Astound Broadband

Kiwanda Shores FTTH
Pacific City, Oregon

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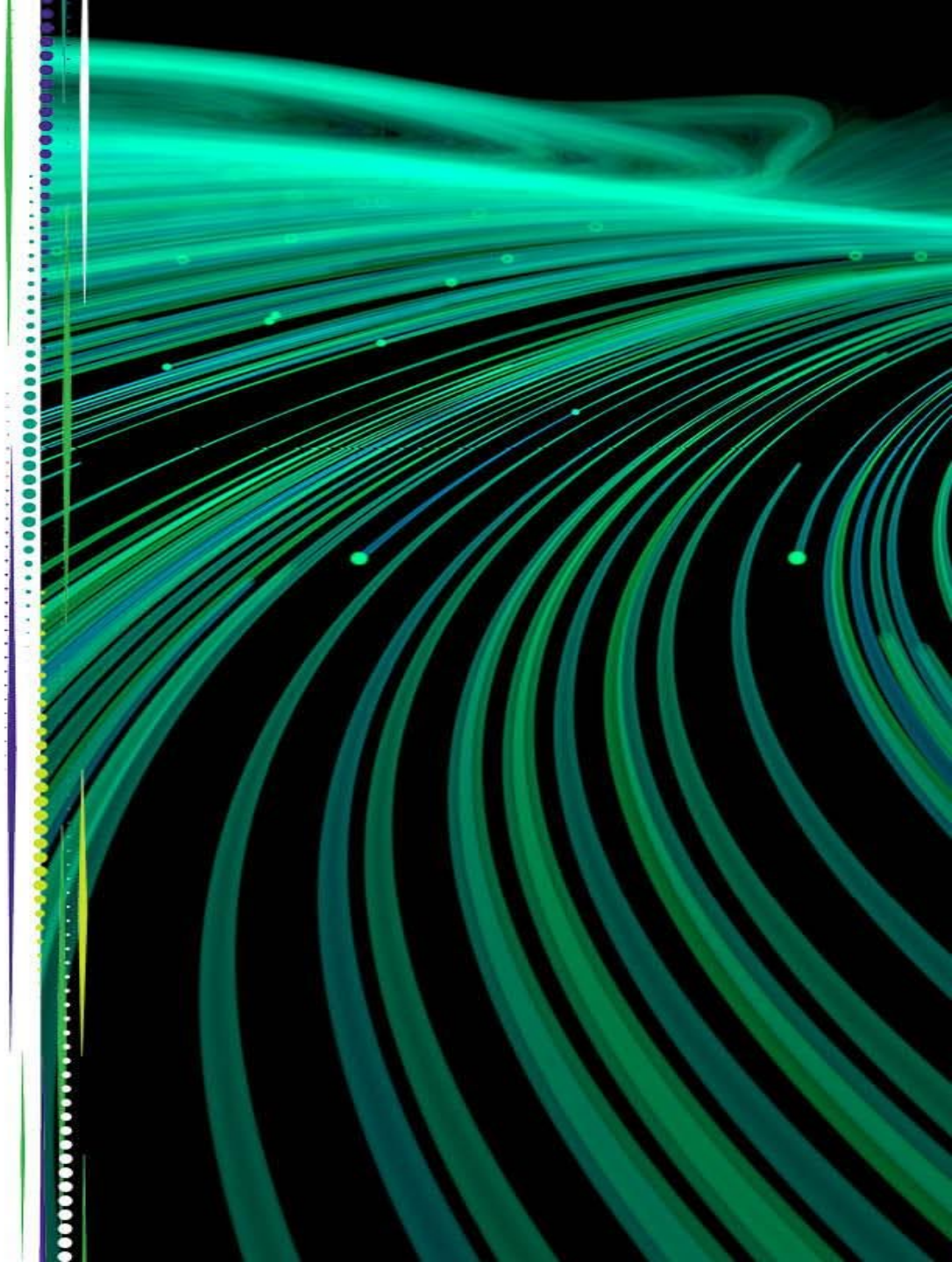

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Overview of Project

Who is Astound Broadband? Astound Broadband is a telecommunications company, the sixth largest cable operator in the U.S., offering a range of services including internet, TV, phone, and mobile solutions for both residential and business customers. It serves eight of the top 10 metro markets in the U.S. Astound operates a national fiber-rich network and provides services in locations like California, Illinois, Massachusetts, Oregon, New York, Pennsylvania, Texas, the DC metro area, and Washington State.

Astound currently has local residential FTTH/HFC service markets located on the Oregon coast in Waldport, Newport, South Beach, Depoe Bay, Tierra Del Mar and various locations within Tillamook County.

Astound is proposing to build a new FTTH PON system within the Kiwanda Shores HOA property offering up to 5Gbps symmetrical Internet service to homeowners within the property. Currently Astound offers a variety of internet speed tier speed packages. See below for all current offered tiers.

