

C19BA Inner Belt Row System

HUB EXPRESS SYSTEM

January 12, 2022
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Inner Belt at the center of global internet traffic in New England

Inner Belt in Somerville, MA has been a significant telecommunications hub since 1998, hosting two data centers and connections to the fiber optic loop in Boston and Cambridge.

Seamless access to subsea cables: With easy access to MBTA's Telecom & Energy Services, Inner Belt is the terminus of quickest terrestrial pathways to the region's transatlantic cable landing station in Lynn, MA. Combined with Inner Belt's existing connections to Boston's metro fiber optic loop, the area has become an ideal location for interconnection facilities and carrier hotels.

Due to the upcoming launch of the **Amitié Transatlantic Cable**, leading fiber optic and telecommunications carriers in the region are expanding their network infrastructure to Inner Belt to meet the anticipated growth in transatlantic connectivity.

Upgrade to Inner Belt's communications utilities:

To meet the coming growth in demand for global connectivity, TOWARDEX has launched an initiative called the **Hub Express System ("HEX")** to deliver a significant upgrade to Inner Belt's underground utility connections to the broader Boston metro.

The **HEX Conduit System** will reinforce the existing telecommunications infrastructure and more than double the number of duct capacity for fiber optic cables in Inner Belt Road, turning it into the most heavily connected street throughout the Boston metro for broadband connectivity.

TOWARDEX is also constructing two new diverse utility connections in and out of Inner Belt. This development will add additional redundancy and offer significantly shortened routes to downtown Boston and Cambridge for the arriving transatlantic internet traffic.

Hub Express System at Inner Belt

Open Leasing at \$1.54 per ft / year

Not-to-Exceed Price to lease innerduct, open to all broadband ISPs and telecom carriers

135 innerducts

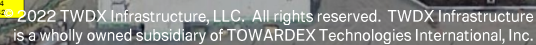
Made available for lease

A New Era of Competition and Connectivity

The Hub Express System is built from the ground up as an “open-leasing” communications utility. With over 135 innerducts available for lease, the system is open to all licensed telecommunications carriers and broadband ISPs to install their fiber optic cables.

We do not require ISPs to pay millions of dollars in upfront capital to purchase conduit space for access. Instead, innerducts are leased out at a competitively neutral pricing of **\$1.54/ft per year**, eliminating large capital requirements just to gain access to the conduit system.

By constructing a large capacity open-leasing utility system, the Hub Express System aims to develop an **ecosystem for connectivity choices at Inner Belt**, by openly inviting all competing ISPs and telecom carriers to affordably obtain access into the conduit system for their fiber optic installations.



Inner Belt Row System Overview



The Inner Belt is a 160-acre industrial district located in the southeastern portion of Somerville, Massachusetts that is poised for a transition to becoming a modern technology hub for bio-tech, life sciences and a nexus for information and communications technology (ICT). The area is sprawling with over 324,000 sq. ft of critical data center space, and is a major hub for fiber optic routes converging from northern New England states and transatlantic cables.

