

RESIDENTIAL BUCKEYE EXPRESS™ BROADBAND INTERNET ACCESS SERVICE DISCLOSURES

Consistent with FCC regulations¹, Buckeye provides this information about our broadband Internet access services. We welcome questions or comments about this information. You may contact us in person at 5566 Southwyck Avenue, Toledo, Ohio, 43614, or by phone at 419-724-9800.

NETWORK PRACTICES

General description. We continually monitor our network and traffic patterns and make changes we deem necessary to manage and improve overall network performance. Buckeye uses reasonable nondiscriminatory network management practices to improve overall network performance and deliver a high-quality online experience for all users. Consistent with this, our network management practices do not target any specific content, application, service, or device. Please note, however, that as technology develops and network management issues arise, our commitment to providing a high-quality product for our customers may dictate that we employ additional or new network management practices, and we will update these disclosures as necessary. We encourage you to review these disclosures, and all related documents and disclosures, on a regular basis.

Related documents and disclosures. Use of our Buckeye Express service is also governed by:

- Buckeye Express Acceptable Use Policy, available at
- https://www.buckeyebroadband.com/media/layout/BUCKEYE_Broadband_ACCEPTABLE_USE_POLICY_June_2016_2.pdf
- Buckeye Express Residential Terms and Conditions of Service, available at https://www.buckeyebroadband.com/media/layout/Buckeye_Residential_Service_Agreements.pdf
- Buckeye Express Residential Product Definition, available at <http://www.buckeyebroadband.com/legal>
- Buckeye Express Minimum Equipment Requirements, available at
- https://www.buckeyebroadband.com/media/layout/May_2018_Internet_Minimum_Equipment_Requirements--May_2018_3_.pdf
- Websites and Subscriber Privacy, available at https://www.buckeyebroadband.com/media/layout/BUCKEYE_WEBSITE_PRIVACY_POLICY_June_2016.pdf

These documents contain important information regarding Buckeye Express service and its use and may be subject to updates and revisions. We encourage you to review them on a regular basis.

Congestion Management. This section describes any network management practices used to address congestion on the Buckeye network.

Congestion management practices used.

¹ 47 CFR §8.3 and *In re: Preserving the Open Internet, Broadband Industry Practices, Report and Order*, 22 FCC Rcd 17905 (2010)

Real-time traffic review and proactive engineering. The best way to “manage” congestion is to avoid it in the first place. Buckeye’s system has been engineered to avoid network congestion and so to eliminate the need for reactive congestion management. Buckeye utilizes real-time monitoring and application/protocol agnostic means of maximizing performance for its customers. Where this monitoring reveals the potential for future congestion, Buckeye works to engineer and implement a solution to eliminate that risk. Should new technologies or unforeseen developments make it necessary in the future to implement an active congestion management program, Buckeye will update these disclosures and otherwise notify its customers of the scope and specifics of this program.

Types of traffic affected. To the extent congestion may occur on the system, all types of network traffic are potentially affected. As noted above, Buckeye works across its network to improve performance and eliminate risks of network congestion.

Purposes of congestion management practices. Buckeye’s network engineering seeks to meet or exceed the demands on the network by the highest bandwidth users during periods of peak network traffic. Buckeye’s overall goal is to engineer a system that provide its customers with full and unlimited access to its network, eliminates congestion, and therefore avoids the need for reactive congestion management practices. As noted above, should it become necessary in the future to implement a reactive congestion management program, Buckeye will notify its customers of the program and update these disclosures.

Congestion management criteria. Our network performance is monitored in real time and with the goal of proactively avoiding problems, rather than reacting to problems. Should Buckeye’s monitoring reveal the potential for future congestion, Buckeye works to engineer and implement a solution to eliminate that risk. Should it become necessary in the future, based on new technologies or unforeseen developments, to implement an active congestion management program, Buckeye will update these disclosures and notify its customers of the program and the criteria under which this congestion management will be implemented.