Current Tiers of service is as follows – 300Mbps , 600Mbps, 1Gbps, 1.5Gbps, 2Gbps, 5Gbps.

Please visit https://www.astound.com/oregon/shop/ for the latest pricing.

Astound offers a variety of other services once the internet connection to the home is complete like the option add TV services VIA DirecTV streaming and a variety of Mobile phone plans to choose from.

What is FTTH & PON

What is Fiber to the Home - Fiber to the home (FTTH), also known as fiber to the premises (FTTP), is a method of delivering high-speed internet directly to individual homes or buildings using fiber optic cables. This technology offers significantly faster speeds and increased bandwidth compared to traditional copper-based internet connections, like DSL or cable internet

What is PON- PON, or Passive Optical Network, is a type of fiber-optic telecommunications network that uses unpowered devices to distribute signals, typically for broadband Internet access to homes or businesses

PON FTTH (Passive Optical Network Fiber to the Home) offers customers several advantages over traditional broadband technologies. It provides faster speeds, more reliable connections, and higher bandwidth, enabling seamless streaming, online gaming, and other data-intensive activities. FTTH also offers greater scalability and adaptability, making it a future-proof choice for evolving digital needs.

Here's a more detailed look at the customer benefits:

Superior Speed and Performance:
FTTH delivers speeds up to 1 Gbps or higher, enabling users to stream high-definition video, download large files, and participate in online gaming without buffering or lag.

Reliability and Stability:
Fiber optic connections are less susceptible to interference, weather conditions, and signal degradation, resulting in consistent and dependable performance.

Scalability and Future-Proofing:
FTTH networks are highly scalable and can easily adapt to increasing bandwidth demands without significant infrastructure upgrades, ensuring long-term adaptability.

Cost-Effectiveness:
While the initial investment may be higher, PON FTTH can be more cost-effective over the long term, especially for larger networks and in areas with high population density.

Improved Streaming and Gaming:
The high speeds and reliability of FTTH make it ideal for streaming high-definition content and online gaming without interruptions or lag.

Support for Modern Work-from-Home Needs:
FTTH's high bandwidth and reliability support the demands of video conferencing, cloud storage, and other work-from-home activities.

Increased Property Value:
Homes with FTTH connections are often considered more desirable, potentially increasing their market value.

Community Questions

Have you surveyed the Kiwanda Shores property to identify any issues that might need to be addressed?
No, Once the community agrees to allow our services into the property, we will perform a walkout and survey the entire area and get a full design showing our running lines and pedestal / Vault locations. These can be reviewed with the HOA to make any changes needed and get full agreement before any construction starts

Is it correct that the primary installation method involves boring under the surface? *Yes, The primary method of construction in this area will be boring.*

To what extent is surface digging needed? We recently paved a few of our streets and would like to avoid cutting into the asphalt. *Surface digging would involve getting bore pits done within the project area green space and not any hard surface to start and end the boring process. Bore pits usually also accompany where a pedestal/vault will be placed. The other surface digging would be potholing existing utilities such as sewer / water / power and other communications to determine their depth to ensure we do not hit any existing buried services while performing our installation of pipe for our new fiber. Potholes are usually 4"-6" round holes going down to locate pipe. This may be done on hard surfaces like roads to ensure lateral crossings are not hit and would be restored afterwards. In most cases we would avoid this after the locate process and move the running line to avoid any street disruption.*

Would the boring be conducted under the center of the street, on one side, or both sides? *Boring will be mainly done on one side of the street within the green space and not under any hard surface like roads and sidewalks. Crossing will take place for drops at determined locations to ensure the other side of the running line has access to services without disrupting the hard surface of a road. NOTE: Driveways will be bored under and not disrupted on the running line side of the road and also if any lateral services to the home is needed*

How are lines extended out from the main line to individual houses when using a boring mechanism? *See Slide 7 for information on service laterals to the home from the main running line.*

Community Questions

Do streets need to be blocked during the installation process or are vehicles able to traverse the street? *No streets will need to be blocked during this construction process. Our equipment and trucks will be located on one side of the road and allow traffic to continue to flow. In the rare event that any roads need to be blocked this will be communicated with the HOA prior to the beginning of construction.*

If there is damage during installation (such as to any existing underground or above ground piping or utilities), does Astound guarantee repair/replacement of the damages? *Yes, Astound or their approved contractor will make sure any damage is immediately repaired to proper standards and regulations. Astound will notify the HOA immediately if there any type of damage needing any type of repair outside the normal scope of work of construction.*

What would the process be to have the damage repaired? Would the Kiwanda Shores Maintenance Association (KSMA) need to file a claim? If so, with whom? *Astound will discuss emergency items with the HOA prior to starting construction of whom needs to be notified if there is an emergency situation that requires immediate repair. IE: Water Line / Sewer Line / Communications or Power.*

