

Wireless Coverage in Concord

October 19, 2023



RADIO
FREQUENCY
(RF)

- Radio Frequency (RF) is the oscillation rate of electromagnetic fields within a range of 20 KHz and 300 GHz.
- Examples of other FCC-regulated RF technologies include TV, radio, microwaves, fluorescent lights, and cell phones.
- Electromagnetic Radiation (EMR) includes waves of the electromagnetic field from radio waves, microwaves, infrared light, visible light, UV light, X-rays to gamma rays.



WIRELESS
FACILITIES

- These terms will be used interchangeably:
 - Wireless Facility
 - Cell Tower
 - Antenna

HISTORY



Telecommunications Act of 1996



1998: Wireless Comm. Facility District and Personal Wireless Comm. Facility Bylaw (Sec. 7.8) approved at Town Meeting



2001: Relief from general requirements added to Section 7.8



District Map expanded in 2003 and 2004

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TELECOMMUNICATIONS ACT OF 1996

- State and local governments cannot:
 - Prohibit wireless services
 - Unreasonably discriminate among providers
 - Base the regulation of a facility on environmental effects of its RF if it complies with FCC regulations.



TOWN OF CONCORD
 Department of Planning & Land Management
 141 Keves Road, Concord, MA 01742
 (978) 318-3290

To: Concord Planning Board
 From: Marcia Rasmussen, Director of Planning & Land Management
 Re: Background and timeline of Wireless Communication Facility and District
 Date: March 23, 2018

This memorandum has been prepared to provide background information that may be useful as the Board considers its report to Town Meeting on Article 40 to revise the Wireless Communication District.

Upon learning about the Federal Telecommunications Act of 1996, the Planning Board proceeded to study the issue and identified the Route 2 corridor as the best location with minimal impact to residents to address the need and demand for that time period. Subsequent amendments to Section 7.8 Personal Wireless Communications Facility occurred over time. Below is a brief description of events and actions taken by the Town beginning in 1996.

Spring 1997 - In the fall of 1996, the Planning Board became aware of the 1996 Telecommunications Act. The Board realized there was insufficient time to prepare a comprehensive zoning bylaw amendment prior to the close of the warrant in January and elected to move forward with a short term solution in Section 5.3.2 Radio and television towers to clarify and structures to amend the accessory use in Section 5.3.2 Radio and television towers to clarify that such facilities require a special permit from the Board of Appeals. This amendment was passed by Town Meeting in April/May of 1997.

After Town Meeting, the Board studied the Telecommunications Act, the technology, and the response of other communities. The Board also conducted public information sessions, prepared newspaper articles, solicited input from neighborhoods and residents and identified existing sites within the community. Several industry representatives (Sprint, Omnipoint and AT&T Wireless at a minimum) indicated that the area of primary concern was the Route 2 corridor because of the volume of traffic along Route 2.

In April and in June of 1997, the Board of Appeals reviewed two applications from Sprint Spectrum. The first was an application to install wireless communication antennas within the steeple at the Concord Trinitarian Congregational Church at 54 Walden Street. The second was to install a wireless communication facility (consisting of a single, free-standing 150-foot tall pole with equipment located at the base of the pole) at 200 Baker Ave. Both applications were approved.

Fall 1997 - A Special Town Meeting was called in the fall of 1997. Residents concerned about the 150-foot pole at 200 Baker Ave. submitted a petition to amend the Zoning Bylaw to place a moratorium on wireless communication facilities on the warrant. Prior to the Special Town Meeting

petition for a moratorium as submitted in its alternative language included an amendment to be located on Emerson Hospital (north of Route 2). The Planning Board's decision was presented at the Board of Appeals at the Town Meeting.

The Board approved a new Section 7.8 Personal Wireless Communications Facility. The Planning Board considered a variety of locations and alternatives from other States. The Board determined that the best location for such facilities by the town was in the town of Concord. The Board determined that the technology was new and that the facilities were inherently ugly and unsightly in the United States of America. The Board was conservative, and protected the interests of the Town; encouraged the Board to minimize the total number and adverse impacts on the residents of the town by the bylaw (Section 7.8.1). This was ultimately upheld by the Board of Appeals.

