

Chapter VII Public Utilities and Technology

Introduction

The type and availability of public utilities and technology can have a major effect on the development and economic health of Hopkinton. From the location of electric power necessary to supply industrial users to the use of information technology in local government, the issues discussed in this chapter are important to many of Hopkinton's residents and commercial enterprises.

Items in this Chapter include:

Key Findings	Visioning Session Results
Electric Service	Water Precinct/Sewer District
Telephone Service	Wireless Telecommunications
Cable Television	Internet Access
Town Mapping/Information Technology Needs	Summary

Key Findings

- The Town of Hopkinton is well suited to embrace new technology, due to a variety of factors such as location, demographics, and interest on the part of local residents.
- The Town of Hopkinton should be prepared to adjust its ordinances to encourage the location of small office/home office (SOHO) uses and small information age businesses throughout the community.
- Three-Phase electric service will need to be bolstered in the Burnham-Intervale area if additional industrial users locate there in the future.
- Telephone service is provided by three distinct companies; Verizon, MCT Telecom, and Granite State Telephone.
- Three wireless telecommunications towers are located in Hopkinton. As wireless communications becomes more ubiquitous, it is expected that additional tower locations will be proposed in the future.
- AT&T Broadband currently provides Cable Television service to many Hopkinton residents. The franchise agreement between the Town and AT&T originally signed in 1985 and revised in 1992 should be revisited.
- Hopkinton residents have a wide choice in Internet providers, from dialup to DSL (digital subscriber lines) and cable modem broadband service. When compared with many other New Hampshire municipalities, Hopkinton is currently well connected to the Internet.
- The combination of the town's existing digital parcel mapping with digital mapping prepared for the Master Plan as well as the recent automation of the Town's appraisal system have placed the Town in a good position for the future establishment of a GIS (geographic information systems) program.
- The development of a Community Network could aid in the enhancement of participation in local governmental affairs.

Visioning Session Results

At the May 2000 Community Visioning Session participants were asked questions and the following were some of the individual responses given by participants that relate to public utilities and technology.

What would you like Hopkinton to look like 75 years from now?

Use technology to encourage participation
Need to increase communication
Technology/infrastructure (live with and adapt to)
Promote social interaction

What are the Town's strengths and opportunities?

Communication between town committees and community is sporadic and lacking

What are the Town's weaknesses or areas of concern?

Cell towers

Electric Service

Electric service is provided in Hopkinton by either the Public Service Company of New Hampshire (PSNH) or the Unutil Corporation (formerly the Concord Electric Company). PSNH serves the majority of the community, while Unutil serves a small portion in the southeast corner of town. The franchise areas for each utility are shown on the **Electric Providers and Infrastructure Map**.

Three-Phase Power

As the Unutil service area is residential, only single-phase power is currently available. Three-phase power, which is generally necessary for many commercial uses, is available along the more densely developed areas in Town as depicted in the Electric Providers and Infrastructure map. Although three-phase power is relatively prevalent in Hopkinton, all types of three-phase power are not the same. In Town, three-phase power circuits range from a high of 34.5 kilovolts (the same voltage as the local transmission distribution lines described below) to a low of 4.16 kilovolts. It should be noted that circuits of 34.5 kV and 12.47 kV are suitable for heavier users, while the 4.16 kV circuit is somewhat underpowered. Unfortunately, the Burnham Intervale area is served by a 4.16Kv line, and would thus require additional investment by any end user in need of adequate three-phase power.

Electric Generation in Hopkinton

There are two hydroelectric generating companies and one wood burning facility currently operating in Hopkinton. Consolidated Hydro, in operation since 1982, operates a 250-kilowatt hydroelectric plant in West Hopkinton at Hokes Break on the Contoocook River. HDI, in operation since 1984, runs a hydroelectric plant in Contoocook Village by the H.I. Davis Dam. The largest energy generating facility (12,500 kilowatts or 12.5 megawatts) in Hopkinton is the Bio-Energy Corporation West Hopkinton wood-fired cogeneration plant (producing both steam and electricity), which has been in operation since 1983.

