

Google Fiber Checklist

Introduction

Over the last few years, gigabit Internet has moved from idea to reality, with dozens of communities working hard to build networks with speeds capable of supporting the future of the Internet. People are hungrier than ever for faster Internet, and as a result, cities across America are making speed a priority.

This checklist is written specifically for the cities we're currently working with. However, the items in the checklist are a collection of best practices recommended by the Fiber to the Home Council, the Gig.U report and the US Conference of Mayors and are a clear path to anyone interested in building a new fiber network.

Building a fiber network is a big job, so advance planning goes a long way toward helping us minimize disruption for residents and build in an efficient manner. We will need to work closely with you to determine whether Fiber will be a fit for your city, and we're committed to starting our own research and engineering early in the process. We'd like the project to move as quickly and smoothly as possible.

We will also spend time talking with you during this process about how city leaders can get residents ready for Google Fiber, particularly those who don't currently use the Internet or have it at home. We will share how Fiber's work to make the web more affordable, more relevant, and more useful can be a powerful catalyst in closing the digital divide—and how important it is that we do this work together, in partnership.

We are excited about the possibility of bringing Google Fiber to your city and look forward to working with you.

Instructions

The following instructions provide guidance and additional information to help you complete the information requested in the Checklist.

From our experience working in our existing cities, we are confident the Fiber Checklist will speed up the process and can help bring high speed Internet to your city in an efficient manner.

Provide information about existing infrastructure

Building a new network is complex, and we would like to work with your city to make it quicker, more efficient, and less disruptive to your community. We're asking your city to provide accurate information about local infrastructure like municipal owned utility poles, conduit and existing water, gas and electricity lines so we know where to efficiently place every foot of fiber. As we work through our detailed network design, infrastructure data helps us understand where we can safely and effectively place the fiber.

As part of completing the Checklist, we ask that your city:



Review the "Data Request" portion of the Checklist, and gather and submit all required data asset requests as outlined in the Checklist.



Identify which infrastructure and/or data about that infrastructure is not owned, operated or controlled by the city.

Do *not* worry if you don't have the data we're looking for! Just indicate it in the Checklist and help us figure out how to obtain the information.

Make it easy for providers to share existing infrastructure

Fiber providers need to string fiber along utility poles or bury it underground in protective tubing called “conduit.” It doesn’t make sense for each provider to install redundant poles, or to dig up streets multiple times where conduit already exists.

Allowing providers to re-use existing infrastructure makes the process of building a network faster, more efficient, more cost effective and significantly less disruptive.

Providers of broadband Internet services, including IPTV, should have access to existing utility poles, ducts and conduit, on nondiscriminatory terms, in exchange for reasonable payment.

These rights may already be addressed by federal or state law, local ordinances, or other agreements with infrastructure owners. But if we cannot otherwise secure these rights, we may need your help to obtain these rights locally.



The Fiber team laying conduit in Atlanta, GA

As part of completing the Checklist, we ask that your city provide:



A description of any existing state laws, local ordinances, and/or commercial agreements that satisfy these types of attachment and use rights. Please include these on the “Access to Infrastructure” portion of the Checklist. Work with us, as needed, to ensure that Google and other service providers have access to these rights.

Help make construction speedy & predictable

Permitting and Construction

We're asking your city to make sure you have efficient and predictable permit and construction processes appropriate for a project as large as a Google Fiber network build. The items we outline in this section will help ensure that the construction process is predictable, fast, and as minimally disruptive for your city as possible.

As part of completing the Checklist, we ask that your city:



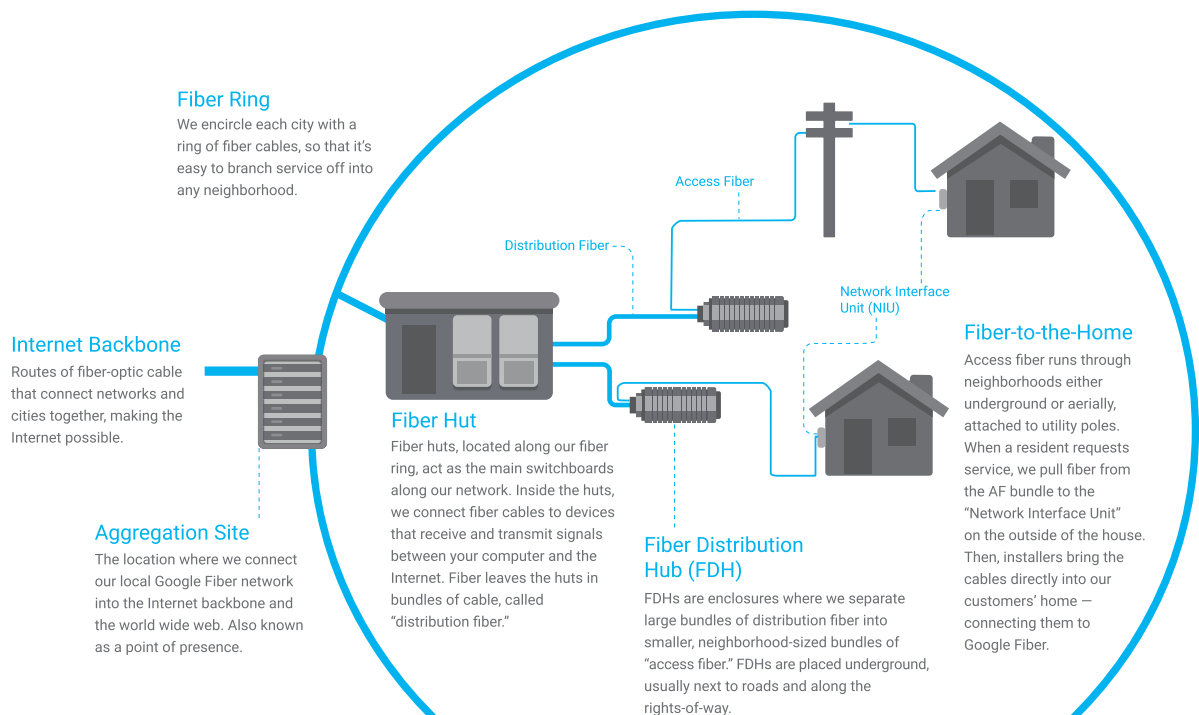
Review and complete the Permitting/Construction Process portion of the Checklist; if your city cannot accommodate a particular standard or process that we've listed, please let us know the best you can do.



Review the Construction Constraints portion of the Checklist, and identify any local, city or state-wide requirements that may impact the pace of a network build.

Fiber network huts

Another important part of network design is determining where to place Google Fiber network huts. These network huts house Fiber's electronic equipment and serve as key distribution points between the backbone of our network and customers' homes.



City-owned sites generally make sense as hut locations because they are zoned appropriately and dispersed throughout the city. We've provided a Hut Specifications document, with detailed specifications and drawings. We've also provided a Hut License Agreement, which details the terms and conditions upon which we are able to lease these sites.

We ask that your city:



Review the Hut Specifications document and the Hut License Agreement.



Confirm which city-owned properties meet the requirements and can either be made available for purchase or for lease under the terms of the Hut License Agreement.