Effects on end user experience. As noted above, where monitoring reveals to Buckeye the potential for future congestion, Buckeye works to engineer a solution to eliminate that risk. Buckeye’s approach is intended to have no noticeable impact on end-user experiences. Should it become necessary in the future, based on new technologies or unforeseen developments, to implement an active congestion management program, Buckeye will update these disclosures and notify its customers of the program and the likely impact on user experiences.

Typical frequency of congestion. As noted above, the Buckeye network is engineered to eliminate rather than merely manage congestion in most situations. Congestion therefore should not occur within the current Buckeye system. Should it become necessary in the future, based on new technologies or unforeseen developments, to implement an active congestion management program, Buckeye will update these disclosures, describe the frequency and cause of congestion, and otherwise notify its customers of the extent of Buckeye’s program to address congestion.

Application-Specific Practices. This section discloses any application-specific practices we use,

as described below.

Management of specific protocols or protocol ports. Buckeye does not currently employ any practices that affect specific protocols or ports: all ports and protocols are equally subject to Buckeye’s real-time review and management. However, in general traffic may broadly be categorized into time-sensitive and non-time-sensitive, based upon the impact the traffic intervention would have on the customer’s online experience. If necessary to ensure network and end user security, and as otherwise described below, Buckeye may employ practices that affect specific protocols or ports. Should that be necessary, Buckeye will update these disclosures and specify how it is managing specific protocols or protocol ports.

Modification of protocol fields. Buckeye does not modify protocol fields.

Applications or classes of applications inhibited or favored. Buckeye’s congestion avoidance and other management practices are application and protocol agnostic and are not designed to inhibit or favor any application or class of application.

Device Attachment Rules. This section addresses any limitations on attaching lawful devices to our network.

General restrictions on types of devices to connect to network. The computer in which the Service is installed must meet the minimum requirements set forth in Buckeye Express Minimum Equipment Requirements, available at https://www.buckeyebroadband.com/media/layout/May_2018_Internet_Minimum_Equipment_Requirements--May_2018_3_.pdf

Customer-Owned Modems. Modems are available from Buckeye for a fee, or Customers can provide their own equipment if that equipment is compatible with Buckeye’s system and with the network equipment (hybrid-coaxial or GPON) through which service will be delivered. Currently, most of Buckeye’s network is on hybrid-coaxial infrastructure. Below is a table of some modem models compatible with the hybrid-coax network. These are supported by Buckeye engineering, so once they are operational on Buckeye’s network, Buckeye will manage firmware on these customer-owned devices in the same manner in which it maintains firmware on Buckeye-owned devices.

<i>Brand</i>	<i>Model</i>	<i>Approved for Speeds Up To</i>	<i>Data</i>	<i>Voice Compatible</i>	<i>WiFi Router</i>	<i>MoCA</i>
<i>Arris</i>	<i>TM722G</i>	<i>50 Mbps</i>	<i>X</i>	<i>X</i>		
<i>Arris</i>	<i>WBM760A</i>	<i>50 Mbps</i>	<i>X</i>			
<i>Arris</i>	<i>TM804G</i>	<i>110 Mbps</i>	<i>X</i>	<i>X</i>		
<i>Arris</i>	<i>CM820A</i>	<i>110 Mbps</i>	<i>X</i>			
<i>Arris</i>	<i>TM822G</i>	<i>110 Mbps</i>	<i>X</i>	<i>X</i>		
<i>Arris</i>	<i>TG852G</i>	<i>110 Mbps</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>Arris</i>	<i>DG860A</i>	<i>110 Mbps</i>	<i>X</i>		<i>X</i>	
<i>Arris</i>	<i>DG860P2</i>	<i>110 Mbps</i>	<i>X</i>		<i>X</i>	

Arris	TG862G	110 Mbps	X	X	X	
Arris	DG950A	110 Mbps	X		X	
Arris	DG2470A	300 Mbps	X		X	X
Arris	TG2472G	300 Mbps	X	X	X	X

Although other modem models may provide some functional connection to the Buckeye hybrid-coax network, they will not be supported by Buckeye engineering, and Buckeye will not manage and update the necessary firmware on those devices.

