, the Resource List revealed that there are no critical habitats, as defined by USFWS, at this location.



USFWS Northern Long-eared Bat

Figure 3-2: Massachusetts Endangered Species Act (MESA) Species

Gardner – MESA-Listed Species Observations

Common Name	Scientific Name	Taxonomic Group	MESA Status	Most Recent Obs.
American Bittern	<i>Botaurus lentiginosus</i>	Bird	Endangered	2021
Eastern Dwarf Mistletoe	<i>Arceuthobium pusillum</i>	Vascular Plant	Special Concern	2007
Pitcher Plant Borer	<i>Papaipema appassionata</i>	Butterfly/Moth	Threatened	2004
Tuckerman's Pondweed	<i>Potamogeton confervoides</i>	Vascular Plant	Threatened	2009
Wood Turtle	<i>Glyptemys insculpta</i>	Reptile	Special Concern	1988

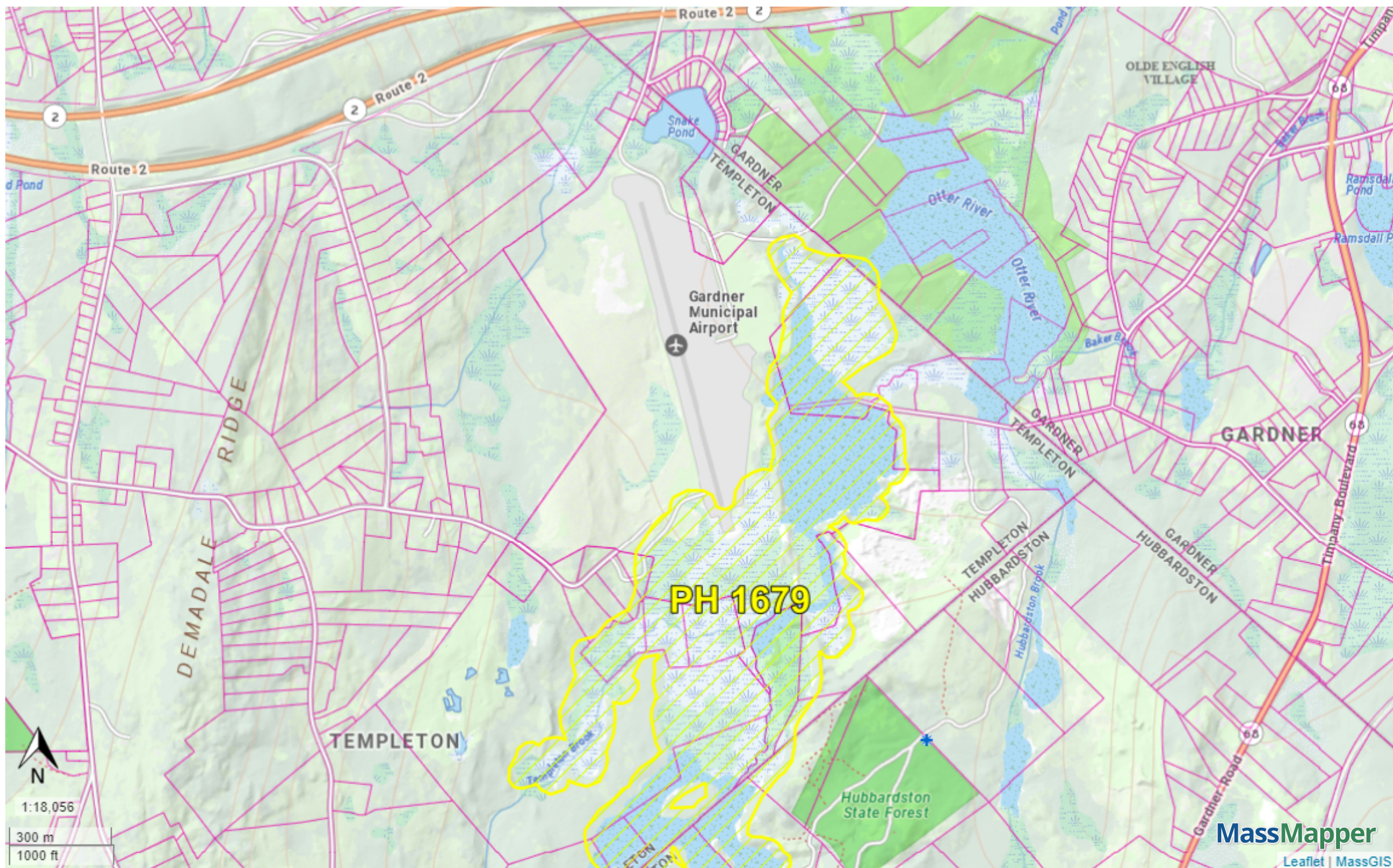
Templeton – MESA-Listed Species Observations