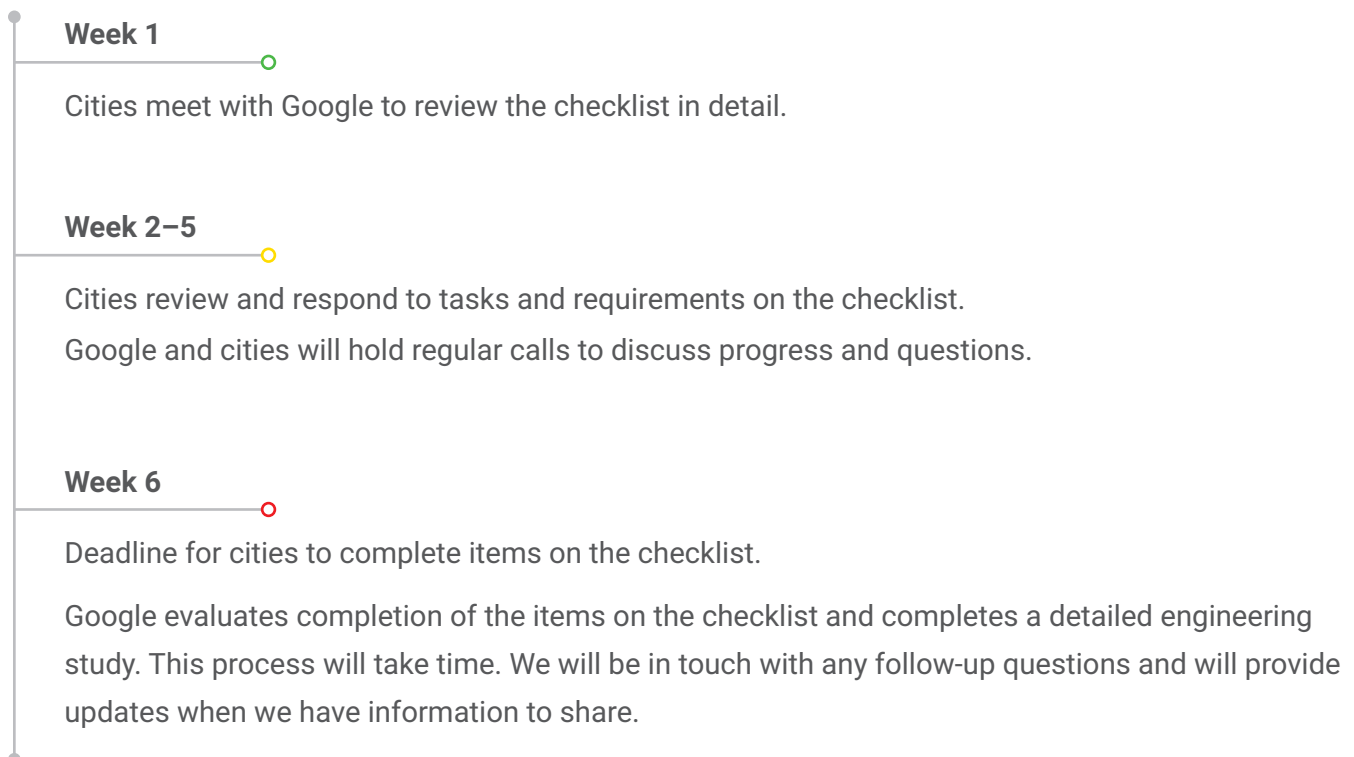
By the Checklist deadline, we also ask that your city identify all approvals (committees, city council, etc) necessary for the Hut License Agreement, and confirm the process and timeline for such approval, including any public notice periods.

Project Management and Timeline

We would like your city to assign a project point of contact—someone who can make decisions for the city. We’ve found that it usually helps to have the City Manager, Deputy City Manager, CTO or CIO serve in this capacity. This process works best when cities assign POCs for each department as well.

We’ve learned that it’s very helpful to have check-in calls to discuss progress on the checklist. We’ll also use this time to answer questions. So, if you’re unsure of how to respond to something in the checklist—don’t worry, just let us know and we’ll talk about it in our check-in calls.

Project Timeline



Overview of Google Fiber Huts

An important piece of the Google Fiber network architecture is the “hut”, which is a shelter for communications equipment. These huts are placed throughout cities to facilitate service to customers. City-owned sites generally make sense as hut locations because they are zoned appropriately and dispersed throughout the city. We would like to complete a Hut License Agreement with you, so we can place these huts on city land.

Below are some key considerations for where and how these huts are placed in cities, as well as technical information about the huts that you may find helpful.