Each of the operators has long-term licenses with the Federal Energy Regulatory Commission (FERC) to operate electric generating facilities, although at this time the future of the Bio-Energy generating capacity is at question. If Bio-Energy ceases to produce electricity in the future, it will affect the balance of the local electrical grid.

Electrical Infrastructure

Two electric transmission line easements traverse Hopkinton. The New England Power Company owns two 230 kilovolts (kV) high voltage transmission lines that cross eastern Hopkinton from the Bow town line to the west of Whittier Pond and over Beech Hill and then cross into Concord just north of Broad Cove Road. These lines were constructed in the early 1930s and tie directly into the Comerford and Moore hydroelectric stations on the Connecticut River. A more recently constructed (early 1990s) 450 kV DC transmission line owned by the NH Hydro-Transmission Corporation lies directly between the two 230 kV lines. This third line brings power generated by Hydro Quebec into the NE Power Pool. Neither of these transmission lines is linked directly into the local power distribution grid.

A smaller line (34.5 kV), owned by PSNH, crosses the northwest corner of Hopkinton from Henniker to the Warner/Webster town line, between Rolf and Clement Ponds. This line provides electricity into Hopkinton from the PSNH Jackman substation in Hillsborough to the Davisville substation adjacent to Park Avenue. This line was recently upgraded and connects to what is still called the Davis Paper Tap, providing direct access into the electric grid from the Bio-Energy generating plant.

A third transmission line easement in the northeast corner of Hopkinton that stretches between the Davisville substation east into Concord has not been in operation since the early 1990s.

Water Precinct/Sewer District

Please see the Community Facilities chapter for a discussion regarding both the Contoocook Water Precinct and Sewer District.

Telephone Service

Three telephone companies (ILECs or Incumbent Local Exchange Carriers) operate within Hopkinton. The majority of the Town is within the franchise area of the MCT Telecom, while Verizon serves the southwest corner of Hopkinton, and a small number of households in southern Hopkinton along Sugar Hill Road are customers of Granite State Telephone. The area served by each of the three companies is outlined on the **Telephone Providers and Cable Availability Map**.

MCT Telecom and Granite State Telephone are currently exempt from the requirements of the Telecommunications Act of 1996 that require local exchange carriers to open up their networks or service areas to other providers of local telephone service. In Hopkinton, this means that presently, only those residents living within the Verizon footprint may subscribe to a competitive local exchange carrier (CLEC) or telephone service offered by AT&T Broadband if they are within AT&T's cable service area in that portion of Town.

Wireless Telecommunications

Three wireless telecommunications towers are located or will soon be constructed in Hopkinton. The locations are noted on the **Telephone Providers and Cable Availability map**. The demand for telecommunications facilities is due to the location of Interstate 89 and NH 9/202 in Hopkinton as well as the Town's rolling topography.

By federal law, a community cannot prohibit the introduction of cell towers. However, as in many communities, the location and ultimate design of wireless telecommunications towers is a problematic issue. The Town must weigh the needs of the public that use wireless communications devices to an ever-increasing degree with those of local residents who do not wish to see the Town's hills and vistas marred by numerous towers. The Town has worked to address these competing desires through the adoption and use of the Personal Wireless Service Facilities Ordinance of 2001.

Personal Wireless Service Facilities Ordinance

The Personal Wireless Service Facilities (PWSF) Ordinance essentially provides guidance relative to the siting of wireless facilities and the process for review by the Planning Board. The ordinance requires co-location of facilities when practical, provides for the future removal of facilities if they are no longer safe or if they become technologically obsolete, and requires appropriate design so as to not impact a particular viewshed.

