

APPENDIX D:
Fostering Inclusive
Economic Resilience

D

Economic Profile

The Hanover economy is a dynamic system relying on workers, incomes, education, jobs, access to employment, and regional, national, and international markets. This section is a snapshot that focuses on Hanover’s contributions to the local and regional economy.

Workforce

In 2021, Hanover’s workforce included 4,817 persons over 16 years of age. Most of these people were employed, with only 137 unemployed, resulting in a very low rate of unemployment.

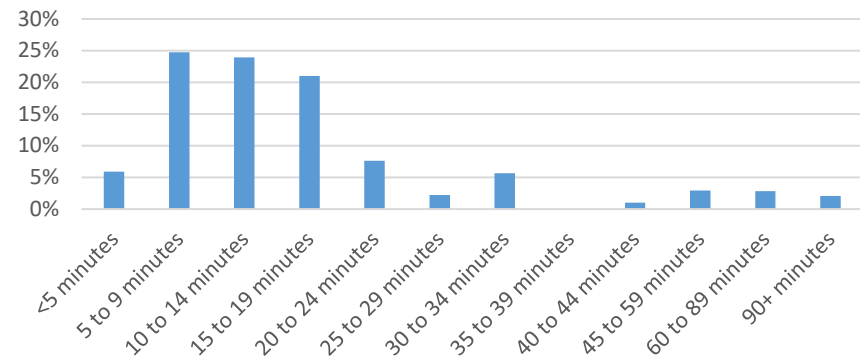
According to New Hampshire’s Economic and Labor Market Information Bureau, “the [Upper Valley] region has long had one of the lowest unemployment rates among New Hampshire’s labor market areas, with rates consistently lower than the New Hampshire and Vermont statewide rates.”¹ This trend is reflected at the local level in Hanover, where the annual average unemployment rate in 2021 (2.8 percent) was lower than at the county (3.3 percent) and state (3.5 percent) levels.²

As a group, Hanover’s residents have spent many years in school. As of 2020, among the Town’s residents aged 25 years or older, 81.8 percent held a bachelor’s degree or higher. This was the highest percentage among Hanover’s neighbors, which ranged from a low of 24.7 percent (Canaan) to a high of 80.9 percent (Norwich, VT).³ This compares to 42.6 percent in Grafton County and 38.2 percent across the State.

1 New Hampshire Economic and Labor Market Information Bureau. (2021). The Upper Valley On-The-Map Analysis: A Profile of the Lebanon NH-VT and Claremont NH Micropolitan NECTAs. Retrieved from, <https://www.nhes.nh.gov/elmi/products/documents/upper-valley-onthemap-2021.pdf>
 2 New Hampshire Employment Security (NHES). (March 2022). Labor Force and Unemployment - New Hampshire Local Area Unemployment Statistics. Retrieved from, <https://www.nhes.nh.gov/elmi/statistics/candt-arch.htm>

In 2021, over 70 percent of the primary jobs in the Upper Valley region were located in Hanover, Lebanon, and Hartford.⁴ While the region’s economy supports high employment rates and opportunities, the decentralization of job centers impacts the commuting patterns of Hanover residents.

Figure D-1: Percentage of Commuters by Travel Time to Work, 2020



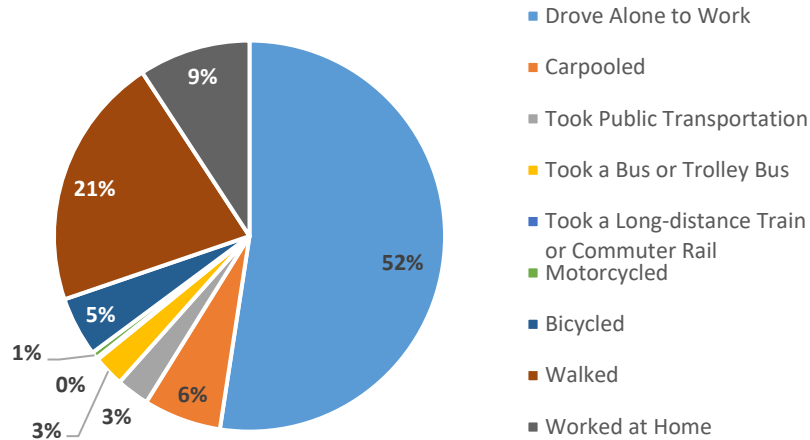
Source: 2016-2020 American Community Survey