The Board of Appeals approved a district bylaw in May 1998, which prohibited wireless communication facilities; locations at Crosby Corner and at Emerson Hospital.

The Board of Appeals also considered Crosby Corner and at the Board of Appeals. The Crosby Corner and setback requirements were not within the Board of Appeals' jurisdiction and attempted to be resolved. The Town successfully argued that a cell tower was not a wireless communication facility.

The Board of Appeals discussed needs and concerns which demonstrated that the Board of Appeals was not satisfied with the existing bylaw amendment. The Board of Appeals identified areas on Route 2 in reaches of Concord. The Board of Appeals identified that the City District was not satisfied with the changes resulting from the bylaw amendment. The Board of Appeals identified that the Board of Appeals was not satisfied with the changes resulting from the bylaw amendment.

Amendment to the Bylaw. This section addressed sites whose coverage was not within the scope of the Personal Wireless Communications Facility and District. The Board of Appeals was requested by the Town to address issues in the Personal Wireless Communications Facility and District. The Board of Appeals was requested to add two parcels to the list of sites.

THE TOWN'S REACTION

CONCORD'S RESPONSE

- Less than one year later, the bylaw was modified to include “communication towers.”
- At a 1997 Special Town Meeting, the Town voted to place a moratorium on future wireless communications facilities.*
- At the 1998 Annual Town Meeting, the Town voted to add a new section to the Town’s bylaw (Section 7.8).

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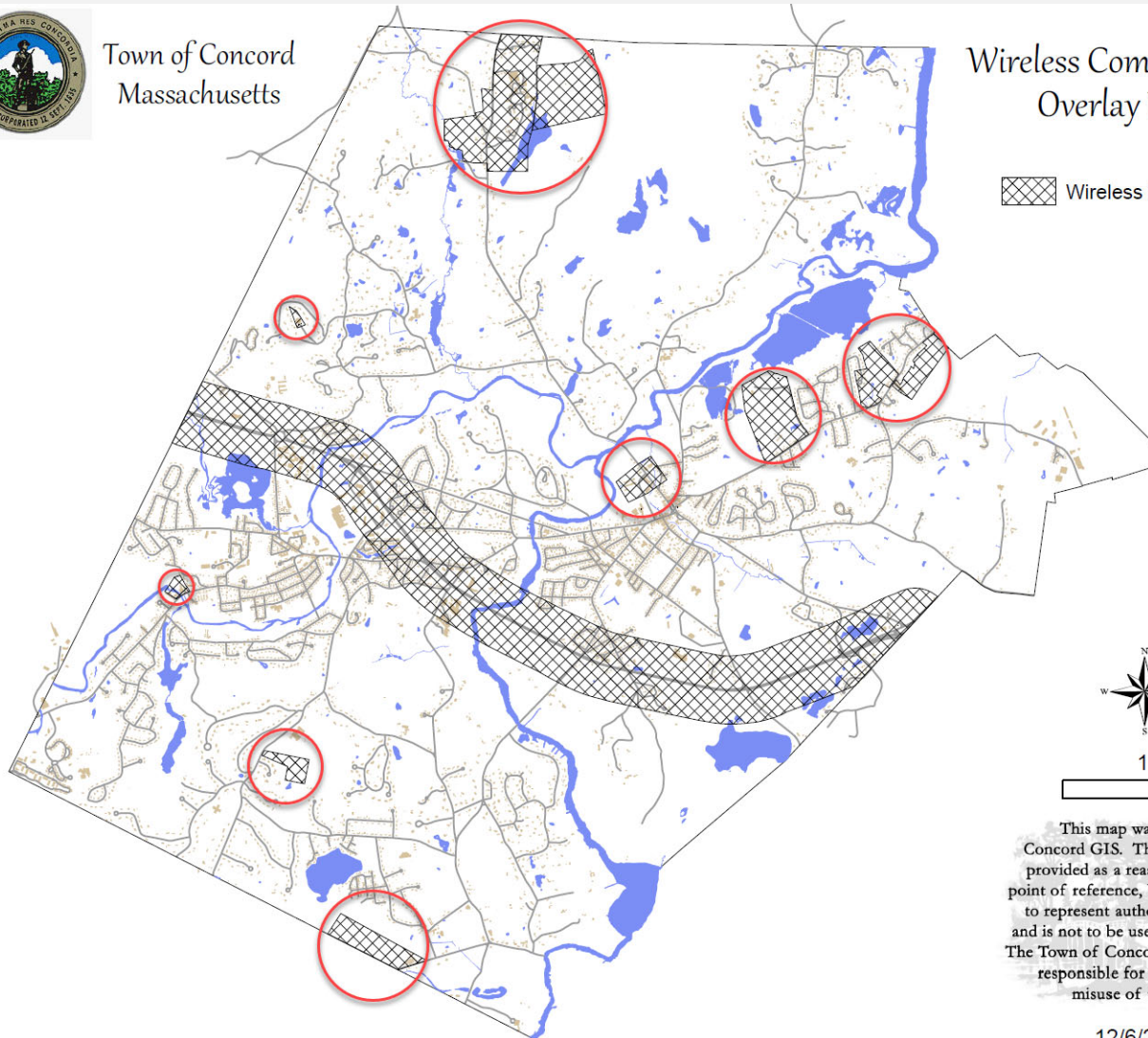
BYLAW HIGHLIGHTS