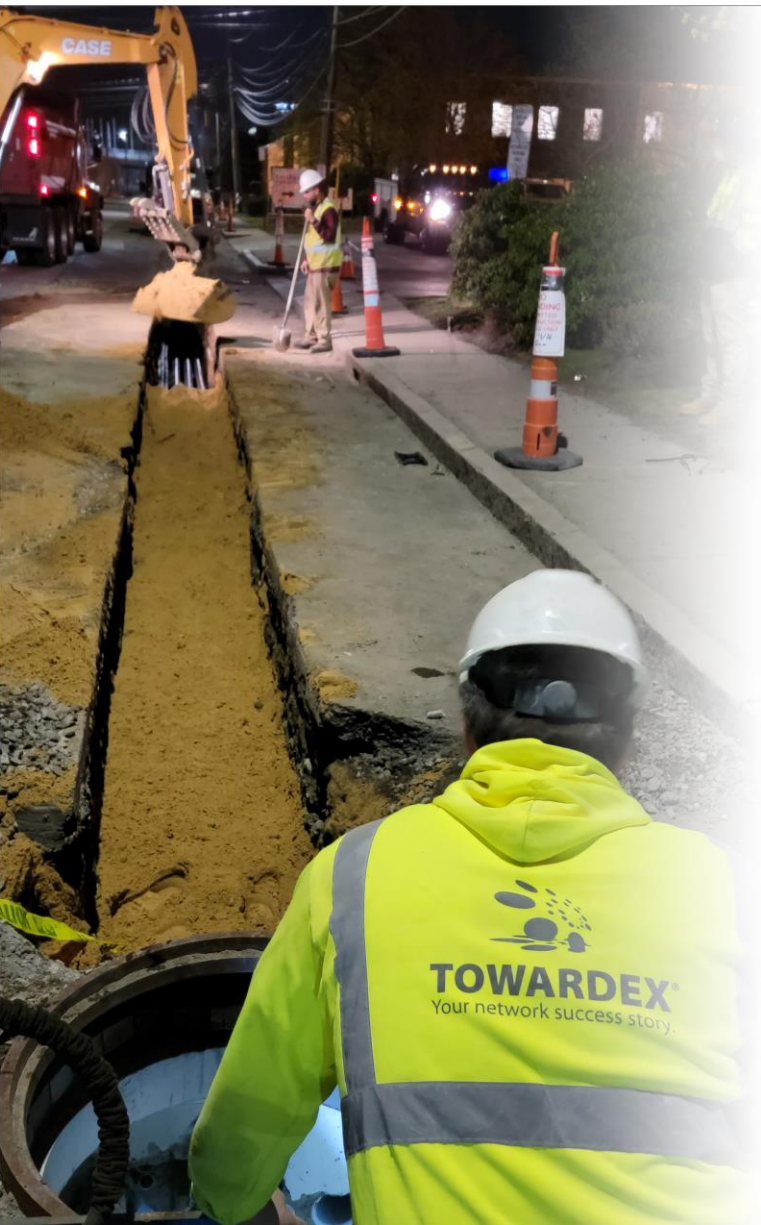
With the upcoming 6,800 km Amitié Transatlantic Cable between Boston and France, Inner Belt Road has become a critical piece of infrastructure which connects downtown Boston to the international cable landing station in Lynn, MA, while simultaneously being abutted by data centers.

Hub Express System transforms Inner Belt to becoming a major communications node for the internet:

According to the City of Somerville's latest Comprehensive Annual Financial Report:

"To facilitate Inner Belt's transition to higher-end uses, the City approved a significant privately-financed infrastructure investment to connect Inner Belt to the fiber optic loop around Boston and Cambridge. The location of this major communications node makes Inner Belt a very competitive location for technology-oriented businesses along with proximity to nearby Kendall Square in Cambridge."

Section Contract	C19BA
Section Name	Inner Belt Row System
Section Contract Value	\$1.51 million
Section Engineer	Axis Engineering Group, LLC
Project Owner	TOWARDEX Technologies International, Inc.
Project Manager	TWDX Infrastructure, LLC



A New Interconnection Power House

Existing System in Inner Belt:

The existing underground fiber optic system in Inner Belt was completed by MFN (now Zayo) back in 2003. Due to the confluence of data centers and terrestrial fiber cables from the transatlantic cable station, the area is fast becoming a busy intersection for global internet traffic.

Hub Express System pushes Inner Belt to becoming the most densest fiber-rich location in all of Boston:

84 Cable Ducts

Existing Zayo conduit system



135 Cable Ducts

New TOWARDEX Hub Express System



219 Cable Ducts

Total combined fiber optic ducts at Inner Belt

With the existing Zayo system already providing 84 cable ducts, the opening of the HEX Conduit System will push Inner Belt Road to having a combined total of over 219 cable ducts, making it the most densest fiber-rich street in all of Boston, rivalled only by the 'telecom alley' of Bent Street in Cambridge.