As of 2020, 86.2 percent of Hanover’s workforce were employed in Grafton County, while 5.4 percent worked outside of Grafton County but in the state and 8.5 percent worked out of the state. Nearly one-quarter of Hanover’s commuting population had a commute time to work of under 10 minutes, while the average commute time was 17.1 minutes (see [Figure D-1](#)). Over 50 percent of the workforce commuted via car, nearly

3 Ibid.
 4 New Hampshire Economic and Labor Market Information Bureau. (2021). The Upper Valley On-The-Map Analysis: A Profile of the Lebanon NH-VT and Claremont NH Micropolitan NECTAs. Retrieved from, <https://www.nhes.nh.gov/elmi/products/documents/upper-valley-onthemap-2021.pdf>

30 percent walked or biked, 10.5 percent worked from home, and the remainder utilized a different mode (see [Figure D-2](#)).⁵

Figure D-2: Percentage of Commuters by Mode, 2020



Source: 2016-2020 American Community Survey

Household Income

Income levels in Hanover are significantly higher than those in nearby towns, the county, and the state, as shown in [Table D-1](#). According to the 2016-2020 American Community Survey, Hanover’s median household income in 2020 was the third highest amongst its neighbors.

Income distribution amongst Hanover households includes a significant percentage of households with high annual incomes. In 2020, nearly 29 percent of households in Hanover earned \$200,000 or more,

comprising a higher percentage of households than in all other neighboring communities except for the Town of Lyme (29.7 percent).

Whereas only 18.4 percent of households in 2020 earned between \$50,000 and \$99,999, 29.8 percent earned less than this range, and just over 50 percent earned more. This income distribution represents a wealth gap in the Town, skewing significantly toward low and high-income households.

Table D-1: Comparative Median Household Income, 2020

	2020 Median Household Income
New Hampshire	\$77,923
Grafton County	\$67,476
Hanover, NH	\$105,446
Canaan, NH	\$74,940
Enfield, NH	\$76,688
Lebanon, NH	\$73,704
Lyme, NH	\$128,000
Norwich, VT	\$117,069
Thetford, VT	\$72,875

Source: 2016-2020 American Community Survey

According to the 2016-2020 American Community Survey, approximately 16 percent of households in Hanover are below the U.S. Census-defined poverty level, compared to 11.3 percent in Grafton County and 7.8 percent in New Hampshire. One possible explanation of this level of poverty could

⁵ U.S. Census Bureau. (2020). 2016-2020 American Community Survey.

be the Town's large higher education student population and senior population – both parts of the community with limited income.

Employment and Job Clusters

In 2020, Hanover's workers were predominantly employed across three sectors that comprised approximately 68 percent of the total workforce: educational services (42.8 percent), healthcare services (12.5 percent), and scientific and technical services (12.6 percent).⁶ The prominence of these industries among Hanover's workforce reflects the Upper Valley Region's role as a center of healthcare and educational facilities. This involves the presence of local and regional educational and healthcare institutions, including Dartmouth College and Dartmouth Health.

Hanover's shape and character are significantly impacted by the presence of Dartmouth College, one of the largest employers in the State. Hanover's status as a regional employment center is largely attributable to the presence of this institution. The College not only provides employment opportunities but also contributes significantly to the Town's tax base and is the top taxpayer in Hanover.

Aside from Dartmouth College and Dartmouth Health, several large employers in the Town help support the Hanover's workforce and local economy. The largest among them include Hypertherm on Great Hollow Road, and on Lyme Road, Kendal at Hanover, the U.S. Army Department - Cold Regions Research and Engineering Laboratory, and Sheridan New Hampshire - Dartmouth Printing Company.

Most businesses in Hanover are within the downtown area. Several local employers are within or near this business district, including Dartmouth College and Hanover High School. Several employment nodes are located

outside of Hanover's downtown area. These are generally concentrated along Lyme Road, Great Hollow Road, and Route 120.