- Height limit (usually 120')
- Distance from schools, homes, historic districts (1,000')
- Other restrictions, like prohibitions on building in wetlands






Town of Concord
Massachusetts



Wireless Communications Overlay District

 Wireless Overlay District



1 Mile

This map was created by
Concord GIS. The information is
provided as a reasonably accurate
point of reference, but is not intended
to represent authoritative location,
and is not to be used for conveyances.
The Town of Concord shall not be held
responsible for the accuracy or
misuse of these data.

12/6/2022

BYLAW-APPROVED LOCATIONS

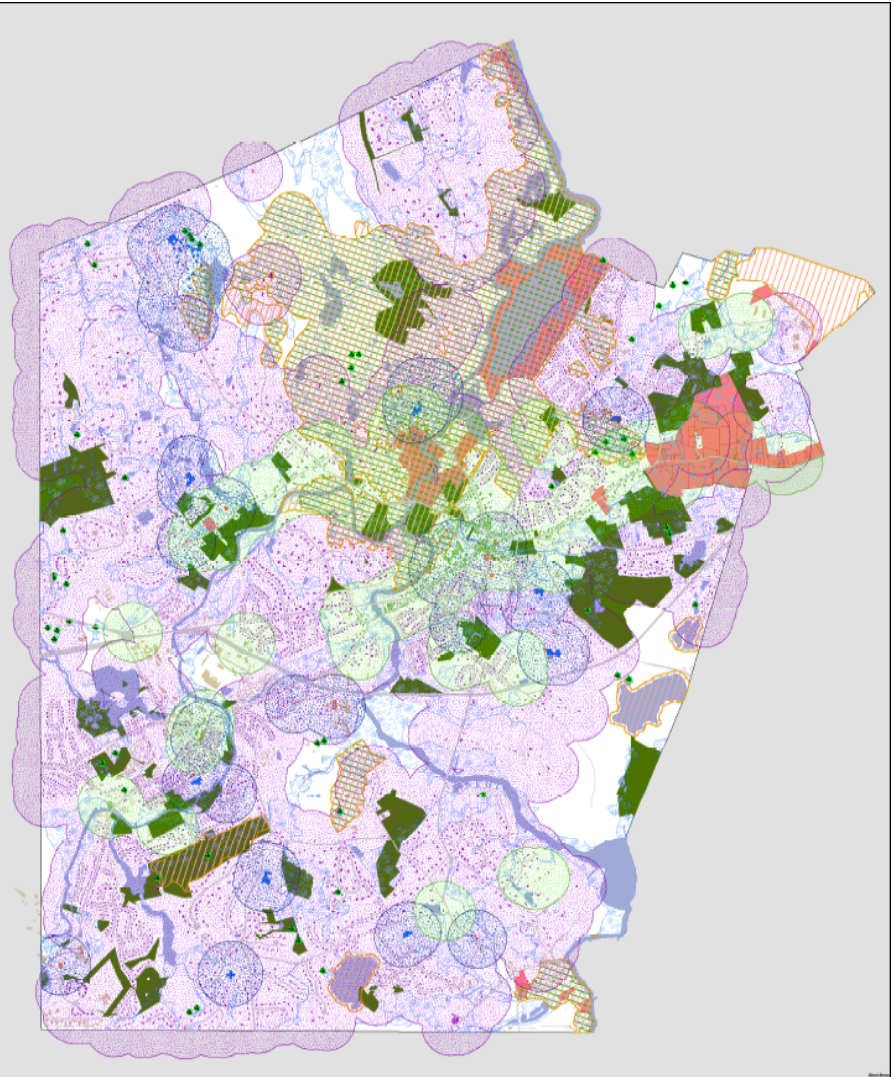
- White space represents limited area outside the Overlay District that would comply with the Bylaw offset requirements