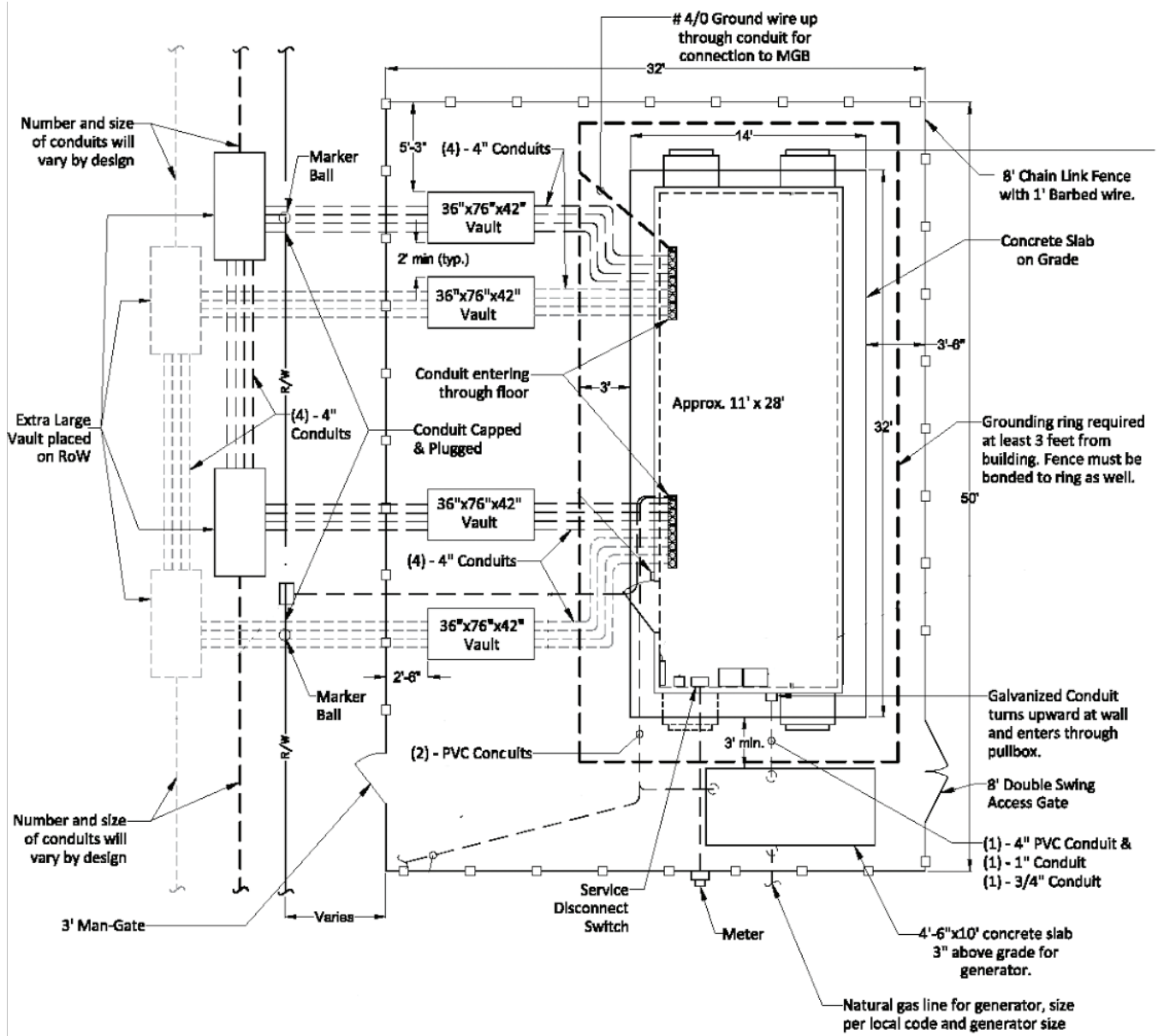
Hut Specifications

- Huts are pre-fabricated structures that measure about 11’ 9” W x 29’ 6” L x 9’ H. The measurement of the entire leased site itself can vary, but is generally about 32ft x 50ft. We find that parcels measuring at least 2000 sq ft generally work well.
- Each hut sits on a concrete slab.
- The hut has a standard aggregate finish (also known as a “washed stone” finish).
- Huts are typically surrounded by a 10ft fence.
- Each hut runs on electricity, but has a backup generator on-site that also sits on the concrete slab and runs on natural gas. Generators are tested monthly, but otherwise only run in power outage situations. The noise level with the backup generator running is roughly 76dB avg @ 23ft.
- Huts have HVAC units attached, with noise levels of about 65dB at 20ft (about as loud as a mid-size pickup truck idling).
- Each hut serves a maximum of 40,000 households.
- We require 24-hour access to the huts, 365 days a year.

Hut Site Selection Considerations

- The hut site requires vehicular access for construction and maintenance. As such, the site should have access to a road and include parking space.
- The huts require electric power, natural gas for a backup generator, and a telephone line for security. As such, the hut needs to be located within reasonable proximity to natural gas, telephone, and electric service access points (120/240V Delta single phase 400A service).
- Huts need to be distributed throughout the city and in proximity to residential areas they serve (i.e. they cannot all be concentrated in one corner or industrial area of the city).
- We prefer to avoid placing huts on the following types of sites:
 - Land that requires phase 2 environmental testing (*e.g. landfills*)
 - Schools
 - Parks
 - Sites with setback concerns
 - Sites near a flood zone
 - Sites with gated access or security requirements
 - Land that is far from the right of way, or does not have an existing easement through the site that can be accessed by a utility
 - Historical areas
 - Subleased or federal property
- What works well:
 - Fire stations
 - Police stations
 - Substations
 - Vacant parcels
 - Sites with similar structures (*cell towers*)
 - Pump stations
- In the event that a particular site requires special considerations (e.g. for safety or aesthetic reasons), we will work with your city to determine specific conditions applicable to those particular hut sites, and include them in the Hut License Agreement.