Common Name	Scientific Name	Taxonomic Group	MESA Status	Most Recent Obs.
Adder's Tongue Fern	<i>Ophioglossum pusillum</i>	Vascular Plant	Threatened	Historic
American Bittern	<i>Botaurus lentiginosus</i>	Bird	Endangered	2017
Climbing Fumitory	<i>Adlumia fungosa</i>	Vascular Plant	Special Concern	1878
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Bird	Special Concern	2016
Ebony Boghaunter	<i>Williamsonia fletcheri</i>	Dragonfly/Damselfly	Endangered	2003
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Bird	Threatened	1993
Green Adder's-mouth	<i>Malaxis unifolia</i>	Vascular Plant	Threatened	1899
Long-eared Owl	<i>Asio otus</i>	Bird	Special Concern	1978
Philadelphia Panic-grass	<i>Panicum philadelphicum</i> ssp. <i>philadelphicum</i>	Vascular Plant	Special Concern	1901
Pod-grass	<i>Scheuchzeria palustris</i>	Vascular Plant	Endangered	2019
Sand Violet	<i>Viola adunca</i>	Vascular Plant	Special Concern	2018
Vesper Sparrow	<i>Poocetes gramineus</i>	Bird	Threatened	1993
Wood Turtle	<i>Glyptemys insculpta</i>	Reptile	Special Concern	2015

Source: <https://www.mass.gov/info-details/rare-species-viewer>

Downloaded: 8/31/2023

Figure 3-3: Natural Heritage and Endangered Species Program Map



NHESP Priority Habitats of Rare Species



NHESP Natural Communities



NHESP Estimated Habitats of Rare Wildlife



NHESP Ecoregions



NHESP Certified Vernal Pools



Property Tax Parcels

3.1.3 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The 2008 Airport Master Plan Update included a Phase I Archaeological Reconnaissance Survey completed by the University of Massachusetts Archaeological Services. The survey report revealed that much of airport property has low sensitivity for archaeological resources; however, several moderate to high sensitivity areas were identified. The report recommended that a Phase I B intensive locational survey be conducted should any future development be planned for sensitive areas.

A search of the Massachusetts Historical Commission's (MAC) Massachusetts Cultural Resource Information System (MACRIS) maps revealed that no MHC inventory points or areas are located on airport property.