Moreover, because the Hub Express System is being built to promote a fair, free and open internet for everyone, it is the region's first largescale 'open-leasing' fiber optic utility. The presence of an open-leasing utility means that businesses at Inner Belt will enjoy having access to a competitive ecosystem of dark fiber and broadband connectivity providers, offering the widest range of choices for consumers.

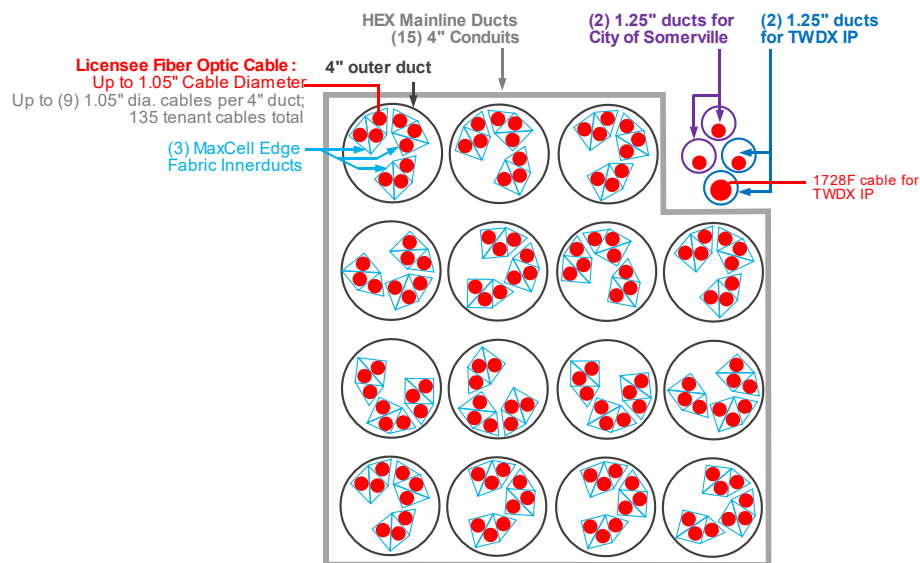
HEX Mainline Duct Bank Detail

The underground trench for HEX Conduit System at Inner Belt consists of the following:

- (15) 4" ducts for HEX Mainline
- (2) 1.25" ducts for City of Somerville
- (2) 1.25" ducts for TWDX IP

Innerducts:

The bank of (15) 4" ducts used for HEX Mainline will be fitted out with **MaxCell Edge Fabric Innerduct System**. Each innerduct will be able to provide occupancy for a fiber optic cable sized up to 1.05" in cable diameter, and each 4" outer duct can accommodate up to 9 innerducts, providing a total of 135 innerducts available for tenants.



Inner Belt Road Meet Me Hole



TWDX project engineers have designated manhole C19BA-204 at the southern bend of Inner Belt Road (between 90 – 121 Inner Belt Rd) as the area's "Meet Me Hole."

From a conceptual view, a **Meet Me Hole** is a large underground vault structure (between 10' X 5' to 12' X 8') where facilities are provided for tenants to install their enclosures to allow access onto their fibers, and to make cross connects between each other in an outside plant environment.

With the exception of technical and operating rules to maintain a clean and safe working environment, TWDX does not regulate the use or charge for any cross connect cables installed between tenants in HEX Conduit System vaults.

C19BA-204 Meet Me Hole is a major nexus on the HEX Conduit System:

HEX Mainline sections heading north toward Washington St. and south to Cambridge, and HEX Branch Line feeding 200 Inner Belt and **Zayo-TWDX System Interconnection** all converge into this Meet Me Hole. In addition to these major conduit routes arriving into the vault, **CoreSite Boston data center** at 70 Inner Belt and terrestrial cable to **Lynn Cable Landing Station** at MBTA ROW are both flanking the structure to its northeast, creating an enormous demand for fiber optic capacities.



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