Economy and Infrastructure

Generally speaking, investments in public and private infrastructure support economic health by improving worker and business productivity. Just like other communities, Hanover must stay ahead of the problems presented by aging infrastructure to be able to continue to serve as a regional economic center. Furthermore, the Town should ensure that infrastructure investments are equitable, where no population group or business (small or large) is disproportionately left out of investment benefits.

Physical Infrastructure

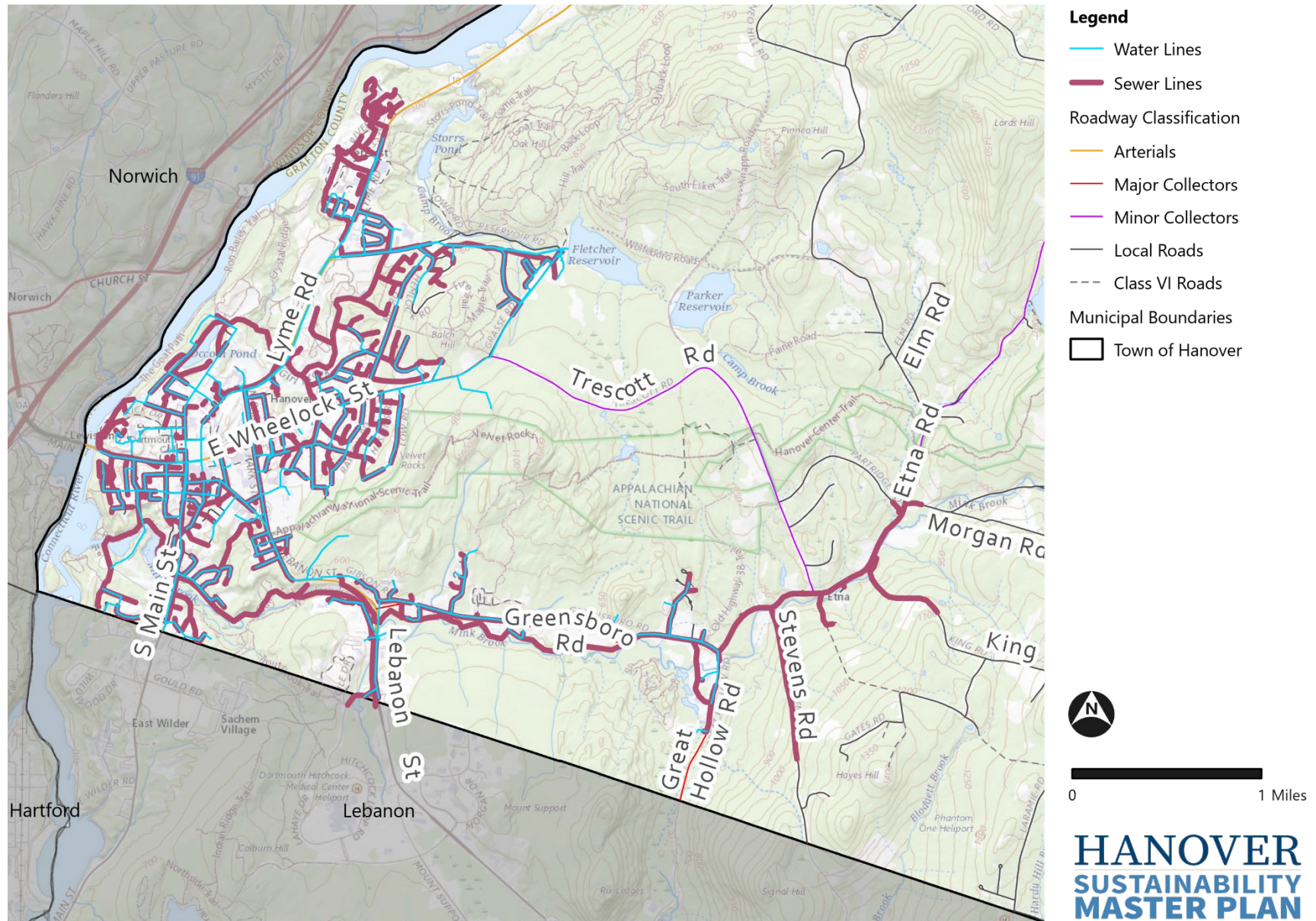
Municipal Water, Sewers, and Stormwater

The Hanover Water Department provides potable water to people who live and work within the service area in the southwest corner of Town (see [Figure D-3](#)). The water is drawn from three reservoirs. Bolstering the resiliency of this system, Hanover maintains interconnections with water systems in both Lebanon and Norwich. Households and businesses that are not within the water service area utilize private wells.