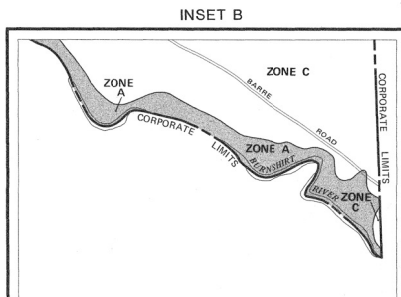
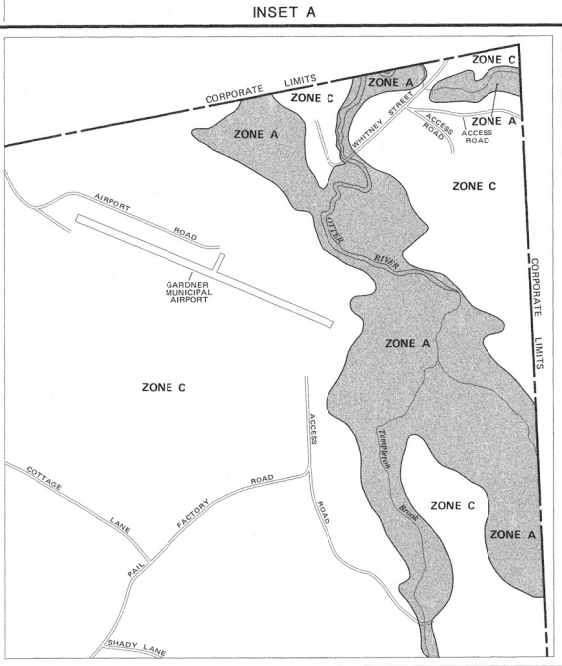
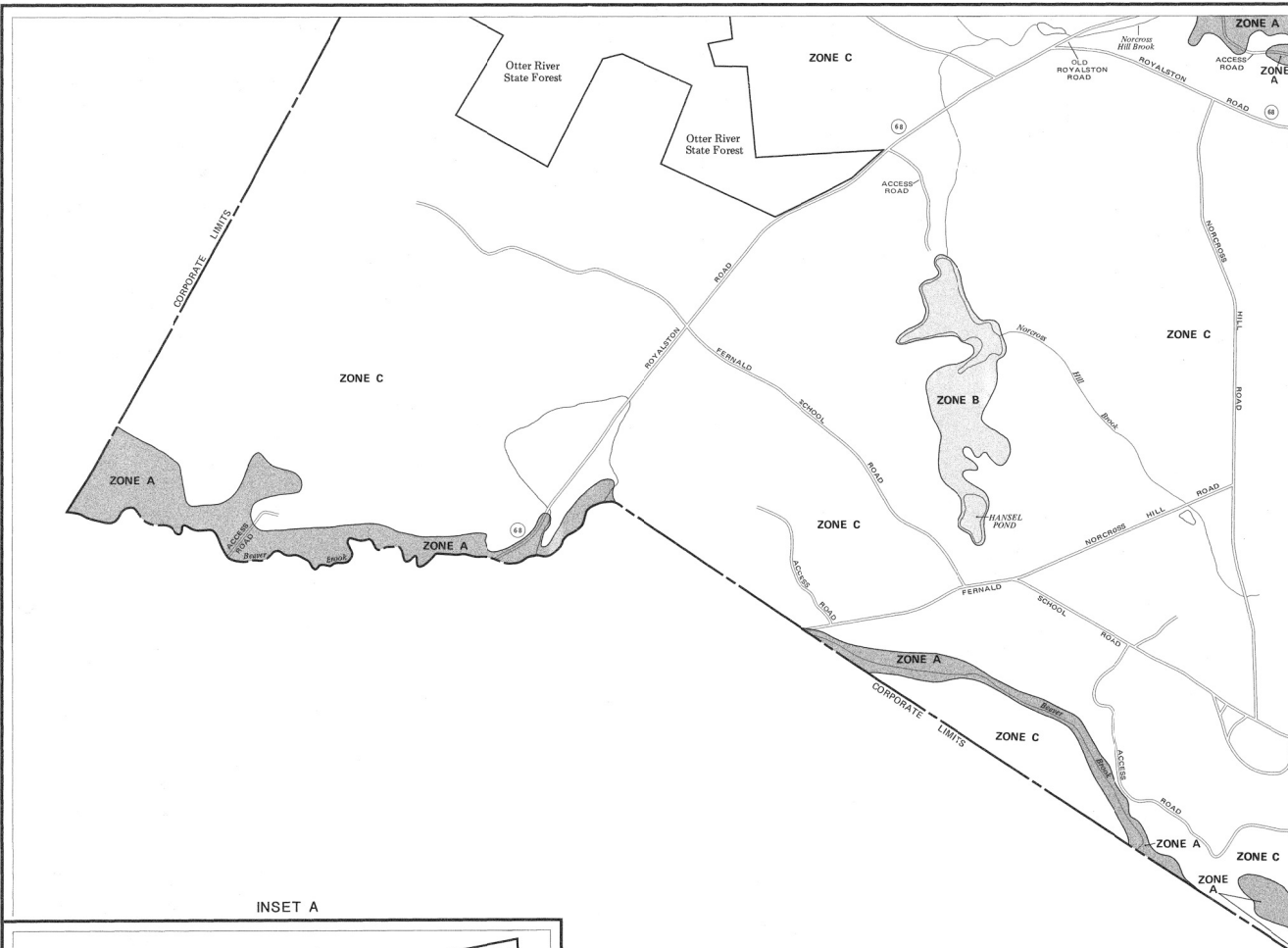
3.1.4 FLOODPLAIN

According to Federal Emergency Management Agency (FEMA) National Flood Hazard Maps, there is a small portion of the Airport that is categorized as Zone A. This area, which is associated with the Otter River and Templeton Brook in the area of the Runway 36 end, has a one percent annual chance of flooding. All other areas on Airport property are classified as areas of minimal flood hazard (see Figure 3-4: National Flood Hazard Map).

3.1.5 LAND USE

The Airport is located in the Town of Templeton, Massachusetts. Airport property abuts and is owned by the City of Gardner, Massachusetts. In the Town of Templeton, Airport property is located in a Residential – Agricultural 2 district, which is classified as Zoning Code R-A-2 and depicted in light green on the town's zoning map (see Figure 3-5: Town of Templeton, MA Zoning Map). Airport property is surrounded by R-A-2 properties in the Town of Templeton. Airport property abuts a Rural Residential District in the City of Gardner, which is classified as code RR2 and depicted in tan on the town's zoning map. This area is further classified as a Groundwater Protection Overlay District (GWPOD) and is identified by a dashed pink outline (see Figure 3-6: City of Gardner Zoning Map).

Figure 3-4: National Flood Hazard Map



KEY TO MAP

500-Year Flood Boundary
 100-Year Flood Boundary
 Zone Designations*

Base Flood Elevation Line With Elevation in Feet**
 Base Flood Elevation in Feet Where Uniform Within Zone**
 Elevation Reference Mark
 Zone D Boundary
 River Mile
 **Referenced to the National Geodetic Vertical Datum of 1929

***EXPLANATION OF ZONE DESIGNATIONS**

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures. This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas. For adjoining map panels, see separately printed Index to Map Panels.