What are the most common challenges that arise during installation? How can the KSMA help mitigate these, if at all. *Each project is different, and any challenges will be thoroughly discussed with the HOA prior to construction. After we get the initial walkout completed of the property and lay out our running lines and locations of vaults and pedestals, we can discuss any problems that we see that could impact the installation process. Most challenges can be dealt with on the front side prior to starting construction.*

Please describe the size and location of the “cable box” that is installed for each property. Can property owners indicate where they would like the cable box installed? *See Slide 8&9 for pedestal and vault information. We can do our best to accommodate any property owner and go over anything with them to ensure that they are satisfied with the placement along with the HOA. We usually follow the current existing utilities. IE: If there is current communication/power pedestal or vault we will place ours in the same location to allow us to intercept lateral conduit to the home.*

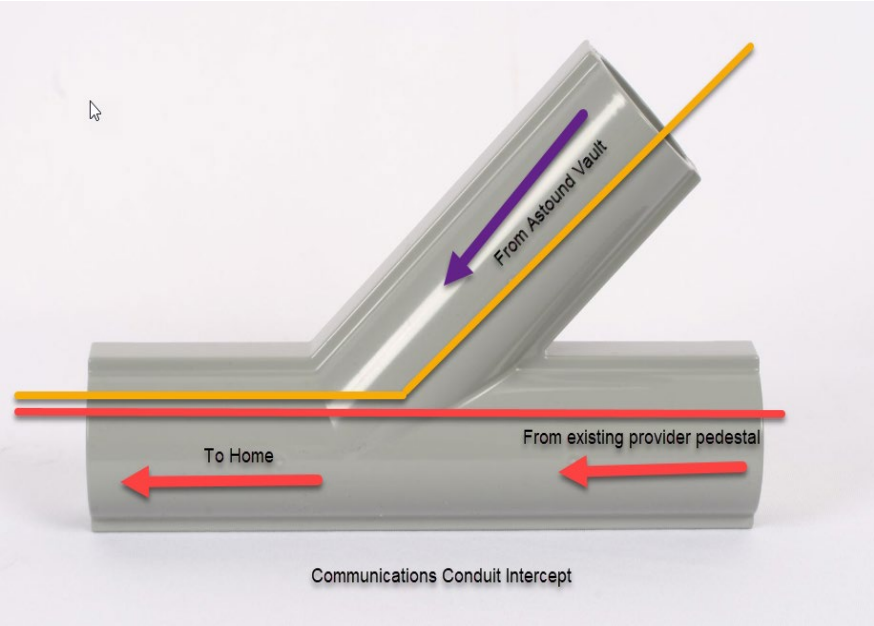
Community Questions

It wasn't clear what the timing or flexibility was for your build out in Pacific City, nor the size or number of pedestals this would require. When do you move on from PC to cities further north? *We are planning on starting construction for underground utilities within the city limits in the next 3-4 weeks. If the HOA agrees to let Astound provide services, we can start immediately or discuss further timing due to the time of year.*

Does every home get a pedestal after build out, even if they don't contract with you? *Pedestals and vaults are placed on the running line usually following existing utilities' locations so these will be placed in that spacing usually every fourth home. After the initial site walk is complete and we get a preliminary running line together we can discuss actual locations of pedestals and vaults.*

If KSMA doesn't go for the overall build out now, will individual homeowners bear a separate installation cost if they chose later? Astound would be looking to build to offer services to the entire HOA and would not build just to feed a few individual customers, this would not be cost effective to do so for Astound or the homeowner. If KMSA wants more time to discuss then Astound will work with KSMA for timing as long as we can capture the entire project scope.

Service Laterals

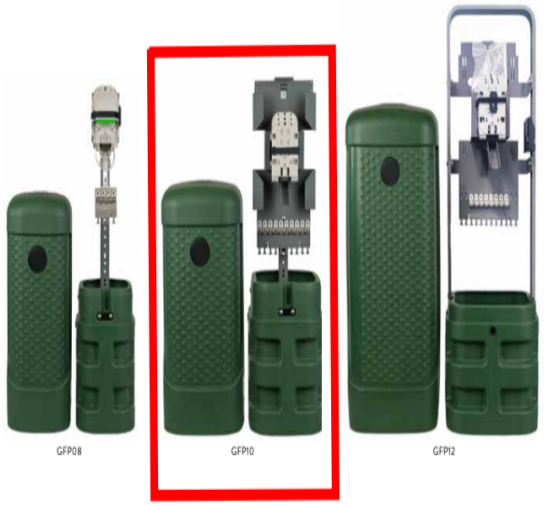


- Astound will support network connection up to the side of the home.
- Existing conduits will be used where possible to minimize disruption.
- Fiber will be routed from the street to the home via underground conduits.
- Homeowners may need to coordinate interior cabling if required.
- No additional cost beyond standard installation unless special construction is needed.
- If new conduit is required, trenching or boring may be used.
- Standard installation cost is $50-$99.
- Fiber drop can be installed even over long distances (>1000 ft).
- Fiber diameter is small (~7mm), allowing co-existence in occupied conduits.