Wireless Location Analysis

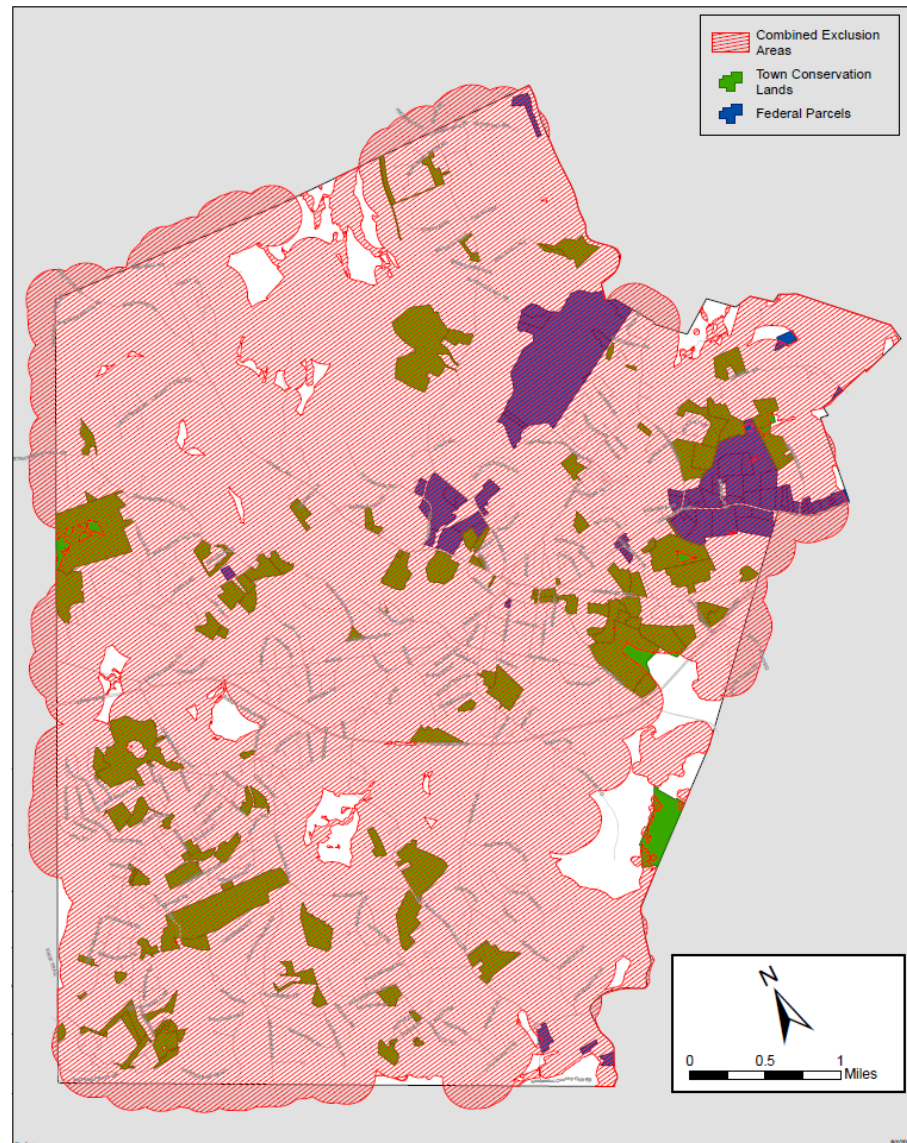
0 0.5 1 Miles



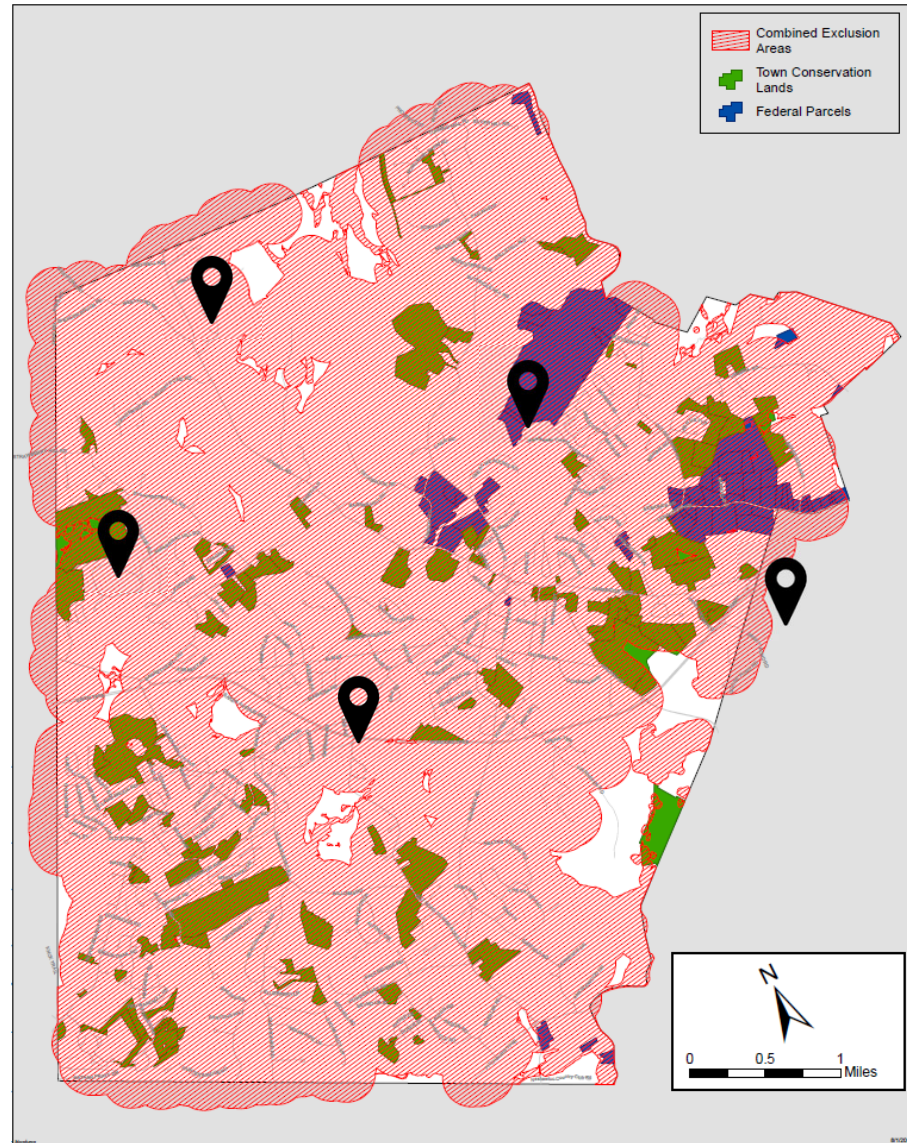
Daycare Building	Daycare/School Buffer	Certified Vernal Pool
School Building	Historic Building Buffer	Wetland
Historic Building	Single-Family Dwelling Buffer	Priority Habitat
Single Family Dwelling	Other Structure	Estimated Habitat
		Town Conservation Lands
		Federal Parcels