Buckeye service in GPON areas uses equipment that at this point is not compatible with the modems currently available for sale to, and installation and use by, individual customers. In addition, the GPON connection uses high-intensity light delivered through fiber optic connections which may be dangerous if not professionally installed; as a result, Buckeye does not support customer self-installation of GPON compatible modems, so any installation will be subject to a service visit and may result in an installation charge.

In addition, please note that because technology changes rapidly, the supported equipment list is subject to change, and because there are different technologies (e.g., coaxial, hybrid, fiber optic) involved in the delivery of broadband, not every listed modem will work in every customer location. Before purchasing a modem, contact Buckeye customer service to get an updated list of supported modems and to determine whether a specific modem model is compatible with the network in your area.

If you have additional questions or concerns about modem compatibility, contact Buckeye customer service at 419-724-9800.

Network and End User Security. This section provides a general description of the practices we use to maintain security of our network and our users.

Practices used to ensure end user security, including triggering conditions.

SMTP traffic (mail clients): E-mail traffic (SMTP) directly from its Buckeye Express customers using dynamically-assigned IP addresses is allowed only through Buckeye’s e-mail platform. This prevents SPAMMERS from exploiting these computers as a relay for illicit e-mail traffic. While these customers may receive e-mail into a client (i.e. Outlook Express) via POP3, they may not send outbound mail through another server.

Infected messages: Buckeye employs industry standard virus scanning and prevention techniques on its e-mail platform for mail inbound from the public network. Should an e-mail message be found to contain a virus or other harmful content, the message will be deleted without notification given to either the sender or the intended recipient(s).

Practices used to ensure security of the network, including triggering conditions. Buckeye uses a variety of industry standard practices to protect our network from harmful attacks.

Traffic monitoring: Viruses, worms, Trojans, and other “malware” or “spyware” pose a significant threat to our network and users. In an effort to minimize these threats, Buckeye constantly monitors the activity and traffic patterns of its network. If we reasonably determine that originating traffic from a user is a form of harmful traffic, we will suppress the flow of some or all of the traffic from

that user until we determine the harmful traffic has ceased or that the traffic is legitimate traffic.

Connection limits: Based on the reasonable capacity of its network, Buckeye limits the number of simultaneous connections for any modem during an online session. This limit is currently set at 1,500. Experience has shown that a typical user utilizes about a dozen simultaneous connections for a routine session. By limiting the number of simultaneous connections, but setting this limit well above the number of connections typically utilized by users, Buckeye is able to provide high-quality connections for its customers while still providing a means of identifying and defending against malicious attempts to harm the network or other users.

PERFORMANCE CHARACTERISTICS

General Service Description. Our Buckeye Express service includes wiring, a cable modem (unless provided by the customer), and a network interface card (NIC) for the personal computer, if required. Through the Service, Buckeye serves as a local Internet service provider (ISP). The Service enables Internet subscribers to access all lawful content, applications, and services of their choice available on the Internet.

Service technology. We deliver our Buckeye Express over our hybrid fiber-coaxial (HFC) network using the Data Over Cable Service Interface Specification (DOCSIS). Service is provided using a Cable Modem Termination System (CMTS), hardware in Buckeye's local network that acts as a gateway to the Internet for modems located at the customer premise. Modems in turn are used to access the Buckeye network. This is a shared network, which means that our customers share upstream and downstream bandwidth.

Expected and Actual Speeds and Latency.

Expected performance. Buckeye provides residential customers with a variety of Internet plans from which to choose, each of which provides different features and download and upload speeds. A complete description of the available service plans, including the "up to" transfer speeds for each offering, is provided in a separate document available at <http://www.buckeyebroadband.com/legal>

Speed. Buckeye provisions your modem and engineers its network so that its subscribers can enjoy the speeds to which they subscribe. However, even where the network is optimally engineered, conditions outside Buckeye's control may affect service speed. Buckeye advertises its speeds based on the tier of service to which a subscriber subscribes, and the maximum engineered speed at any service tier meets or exceeds the speed advertised at the point of demarcation (i.e., the point exterior to the residence at which the network equipment is continuously owned, maintained, and controlled by Buckeye). Accordingly, the speeds advertised for the Service reasonably describe the network upload and download speeds to that point and that you are therefore likely to experience under real-world conditions. Please note that your signal at modem may be degraded by a number of factors after the demarcation point, notably internal wiring and the inside configuration of customer equipment. If you believe that your service is not meeting the advertised speed to the demarcation point, please contact Buckeye so it can determine if there is a Buckeye network issue that is interfering with your level of service.