Hanover's sewer system provides disposal and treatment services to users within the service area of Hanover (see [Figure D-3](#)). Hanover has a history of coordination with developers to provide sufficient sewer access to support development projects. The sewer system collects sewage generated in some areas of Lebanon near the municipal boundary. The rest of Hanover's sewage is disposed through private on-site systems.

6 U.S. Census Bureau. (2020). 2016-2020 American Community Survey.

Figure D-3: Municipal Water and Sewer Service Areas



Source: Town of Hanover, CAI Technologies - AxisGIS

Hanover's stormwater management system consists of a network of catch basins connected by drainage lines distributed throughout the Town that ultimately drain to the Connecticut River. The Town is implementing low impact development (LID) in order to keep stormwater where it lands and to use infiltration and evaporation to reduce flow volumes. Dartmouth College manages its own stormwater with connections to the Town's system and an increasing number of LID facilities.

Power Supply

Reliable and sufficient power supply is critical. Increasing costs threaten financial stability for households and businesses that are unable to adapt due to financial restraints or operating logistics.⁷ Low-income households and small businesses are especially vulnerable to supply disruptions. Improvements to energy efficiency and reliability can move Hanover's economy towards a green future, generating jobs and improving consumer welfare.⁸

Historically, Granite State Electric Company, Liberty Utilities, and New Hampshire Electric Cooperative have served Hanover. They resell energy from New England Power, which is sourced from the New England Power Pool. Current energy types from New England Power Pool include coal, oil, hydroelectric, solar, and nuclear. Beginning in 2023, Hanover residents may purchase their power from the Community Power Coalition of New Hampshire. Hanover is one of 10 founding communities to bring lower cost and cleaner power options to their residents. Customers have the option to remain with Community Power, to opt out to their former provider, or to opt up to a mix of power sources that has a higher proportion of renewably produced energy. Most all Granite State Electric and Liberty Utility clients were automatically enrolled to receive their electricity from Community

Power. Certain households, such as NH Electric Coop patrons and net-metered residences, and business clients are currently unable to join. All electric customers will still pay their former supplier for use of the distribution lines.

As discussed further in [Chapter 8, Addressing Climate Change](#), in 2017, Hanover residents voted for the 100 percent renewable energy goal. The goal includes 100 percent renewable energy for electricity usage by 2030 and 100 percent renewable energy for heating, cooling, and transportation by 2050. Achieving this goal will require addressing an electric distribution system that will be pushed to provide above original design capabilities. The Town should coordinate with local utilities and State officials to ensure a modern and "smart" grid that is reliable (e.g., reduced frequency and duration of power outages) and resilient (e.g., reduced storm impacts).

Transportation

The transportation system connects households, services, suppliers, consumers, and workplaces. Investment in transportation infrastructure not only enhances these connections, but it can foster new development. Improving transportation provides other social and economic benefits as well, such as removing barriers that increase access to services and resources for disadvantaged populations.⁹

Transportation infrastructure must be regularly updated to serve community needs. Recent improvements include Advance Transit shelters, the multi-use path along Lyme Road, and pedestrian-activated crossing lights. These should be compatible with accomplishing goals such as supporting community health and a resilient economy. [Chapter 6,](#)

7 Deloitte, *3 Circular Economy Steps To Help Plug Power Supply Chain Disruption*. Wall Street Journal-Sustainable Business. Retrieved from, <https://deloitte.wsj.com/articles/3-circular-economy-steps-to-help-plug-power-supply-chain-disruption-01664919047?tesla=y>

8 *Economic And Employment Impacts Of Energy Efficiency*. USAID. Retrieved from, <https://www.usaid.gov/energy/efficiency/economic-impacts>

9 Wang, Luqi et al. "The Impacts of Transportation Infrastructure on Sustainable Development: Emerging Trends and Challenges." *International journal of environmental research and public health* vol. 15,6 1172. 5 Jun. 2018, doi:10.3390/ijerph15061172.