PERMISSIBLE CELL TOWER
DEVELOPMENT AREAS
NOT EXCLUDED FROM
1,000 FOOT BUFFER
(INCLUDING AREAS OUTSIDE
THE WIRELESS OVERLAY
DISTRICT)



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RELIEF FROM GENERAL REQUIREMENTS

- After lawsuits and realizing there were very few possible locations, Section 7.8.4.5 was added to the Wireless Bylaw.
- It allowed the ZBA to waive setbacks and general requirements if a coverage gap could be demonstrated.

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MIDDLESEX SCHOOL



ANNURSNAC HILL

- At least 25 single-family homes within 1000'
- Closest single-family home is 134' away



EMERSON HOSPITAL



WASTEWATER TREATMENT PLANT



CURRENT STATUS

- Citizens file complaints with the Town Manager's Office and Select Board concerning poor coverage and the safety concerns that result from it.
- Business owners routinely complain about poor coverage.
- The Select Board took this up as a goal last year to improve coverage in the downtown area.

SELECT BOARD GOALS (2022-2023)

- [Priority] Review the town's wireless communications policies and provide a definitive plan for addressing the priority safety and access concerns of town center cellphone coverage.



PUBLIC SAFETY

- People with emergencies cannot communicate effectively.
- Emergency responders cannot utilize technology necessary for an adequate response.
- Parents cannot communicate with their children.
- Climate resilience need for backup communications





OTHER IMPACTS

Economic and tourist
impact

Impact on Town
operations

Equity problem

Quality of life

TOWN-WIDE ANALYSIS

- Work conducted by:
 - Inter-departmental working group including IT, GIS, TMO, Building, Health, and Planning
 - RF consultants engaged by the Town
 - Crowd-sourced cell coverage data
 - Carrier-provided data

COMPLICATIONS TO DATE

- The Town's Wireless Bylaw
- How applicants' and carriers' experience in public meetings
- RFPs issued but not moving forward