Latency. Latency is another measurement of Internet performance. Latency is the time delay in transmitting or receiving packets on a network. Latency is primarily a function of the distance between two points of transmission, but it can also be affected by the quality of the network or networks used in transmission. Latency is typically measured in milliseconds, and generally has no significant impact on typical everyday Internet usage. As latency varies based on any number of factors, most importantly the distance between a customer's computer and the ultimate Internet destination (as well as the number and variety of networks your packets cross), it is not possible to provide customers with a single figure that will define latency as part of a user experience.

Actual speed and latency performance. Actual speed performance in terms of speed and latency may vary depending upon network conditions and other factors. For example, experienced broadband performance may be affected by the capabilities and limitations of the consumer's own computer or local area network ("LAN") devices such as home WiFi routers, or by the performance of content and applications providers the consumer is accessing. Actual performance of Buckeye's High Speed Internet Service in most cases will conform to national wireline broadband Internet speed and latency levels reported by the FCC.² The FCC has reported that customers of coaxial cable-based broadband Internet services receive mean download speeds that are within 93% of advertised speeds during non-peak hours, and 85.7% of advertised speeds during peak hours.³ In addition, the FCC has reported that these same customers experience average latency4 delays of 28 milliseconds, increasing by an average of 30 milliseconds during peak hours.⁴

Customer Speed Test. Buckeye provides an online speed test for its Buckeye Express customers, available at: <http://speed.buckeyebroadband.com/index.html>.

Suitability of the Service for Real-time Applications. Our Buckeye Express service is generally suitable for typical real-time applications including for example messaging, voice applications, video chat applications, gaming, and streaming media. If users or developers have questions about particular real-time applications, please contact us by phone at 419-724-9800.

Specialized or Non-BIAS Services.

Non-BIAS services offered to end users. Buckeye offers several managed services over its broadband cable network, sharing network capacity with its high speed Internet services, including without limitation voice over Internet Protocol (VoIP).

Effects of specialized services on availability and performance of broadband Internet access

² See FCC's Office of Engineering and Technology and Consumer Affairs Bureau, *Measuring Broadband, A Report on Consumer Wireline Broadband Performance in the U.S.*, OET CGB DOC-308828A1, pp. 4-6 (Aug. 2, 2011) (available at: http://transition.fcc.gov/cgb/measuringbroadbandreport/Measuring_U.S._-Main_Report_Full.pdf).

³ The FCC defines peak hours measured during "busy hour" as weeknights between 7:00 pm and 11:00 pm local time.

⁴ The FCC has defined latency is the total length of time it takes a signal to travel from an origination point to the nearest server, plus the time for an acknowledgement of receipt to travel back to the origination point. The nearest server is the server providing the minimum round trip time.

service. To the extent such services do not provide general access to the Internet, but only over Buckeye's own broadband cable network, non-BIAS services may be treated by Buckeye differently from broadband internet access services; for example, non-BIAS services may not count against a customer's otherwise applicable data allowance. Offering of these services otherwise has no effect on the availability and performance of our Buckeye Express service.

COMMERCIAL TERMS

Prices. Buckeye offers its customers a wide variety of service packages, intended to provide each customer with an option that meets his or her needs. Detailed pricing information for our Buckeye Express services are available at: <http://www.buckeyebroadband.com/legal>

Data Allowance and Usage-based Fees. Consistent with the tier of service purchased, Buckeye limits the total volume of data (aggregate for both sending and receiving) a customer can transfer in a billing month, and consistent with the otherwise applicable terms of service for each customer, Buckeye has established data allowance limits and charges customers for additional based on exceeding that allowance.⁵ Specifically, the total volume permitted for each tier of service is called the tier's "data transfer allowance." The limits vary by service tier with the limit generally increasing as the nominal download speed of the tier increases. Usage that exceeds the purchased allowance will result in the subscriber being allocated an additional data transfer allowance at an additional charge for that billing month. Additional data transfer allowances will be billed at a flat rate; no partial allotments will be made. At the end of the billing month, the subscriber's data allowance will return to that specified for their service tier.