Under the ordinance, wireless facilities are permitted throughout the Town as long as a conditional use permit is obtained from the Planning Board. To receive a conditional use permit, an applicant must meet numerous performance standards related to height (not to exceed 90 feet), stealth design, and landscaping.

It is important to note that the technology used to provide wireless communications continues to evolve. The Town should continue to stay abreast of changes in the wireless communications industry and make modifications to the PWSF Ordinance as necessary.

Recommendation:

- Revisit the PWSF on a regular basis in order to keep the ordinance up to date with current regulatory practice.

Cable Television

AT&T Broadband provides cable television service to many Hopkinton households. The system operates at 750 MHz, which is adequate for both cable television and Broadband Internet service. The cable network is a combination of fiber and coaxial cable that provides for a great deal of flexibility to meet future demands for bandwidth.

The coverage area as depicted in the original cable franchise agreement (1985) between the Town and Continental Cablevision as well as the 1992 amendment to the agreement is shown on the **Cable Availability and Telephone Providers Map**. Extensions to the coverage area since the 1992 amendment were determined by field review and have also been added to the map.

It is important to note that the 1985 franchise agreement and subsequent 1992 amendment do not include provisions for a Hopkinton-based public-access channel and local facilities for use by local residents. Instead, the agreement does note that "local origination" shall be provided for

programs produced by Hopkinton residents using equipment “located in the ... Concord office.” In addition, as the agreement was negotiated before the advent of broadband cable availability, the agreement does not address Internet availability for schools and local government. These services are sometimes called “community infrastructure.” The agreement does provide for free basic cable drops at each of Hopkinton’s public buildings and schools.

The proposed merger between AT&T Broadband and Comcast Cable appears to provide an opportunity to the Town to revisit the franchise agreement last amended in 1992. Issues to be discussed could be the future expansion to areas not currently within the service area, the creation of a local PEG (Public/Education/Government) channel, local government/schools Internet access, and the use of the cable network for local government/schools networking. Funding for some of these services could be provided through the initiation of a local franchise fee of up to 5%.

Recommendation:

- Review the 1985/1992 Cable Television franchise agreements. Pursue opportunities for the development of a local PEG channel, public Internet access, and local government/schools networking.

Internet Access

The availability of fast, inexpensive Internet access is often spotty in smaller New Hampshire communities. Fortunately, the Town of Hopkinton is an exception. Beyond a large number of companies ranging from MCT Telecom to AOL offering 56k dialup connections to customers of each of the three telephone carriers serving Hopkinton, many residents have access to either internet over cable (through AT&T Broadband) or DSL service offered to customers of MCT Telecom.

Cable Internet

AT&T Broadband provides broadband Internet connectivity to all AT&T cable subscribers in Hopkinton. Service over the 750 MHz system is currently offered at a nominal 1.5 Mb (1,500 Kb) download / 384 Kb upload rate. AT&T does not currently offer this service to businesses.

DSL (Digital Subscriber Line)

MCT Telecom provides DSL (Digital Subscriber Line) service to businesses and residential users within the MCT franchise area. It is estimated that better than 85% of all MCT Telecom customers in Hopkinton live within the required 15,000-18,000 linear feet of a MCT switching station that is necessary to obtain DSL. Service is offered at a variety of upload and download speeds, with the typical residential service 384 Kb download / 256 Kb upload and the fastest (business) speed available is 1.5 Mb download / 512 Kb upload.

DSL Service is also available for those within the Granite State Telephone service area. This service ranges from a low of 256-kb download / 156 upload to the high of 1.5-Mb download / 512 KB upload.

DSL service is not available at this time within the Verizon service area in Hopkinton.

The Future

Although Hopkinton is relatively well served regarding access to broadband Internet services, it is interesting to look towards future technologies and their potential impact to the Town. The prevalence of fiber optic cabling throughout Hopkinton means that the Town is well positioned to

embrace future technology services, especially those required by small office/home office (SOHO) users and technology companies. The extent of the fiber optic network is provided on the **Cable Availability and Telephone Providers Map**.