Advancing Multi-Modal Transportation provides detailed information on the Town’s local and regional transportation networks.

Telecommunications

Hanover relies on the private sector to provide telecommunication services. These private owners oversee a variety of services, including subterranean, aerial, satellite, and wireless transmission systems, as well as cable, fiber optic and cellular networks. Improvements to these systems are at the discretion of the owners. Thus, cable, high speed internet, and cellular coverage are not available equally across the Town. The Town regulates the installation of cell towers and antennae, and utility poles within the Town right of way.

Table D-2: Household Internet Access, 2020

2020 Households with No Internet Access	
New Hampshire	8.3%
Grafton County	11.6%
Hanover town, NH	14.1%
Canaan town, NH	12.6%
Enfield town, NH	2.7%
Lebanon city, NH	12.1%
Lyme town, NH	7.5%
Norwich town, VT	4.0%
Thetford town, VT	6.9%

Source: 2016-2020 American Community Survey

According to the 2016-2020 American Community Survey, Hanover has a higher percentage of households without access to the Internet (14.1 percent) than all its neighboring communities (see **Table D-2**). Unequal access to the Internet and digital services correlates with disadvantaged communities, including families below the poverty line, people of color, immigrants, and historically, access to education. Ensuring that households throughout Hanover have access to reliable high-speed internet is crucial for addressing any existing inequities and providing opportunities for upward economic mobility.

Soft Infrastructure

Soft infrastructure includes the services that enable an economy to function, such as the educational system, workforce development programs, and health and social services. The following sections discuss the main categories of soft infrastructure in Hanover.

Educational System

Hanover is part of the first interstate school district in the United States, known as the Dresden School District. It serves 7th through 12th grade for students in both Hanover and Norwich.¹⁰ The Hanover School District serves Hanover’s pre-kindergarten through sixth grade students. There are three public schools in Hanover: Bernice A. Ray School; Frances C Richmond Middle School; and Hanover High School.

The Hanover schools are among the best in New Hampshire. Academic excellence pervades to Dartmouth College – one of the foremost liberal arts institutions in the country.

During the development of this Sustainability Master Plan, community members identified early education as a constraint. Childcare plays a critical

10 SAU 70. (2023). *Welcome to SAU 70*. Retrieved from, <https://www.sau70.org/>

role in the economy, enabling parents and guardians to be active and productive members of the regional workforce. The limited capacity and prohibitive cost of day care facilities in Hanover limits household income potential. In turn, this constrains resident quality of life. Such impacts can be disproportionately felt by households of lower economic means. Childcare supports the family and local economy and provides important early learning experiences.

Hanover has two public libraries, the Howe Library and the Hanover Town Library (the Etna Library), that also provide educational opportunities. These libraries support students across the School District in meeting educational objectives during their formal education. Weekly programs, such as Hands on Books for children under 3 years, and programs for elementary school students are held several times throughout the academic year. Virtual access to the libraries is available at any time. The Howe Library offers a safe location for students to go after school, where they can work on homework or wait for pick-up. Additionally, Dartmouth's College Library and its extensive collection are available to the public.

Job Training

Most of Hanover's workforce comes to the Town with bachelor's degrees that may not prepare them for jobs that are available. Occupations in the educational services and health care industries often require more training. Thus, job training is important to retain residents and to support their upward economic mobility.

Job training opportunities in the Upper Valley are offered at community college and vocational/technical schools in both NH and Vermont. Additionally, the Upper Valley Business Alliance (UVBA) provides career enhancement opportunities, such as through networking opportunities

(e.g., Upper Valley Young Professionals). These programs improve the Town's labor force and strengthen the economy.