SITE SELECTION



Coverage



Timeline

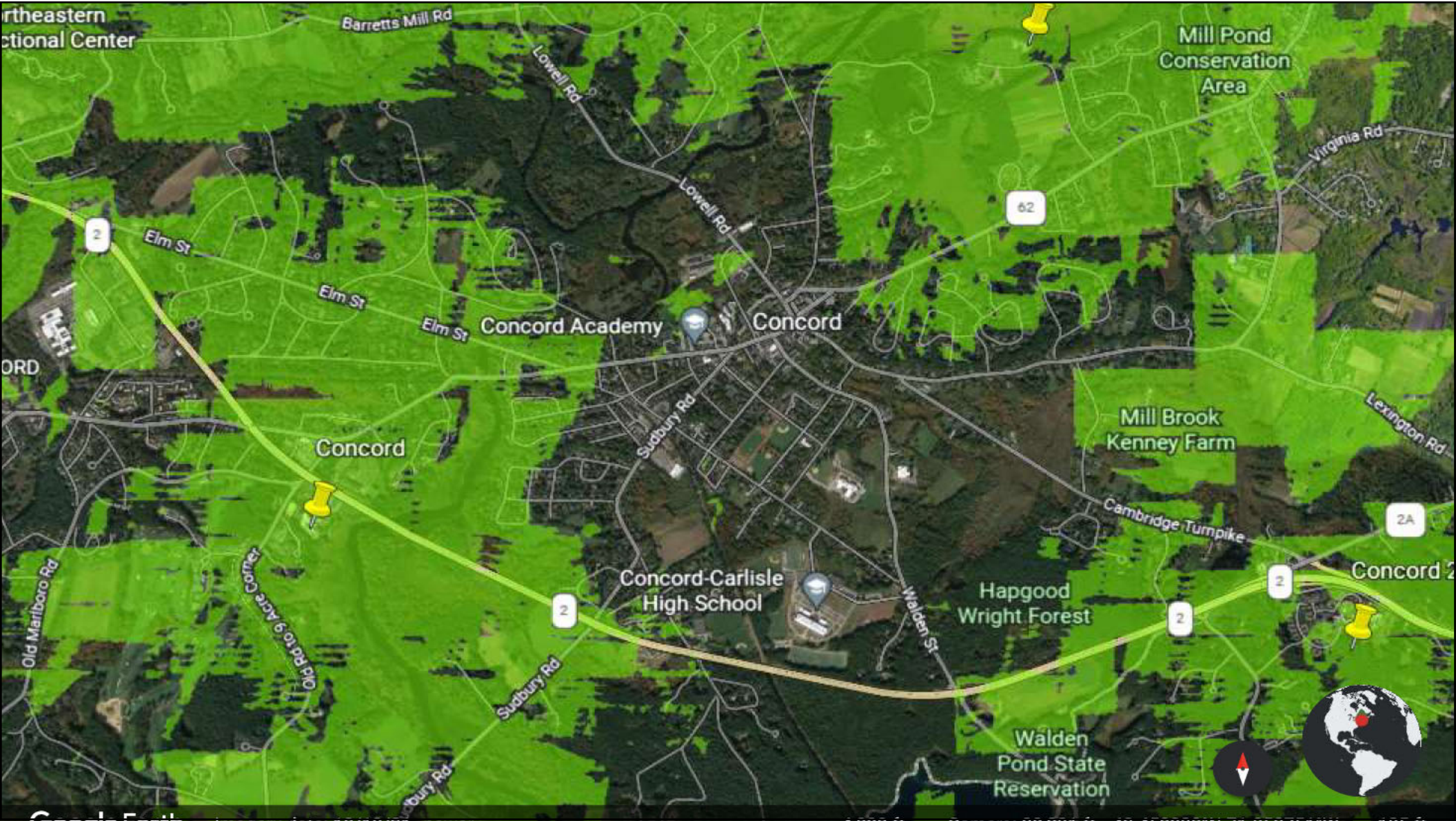


Aesthetics & Siting



**CURRENT VERIZON
COVERAGE**

- Left: real-world (4G) data
- Right: projected 700MHz cell coverage area (in light green)



TRICON CHURCH

- Held Sprint wireless facility for 25 years (vacated in October 2022)
- Could require a special permit application depending on timing of submission
- Process is controlled by negotiations between the church and Verizon



CONCORD LANDFILL

- Previous site of AT&T tower, which was removed
- Within Wireless Overlay District
- May require Bylaw waiver
- MassDEP issues, conservation restrictions
- Poor cell coverage for high school
- Walden Woods and state park viewshed issues