Astound Provided Pedestal / Vaults

GOAT FIBER PEDESTALS

GFP08, GFP10, GFP12



Channells' Goat Fiber Pedestals (GFP) are high-performance fiber distribution pedestals that provide field-proven protection for any outside plant application. The pedestals come in various sizes to provide maximum flexibility in fiber-to-the-home (FTTH) networks.

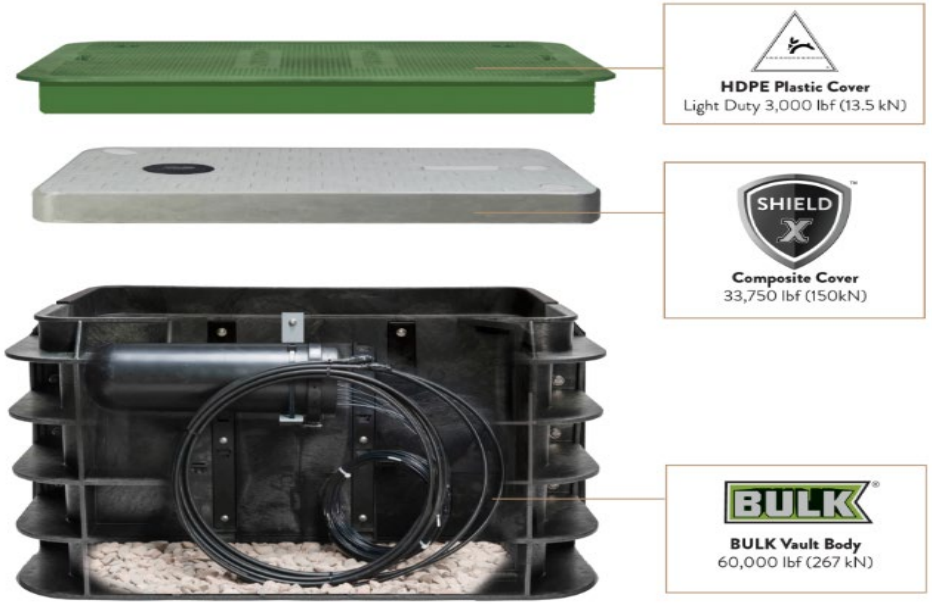
FEATURES

- Incorporating the Universal Splice Tray, the fiber pedestals provide branch and drop splicing capabilities along with ample cable storage for loose-tube and ribbon fiber optic cables
- Field splicing and drop connections are quick and easy, saving valuable time. The integrated strength members and cable routing guides provide optimal slack storage and cable management
- Goat fiber pedestals are rugged and lightweight thermoplastic enclosures which meet and exceed industry performance standards

Feature	GFP10
Dimensions (Overall)	12.75" x 12" x 38"
Drop Quantity	12
Cover Height (Dome)	26"
Base Height (Buried)	27" (11")
Material	High performance thermo-plastic
Number of Splice Trays	6
Splice Capacity	216F (single-fiber), 288F (ribbon)
Main Cable Attachments	4

- Astound uses the Channell brand GOAT 10 pedestal with overall dimensions of 12.75”x 12” x 38”
- See Attached Data Sheet for your reference attached to the email along with this power point presentation
- Each pedestal can accommodate up to 12 individual house drops we usually only install 4-8 to each location.

Astound Provided Pedestal / Vaults



SPECIFICATION	PROOF LOAD	PRODUCTS
AMERICAS	**STANDARDS**	
Pedestrian/Light Duty	3,000 lbf (13.5 kN)	BULK
ANSI/SCTE 77 TIER 22	33,750 lbf (150 kN)	BULK
EMEA	**STANDARDS**	
Pedestrian/Light Duty	2,250 lbf (10 kN)	BULK
EN 124 Class B125	28,100 lbf (125 kN)	BULK
APAC	**STANDARDS**	
Pedestrian/Light Duty	3,370 lbf (15 kN)	BULK
AS3996-Class B	18,000 lbf (80 kN)	BULK
AS3996-Class C	33,750 lbf (150 kN)	BULK

- Astound uses the Channell brand vaults in 2 different sizes for Fiber to the home deployment
- Vault sizes include 17”x30”x18” and 24”x36”x24”
- Vault lids come in two different options as pedestrian-rated or traffic-rated
- Vaults are placed for all FOSC splice locations and will replace pedestals in special situations that call for the use of a vault (We try not to use vaults for home lateral locations due to water table within Pacific City but we can accommodate if needed for circumstances)