The term "fiber to the desktop" addresses the need for affordable connections from the various fiber termination points to the end user. At this time, the final connection from the cable network or telephone network into a residence is generally provided by coaxial and/or copper cable. This constricts the ultimate bandwidth carrying capacity of the network dramatically. As applications such as point-to-point video become more popular, the demand for bandwidth will continue to increase. At this time, the extension of fiber into or the need to provide electronics at individual residences is somewhat cost prohibitive, but these costs are expected to decrease as the hardware for fiber installations (network cards, etc.) becomes less expensive.

In addition to landline connections, wireless network applications may play a role in bringing more bandwidth to the ultimate Internet user. As seen over the last few years, a constant in technology is that it is ever changing. From its current position, Hopkinton should be well positioned to use new technology, as it becomes available.

Recommendation:

- Charge the Hopkinton Technology Committee with investigating new broadband technologies and making such recommendations as are appropriate to the Board of Selectmen regarding the implementation of those technologies.

Town Mapping/Information Technology Needs

The Hopkinton Technology Committee was formed in 2000 to provide assistance in evaluating proposals to "modernize the Town Hall offices." The Committee's first task was to recommend an improved telephone system that links each of the Town's departments and buildings. The Committee has also assisted the Town in its conversion to DSL Internet access for Town departments. The creation of a Virtual Private Network (VPN) to connect each of the departments is the next goal of the Committee.

Digital Mapping/Information Services

The creation of a town-wide geographic information system (GIS) has also been discussed by the Technology Committee.

A wide variety of digital maps have been created for use in this Master Plan. The maps were created using multiple data sets (or themes) which range from existing land uses to development constraints such as steep slopes and areas protected by conservation easements. One of the more important elements of these maps is the Town's composite parcel map, made by Cartographic Associates, Inc. of Littleton, NH. This map joins each of the individual tax maps into one single map.

The availability a composite parcel maps is the initial step in the creation of a town-wide geographic information system (GIS) program. A second step is the linkage of the assessor's database to the map itself. The Town has taken the first step in achieving this connection by automating its appraisal system in 2001.

If it is deemed a priority in the future, the interconnection of the existing mapping and parcel-based data is a relatively easy process. A number of commercially available software packages

support public access to a GIS over the Internet or on a computer located at the Town Hall. A typical scenario would allow someone interested in a parcel to learn more about wetlands and steep slopes on the property as well as the property's assessed valuation. A specific issue to be reviewed when deciding on a policy would be the type of parcel-based data that would be available using this system.

Community Networking

A number of participants in the May 2000 Visioning Session noted a lack of communication and interaction among residents regarding local affairs. An approach used in numerous communities in recent years has been the development of an Internet-based Community Network. Community Networks exist in a variety of formats, but typically include an interactive web-based forum, email mailing lists, a community calendar, and links to local government content such as public notices and local ordinance/regulations. The process to develop a Hopkinton Community Network has been initiated through the creating of the Hopkinton web page at www.hopkintonnh.org. The next step is to add the more interactive elements as described above.

Recommendations:

- Continue to investigate options for the development of a town-wide GIS. Update the composite digital parcel map on an annual basis.
- Continue the development of the Hopkinton web page and move towards the implementation of a Community Network.

Summary

This chapter provides detail as to how public utilities operate (including the fact that electricity is produced in three locations in Town) and describes the many factors that affect the delivery of local telecommunication services, from traditional landline telephone service to wireless.

Beyond electric and telephone, the next wave of technology began in Hopkinton when the first cable television franchise agreement was signed by the Board of Selectmen in 1985. In the late 1990s, the availability of broadband Internet services became the next major trend.

It is difficult to forecast how technology will affect Hopkinton in the future, but it is clear that the Town is well positioned to embrace new technology, as it becomes available.