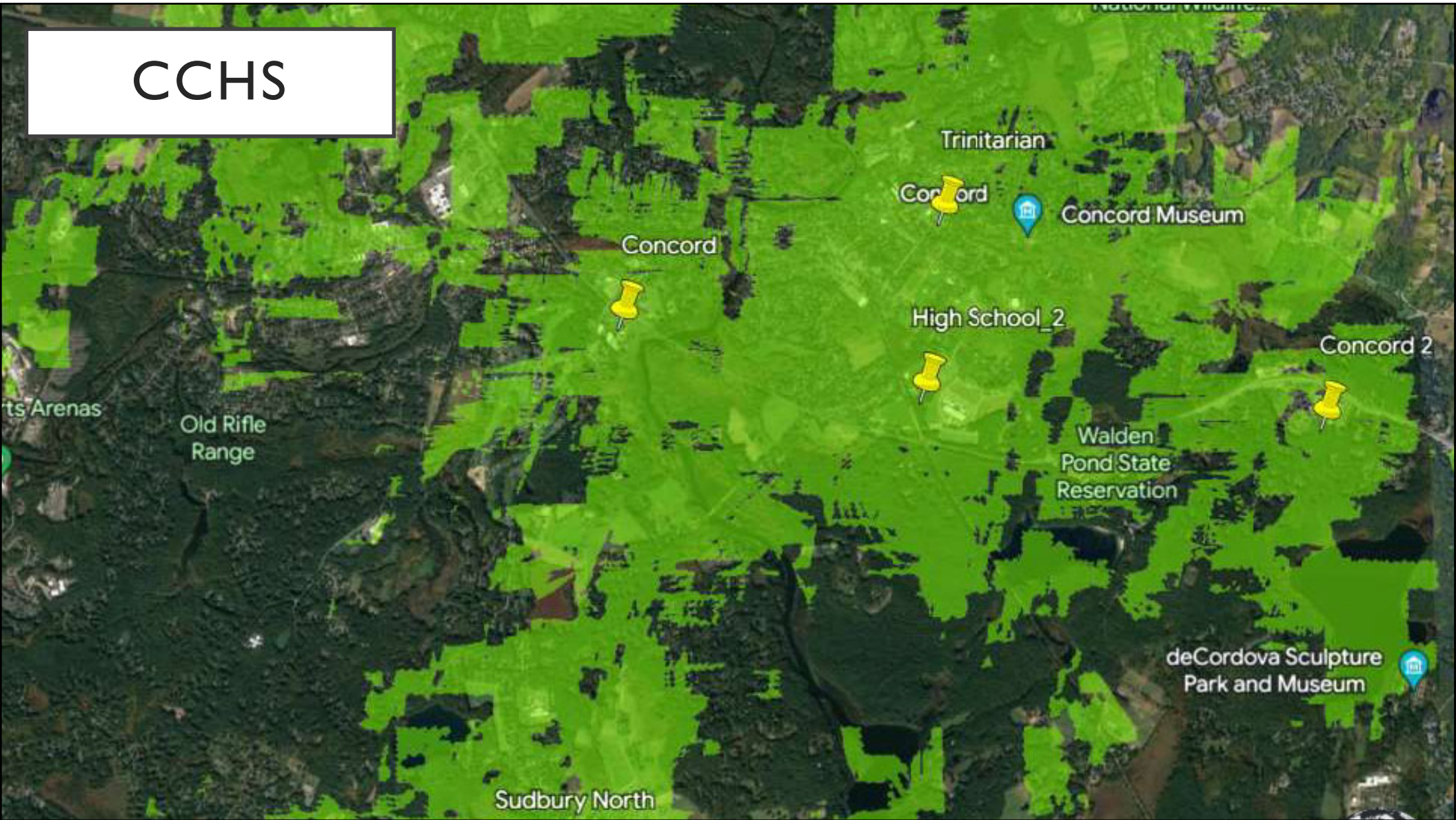
CONCORD LANDFILL



CONCORD LANDFILL



CCHS





A topographic map of Concord, Massachusetts, showing various landmarks and geographical features. Two callout boxes with orange borders and white backgrounds are overlaid on the map. The first callout, labeled 'CCHS', points to a location on the Concord Turnpike (Route 2) near the intersection with the FITCHBURG LINE. The second callout, labeled 'Landfill', points to a location on the Concord Turnpike (Route 2) near the intersection with Walden Street. The map includes labels for 'South Meadow Playground', 'Arena Farmland', 'Haggood Wright Town Forest', 'Concord Turnpike', 'Walden Street', 'Goose Pond', and 'CONCORD'. Elevation contours are shown in brown, and water bodies are in blue.

CCHS

Landfill

CONCORD-CARLISLE HIGH SCHOOL

- Within the Wireless Overlay District
- Would provide best coverage for the campus
- Would not improve reception downtown
- Would require a bylaw waiver
- The fastest timeline



MOVING
FORWARD

This is a known urgent public safety matter with risks of future events

How the public can get involved: communication, engagement and as a consumer

The benefits and challenges of a school site



THANK
YOU!