Buckeye's monthly data volume allowances and charges for excess traffic are subject to change. See <https://www.buckeyebroadband.com/legal> for additional information.

Fees for early termination. As otherwise stated in the applicable terms and conditions of service, Buckeye may charge a customer for early termination of service if a customer is under contract for a fixed term. Specific fees and other charges for early termination, if any, are available from Customer Support at 419-724-9800.

Fees for additional network services. Buckeye offers additional public IP addresses and static IP addresses for an extra charge. Charges for these additional network services may be found at <http://www.buckeyebroadband.com/legal>

Privacy Policies.

Inspection of network traffic. Buckeye routinely monitors its network and traffic patterns. Traffic monitoring: Viruses, worms, Trojans, and other "malware" or "spyware" pose a significant threat to the uninhibited and beneficial access to the resources on the Internet. One of the more prevalent forms of such disruptions is found in infections from viruses and worms perpetrated by SPAMMERS for the sole purpose of using unsuspecting Internet users' computers to send out their illicit e-mail. In an effort to minimize the impact of this type of infection, Buckeye constantly monitors the activity and traffic patterns of its network.

Infected messages: Buckeye employs industry standard virus scanning and prevention techniques on its e-mail platform for mail inbound from the public network.

⁵ Cutoff for usage charges is one (1) calendar day prior to the billing date.

Storage of network traffic information. Buckeye stores broad categories of network traffic information (e.g., web browsing, email, entertainment) and makes available to its customers periodic graphic representations of their network traffic patterns by category over time. The data generated on each customer's usage is divided into broad categories for analysis to help Buckeye monitor and predict trends in usage for our customers as a whole.

Provision of network traffic information to third parties. Buckeye provides the broad categories of network traffic information on an anonymized basis to CableLabs for the purpose of aiding Buckeye in creating new products for customers and providing other customer service; analyzing usage trends and bandwidth management; and provisioning our broadband Internet access service; or if required by law..

Use of network traffic information for non-network management purposes. Buckeye does not use network traffic information for non-network management purposes.

Website and Subscriber Privacy. Buckeye collects and stores information from many sources as it relates to providing and maintaining service to its customers. As a general rule, this data is only used directly to improve customer service and experience, in support of Buckeye's products and services, pursuant to consent from the customer, or under compulsion of law. Further details found at https://www.buckeyebroadband.com/media/layout/subscriber_privacy_policy_June_2016.pdf

Redress Options. Buckeye welcomes questions about its Buckeye Express service. Buckeye publishes company contact information to the public at large, including edge providers, on its website, available at <http://www.buckeyebroadband.com/company/locations.html>. This section discloses redress options for end-users and edge providers. For all complaints, we will provide an initial response within 15 business days of receipt. We will attempt to resolve complaints informally, escalating the matter to senior management if needed.

End-user complaints and questions: Buckeye provides Buckeye Express customers multiple means of resolving complaints and submitting questions to the company. Customer Support information is available on the website <http://www.buckeyebroadband.com/locations> Customers may contact Buckeye concerning their service via Internet chat or by telephone. Buckeye employees are available by telephone (419-724-9800 for Toledo area, 419-627-0800 for Sandusky/Erie) on a 24/7 basis to answer questions and address complaints. Customers also may reach Buckeye employees via in-bound email and messages are responded to promptly. In addition, once each year, Buckeye owners and senior executives encourage customer contact by sending subscribers their office and personal telephone numbers.

Edge provider complaints and questions: Buckeye publishes company contact information to the public at large, including edge providers, on its website, available at <http://www.buckeyebroadband.stem.com/locations> Edge providers may also contact Buckeye via the contact information maintained by the American Registry for Internet Numbering ("ARIN") with questions concerning Buckeye's high speed Internet access service. Or, contact may be initiated through Penny Perrine by phone at 419-724-7220 or via email at

pperrine@BuckeyeBroadband.com.