Hut Schematic Drawing



Hut Site Examples



Fiber Checklist

Data Request

Materials Required to Design and Construct the Fiber Network

- ☐ Right of Way and Easements
- ☐ Parcels or Lot Lines (*easements and rights of way*)
- ☐ Poles (*location, use code, and operating entity*)
- ☐ Existing Underground Utility Routes
- ☐ Manholes
- ☐ Pavement Condition Index Score by Street
- ☐ Existing Spare Conduit Available for Lease
- ☐ Existing Dark Fiber Available for Lease
- ☐ Infrastructure Maintenance Plan (*street maintenance locations with extents and schedule*)
- ☐ Proposed Hut Site Locations by Address

Optional Materials that will Expedite our Engineering Processes

- ☐ Addresses
- ☐ Streets
- ☐ Parcels or Lot Lines (*physical address and parcel type*)
- ☐ Poles (*state, install date, date of last inspection, etc.*)
- ☐ Streetlights
- ☐ Overhead Strand
- ☐ Zoning
- ☐ Building Footprint
- ☐ Infrastructure Maintenance Plan (*pole maintenance areas and schedule*)

Access to Infrastructure

We're asking your city to help ensure that we, and other providers, can access and lease existing infrastructure. It doesn't make sense for each provider to install redundant poles, or to dig up streets multiple times where conduit already exists.

- ☐ Description of any existing state laws, local ordinances, and commercial agreements that satisfy the attachment and use rights described above.
- ☐ Confirmation that your city would support expedited network builds by requiring "one touch" relocations of equipment on utility poles in the public right of way.

Permitting and Construction Process

Permitting Process

- ☐ A standard form of permit application document that Google Fiber will be expected to use
- ☐ City's standard Conditions of Permit Approval.

Construction Process

- ☐ Utility System Construction Standards
- ☐ Line-Clearing and Tree-Trimming Service
- ☐ Arborist requirement for working around trees
- ☐ Fire Safety Building Code Specifications *(including for multiple dwelling unit designs)*
- ☐ Utilities Building Code Specifications *(including for multiple dwelling unit designs)*

Notification Process

- ☐ City to provide a point of contact to facilitate Google Fiber 311 communication plan
- ☐ City to provide a point of contact to address resident issues due to utility-related work *(e.g. Removal of locates lines/markers)*

Construction Constraints

Google requests help complying with City, County, and State laws and standards. Please review the items below, and note any applicable laws and departments to consult. It will be especially helpful for the City to provide specific examples and documentation of past projects that have met/exceeded standards in these areas, as well as any clarification about how/why these standards apply to the project.

- ☐ **Trees** (*e.g. trimming restrictions, special conditions to be aware of*)
- ☐ **Historic Districts**
- ☐ **Work Hours** (*including construction/restoration restrictions on weekends*)
- ☐ **Special Zones** (*e.g. kids, seniors*)
- ☐ **Environmentally Sensitive Areas** (*e.g. are facilities required to recapture water run-off*)
- ☐ **Landscaping Requirements**
- ☐ **Holiday Moratoriums**
- ☐ **Joint work/Dig once requirements**
- ☐ **Noise Restraints or Restrictions**
- ☐ **Other Advisory Committees**

Additional Resources

We will be providing FAQs and supplementary documentation about our checklist and construction processes shortly. In addition, you may find the following resources helpful.

Google Fiber: Network Overview

This Google Fiber blog post gives a behind-the-scenes look at how we actually build Google Fiber including a basic network overview.

<http://googlefiberblog.blogspot.com/2013/10/behind-scenes-with-google-fiber-how-we.html>

Google Fiber Website: City Expansion FAQs

Our website includes a set of FAQs about this checklist and process.

<https://fiber.google.com/support/>

Digital Inclusion: A Long-Term Investment

This Google Fiber blog post provides an overview of our long term investments and perspectives on digital inclusion.

<http://googlefiberblog.blogspot.com/2014/10/digital-inclusion-long-term-investment.html>

Digital Inclusion Leadership Awards

We've partnered with Next Century Cities and the National League of Cities to create the Digital Inclusion Leadership Awards. Their website includes background about the digital divide and ways some city governments are addressing it.

<http://nextcenturycities.org/digital-inclusion-awards/>