Local Business Development Resources and Programming

Local business development opportunities provide a way for Hanover's businesses to get established, grow, adapt to changing economic conditions, and recover from disruptions. The Upper Valley Business Alliance, which formed through the combination of the Hanover Area Chamber of Commerce and the Lebanon Area Chamber of Commerce, is an organization that provides resources and programming in support of Hanover's local businesses. Its mission is: "To invigorate the economic health of the areas we serve, while contributing to the well-being of the Upper Valley."

Vital Communities is another organization that engages regional businesses, as well as the communities in which they operate, to provide business development resources and programming. Vital Communities offers technical support to businesses and leads or convenes programs such as Local First.¹¹

The local SCORE Chapter supports small businesses through mentorship and education opportunities. These mentors provide free business counseling and training to supplement the resources the SCORE Chapter has available for local businesses.¹²

Grafton Regional Development Corporation (GRDC) is a 501(c)3 non-profit organization that strengthens small businesses through support networks, job growth and retention, and partnerships. Workshops and training are offered to help connect small business owners to resources in Grafton County. Additionally, the GRDC loan program is focused on jobs creation and retention. GRDC partners with the Enterprise Center at Plymouth and

¹¹ Vital Communities (2022). *Corporate Council*. Retrieved from, <https://vitalcommunities.org/corporate-council/>

¹² SCPRE Merrimack Valley NH (2022). *For the Life of Your Business*. Retrieved from, <https://merrimackvalley.score.org/about-score-merrimack-valley-nh>

the Dartmouth Regional Technology Center to further support startups and small businesses.¹³

The Green Economy

What is a Green Economy and How is Hanover Participating?

A Green Economy is one that achieves income and employment growth through economic activities that allow reduced carbon pollution, enhanced energy and resource efficiency, and protection of biodiversity and ecosystem services.¹⁴ The principles of the Green Economy are listed in [Chapter 8, Addressing Climate Change](#). One strategy for working towards a Green Economy is to “buy local,” a concept that is familiar to the Upper Valley. Vital Communities’ Local First network works to advance the regional buy local movement. Purchasing electricity through the Community Power Coalition of New Hampshire is another example.

To maximize the sustainability potential of the buy local movement, Hanover should prioritize sourcing local materials and investing in local clean energy to produce those materials. Sustainable resource management is described further below, while clean energy is discussed in [Chapter 8, Addressing Climate Change](#).

Advancing the Circular Economy

Globally, the world is experiencing an unsustainable level of material consumption due to current degrees of production and use of materials. The Town of Hanover is working to shift its focus to the importance of material circularity. The circular economy is a vision of the future in which all

buildings, products, and materials are renovated, refurbished, reused, and recycled (or, for organic materials, composted and regrown).¹⁵

Addressing these global challenges requires moving towards a “zero waste” mentality, going beyond waste as it is traditionally recognized (e.g., municipal solid waste) to consider all forms of waste. Zero waste entails reducing and reusing waste headed to landfills and incinerators by at least 90 percent.

Hanover is moving away from an extractive economy by connecting Hanover residents and businesses to composting resources, offering curbside and specialty recycling programs, and communicating donation opportunities for local causes. Going forward, source reduction and reuse programs will be prioritized, followed by recycling and food waste diversion initiatives, and waste disposal as a last resort.

Economic Use Development Patterns

The major commercial district in Hanover is the downtown area south of the Dartmouth College campus. This area is a mixed-use commercial district that occupies approximately five blocks along Main, Lebanon, South, and Allen Streets. It is enabled by the Downtown Center and Edge Zoning Districts. These districts cover 26 acres, or about 0.15 percent of developable land in Hanover (see [Figure 4-4](#) in [Chapter 4, Fostering Inclusive Economic Resilience](#)). Zoning for these districts facilitates a mix of local retail and service uses, offices, civic uses, and some mixed-use residential buildings. The historical character and scale of downtown buildings also led to numerous small retail spaces in the basement, first, and second floor spaces that create an enjoyable streetscape and opportunities for local businesses.