INITIAL IDENTIFICATION:
 AUGUST 2, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
 SEPTEMBER 10, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
 MAY 17, 1982

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zone where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE
 800 0 800 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
 FLOOD INSURANCE RATE MAP

**TOWN OF
 TEMPLETON,
 MASSACHUSETTS
 WORCESTER COUNTY**

PANEL 15 OF 25
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
 250339 0015 B

EFFECTIVE DATE:
 MAY 17, 1982

Federal Emergency Management Agency

Figure 3-5

Town of Templeton, MA Zoning Map Amended May 11, 2010

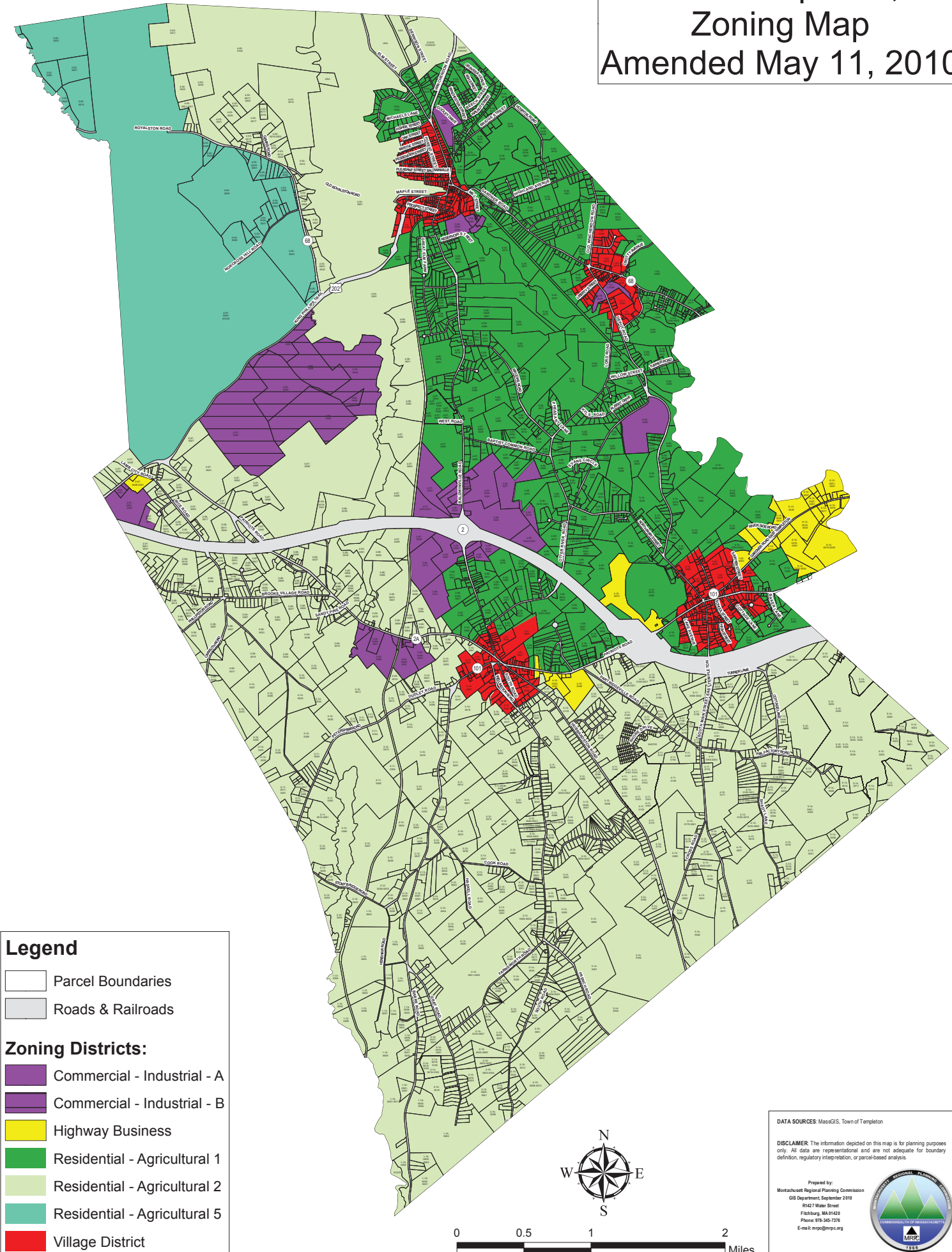


Figure 3-6: City of Gardner Zoning Map