13 GRDC (2022). *About Grafton RDC*. Retrieved from, <https://graftonrdc.org/about-grdc/>

14 UNEP. *Green Economy*. Retrieved from, <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy>

15 Ellen MacArthur Foundation. *What is a circular economy?* Retrieved from, <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

Other areas of relatively significant commercial or industrial development in Hanover, which are likely to continue to be the focus of economic activity, include:

- ▶ Lyme Road – just north of the golf course; small area zoned for business and office/laboratory
- ▶ South Park and Lebanon Streets – covers 11 acres zoned for residence/office and business that enables a mix of retail, services, offices, single-family homes and apartments
- ▶ Etna Village – small area zoned for business with a general store and office space
- ▶ Route 120 south of Greensboro Road – zoned service business and limited manufacturing and office and laboratory, and contains a mix of industrial, warehouse uses (including the Hanover Public Works Department)
- ▶ Buck Road – zoned office/laboratory and contains office, medical services, and long-term care
- ▶ Great Hollow Road – zoned for service business and limited manufacturing and has a mix of industrial, engineering, research, and development businesses

Designated Growth Areas for Economic Activity

In order to facilitate economic activity in Hanover, a balance must be found to enable growth in existing commercial centers while maintaining the character of those areas. Supporting small businesses and allowing for residences to mix with a diversity of businesses should be priorities.

In May 2022, the Town held a Development Solutions Workshop to gauge where the community believes new development should be located. With respect to commercial development, the community generally agreed that areas with commercial development today should be the focal points for

future development. In the downtown, on Lyme Road and Route 120, the community indicated that they could support mixed use commercial development at greater densities than currently exist. The community's preferred commercial development types by area are listed below:

- ▶ Downtown – attached two to five story commercial loft or neo-traditional buildings and mixed-use with ground floor retail and office or residential above.
- ▶ In-Town Neighborhoods – attached two story neo-traditional buildings, mixed-use buildings with ground floor retail and office or residential above, or stand-alone residential style commercial buildings.
- ▶ Greensboro Road – mixed-use with ground floor retail and office or residential above or stand-alone residential style commercial buildings. Note that over 35 percent of respondents indicated that they did not wish to see new commercial development in this area.
- ▶ Lyme Road, South of Kendal – mixed-use buildings with ground floor retail and office or residential above
- ▶ Lyme Road, North of Kendal – stand-alone residential style commercial buildings. Note that over 40 percent of respondents indicated that they did not wish to see new commercial development in this area.
- ▶ Hanover Center – stand-alone residential style commercial buildings. Note that over 40 percent of respondents indicated that they did not wish to see new commercial development in this area.
- ▶ Etna Village – stand-alone residential style commercial buildings
- ▶ Route 120/Gile Hill – mixed-use buildings with ground floor retail and office or residential above, or stand-alone residential style buildings, or community-serving strip style retail

Respondents indicated that they would prefer no new commercial development in rural Hanover or eastern Hanover.

The first steps toward realizing these wishes are to allow for more mixed-use development and to increase density. Home occupation as an accessory use is allowed within residential zones with certain limitations to design, traffic, and deliveries. While this allows for some mixed-use, it does not facilitate the same level of business investment and other benefits as true mixed-use districts.

In order to achieve the building types desired in the downtown area, in-Town neighborhoods, and Lyme Road South neighborhoods, mixed use development would need to be allowed in Business Districts at appropriate densities. Parking requirements must be revised to enable more density and sharing of spaces across uses. In areas where more commercial development is preferable, the zoning could be changed to Residence and Office districts; or commercial overlay districts that allow for a mix of residential and retail could be instituted. To facilitate mixed use development around Gile Hill, the zoning must be modified to allow a greater diversity of uses.

Multi-story mixed-use buildings could provide the perfect location and situation with regard to size and street presence for a variety of businesses. Allowing the same type of flexibility in defining uses in other business districts as is used in the downtown area can foster economic diversity around Town. An adaptive reuse program could help maintain the character of a building while creating the types of spaces in which small businesses flourish.

Strategies that target commercial affordability include required business set asides and “formula” business restrictions. Requiring space to be set aside for businesses within a newly permitted developments can ensure space is maintained for certain business types. Chain store or “formula business” restrictions can limit or modify the physical appearance of chain stores or restaurants to be better integrated into the streetscape.

Excerpts from the Urban3 study of taxable land in Hanover follow. The full report may be viewed at [NHUrban3ReportFinal \(adobe.com\)](https://www.adobe.com/urban3)

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