

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D. C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number 001-36713

LIBERTY BROADBAND CORPORATION

(Exact name of Registrant as specified in its charter)

State of Delaware
(State or other jurisdiction of
incorporation or organization)

47-1211994
(I.R.S. Employer
Identification No.)

12300 Liberty Boulevard
Englewood, Colorado
(Address of principal executive offices)

80112
(Zip Code)

Registrant's telephone number, including area code: (720) 875-5700

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of exchange on which registered
Series A Common Stock, par value \$.01 per share	The Nasdaq Stock Market LLC
Series C Common Stock, par value \$.01 per share	The Nasdaq Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging Growth Company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the voting and non-voting stock held by non-affiliates of Liberty Broadband Corporation computed by reference to the last sales price of such stock, as of the closing of trading on June 29, 2018, was \$13.0 billion.

The number of outstanding shares of Liberty Broadband Corporation common stock as of January 31, 2019 was:

	Series A	Series B	Series C
Liberty Broadband Corporation common stock	26,313,600	2,454,520	152,591,984
	Documents Incorporated by Reference		

The Registrant's definitive proxy statement for its 2019 Annual Meeting of Stockholders is hereby incorporated by reference into Part III of this Annual Report on Form 10-K.

**LIBERTY BROADBAND
CORPORATION
2018 ANNUAL REPORT ON FORM 10-K**

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PART I.

Item 1. Business.

General Development of Business

Spin-Off of Liberty Broadband from Liberty Media Corporation

During May 2014, the board of directors of Liberty Media Corporation and its subsidiaries (“Liberty”) authorized management to pursue a plan to spin-off to its stockholders common stock of a wholly-owned subsidiary, Liberty Broadband Corporation (“Liberty Broadband”), and to distribute subscription rights to acquire shares of Liberty Broadband’s common stock (the “Broadband Spin-Off”). Liberty Broadband was formed in 2014 as a Delaware corporation. At the time of the Broadband Spin-Off, Liberty Broadband was comprised of, (i) Liberty’s former interest in Charter Communications, Inc. (“Legacy Charter”), (ii) Liberty’s former wholly-owned subsidiary TruePosition, Inc. (“TruePosition”), (iii) Liberty’s former minority equity investment in Time Warner Cable, Inc. (“Time Warner Cable”, “TWC”, “Legacy Time Warner Cable” or “Legacy TWC”), (iv) certain deferred tax liabilities, as well as liabilities related to the Time Warner Cable written call options and (v) initial indebtedness, pursuant to margin loans entered into prior to the completion of the Broadband Spin-Off. The Broadband Spin-Off was accounted for at historical cost due to the pro rata nature of the distribution to holders of Liberty common stock.

In the Broadband Spin-Off, record holders of Liberty’s former Series A, Series B and Series C common stock received one-fourth of a share of the corresponding series of Liberty Broadband common stock for each share of Liberty common stock held by them, with cash paid in lieu of fractional shares. In addition, following the completion of the Broadband Spin-Off, on December 10, 2014, Liberty Broadband stockholders received a subscription right to acquire one share of Liberty Broadband Series C common stock for every five shares of Liberty Broadband common stock. The Broadband Spin-Off and rights offering were intended to be tax-free to stockholders of Liberty and Liberty Broadband, respectively. During September 2015, Liberty entered into a closing agreement with the Internal Revenue Service (“IRS”) which provided that the Broadband Spin-Off qualified for tax-free treatment.

Following the Broadband Spin-Off, Liberty and Liberty Broadband operate as separate, publicly traded companies, and neither has any stock ownership, beneficial or otherwise, in the other. In connection with the Broadband Spin-Off, Liberty and Liberty Broadband entered into certain agreements in order to govern certain of the ongoing relationships between the two companies after the Broadband Spin-Off and to provide for an orderly transition. These agreements include a reorganization agreement, a services agreement, a facilities sharing agreement and a tax sharing agreement.

The reorganization agreement provides for, among other things, the principal corporate transactions (including the internal restructuring) required to effect the Broadband Spin-Off, certain conditions to the Broadband Spin-Off and provisions governing the relationship between Liberty Broadband and Liberty with respect to and resulting from the Broadband Spin-Off. The tax sharing agreement provides for the allocation and indemnification of tax liabilities and benefits between Liberty and Liberty Broadband and other agreements related to tax matters. Pursuant to the tax sharing agreement, Liberty Broadband has agreed to indemnify Liberty, subject to certain limited exceptions, for losses and taxes resulting from the Broadband Spin-Off to the extent such losses or taxes result primarily from, individually or in the aggregate, the breach of certain restrictive covenants made by Liberty Broadband (applicable to actions or failures to act by Liberty Broadband and its subsidiaries following the completion of the Broadband Spin-Off). Pursuant to the services agreement, Liberty provides Liberty Broadband with general and administrative services including legal, tax, accounting, treasury and investor relations support. Under the facilities sharing agreement, Liberty Broadband shares office space with Liberty and related amenities at Liberty’s corporate headquarters. Liberty Broadband will reimburse Liberty for direct, out-of-pocket expenses incurred by Liberty in providing these services and for costs that will be negotiated semi-annually.

Charter’s Time Warner Cable Merger and Bright House Transaction

On May 18, 2016, Time Warner Cable merged with Legacy Charter (the “Time Warner Cable Merger”). In connection with the Time Warner Cable Merger, Legacy Charter underwent a corporate reorganization, resulting in CCH I, LLC, a former subsidiary of Legacy Charter (“Charter”), becoming the new publicly traded parent company. Also on May 18, 2016, the previously announced acquisition of Bright House Networks, LLC (“Bright House” or “Legacy Bright House”) from

Advance/Newhouse Partnership (“A/N”) by Charter (the “Bright House Transaction”) was completed. In connection with the Time Warner Cable Merger and Bright House Transaction, Liberty Broadband entered into certain agreements with Legacy Charter, Charter, Liberty Interactive Corporation (“Liberty Interactive”) (now known as Qurate Retail, Inc.) and Time Warner Cable. In connection with the Time Warner Cable Merger and Bright House Transaction (collectively, the “Transactions”), Liberty Broadband exchanged its shares of Time Warner Cable for shares of Charter and purchased additional shares of Charter. As a result, and pursuant to proxy agreements with GCI Liberty, Inc. and A/N, Liberty Broadband controls 25.01% of the aggregate voting power of Charter. For further discussion of the Transactions, see “Narrative Description of Business.”

* * * * *

Certain statements in this Annual Report on Form 10-K constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding our business, product and marketing strategies; new service and product offerings; the recoverability of our goodwill and other long-lived assets; competition; the performance, results of operations and cash flows of our equity affiliate; our projected sources and uses of cash; indebtedness and the anticipated non-material impact of certain contingent liabilities related to legal and tax proceedings and other matters arising in the ordinary course of business. In particular, statements under Item 1. "Business," Item 1A. "Risk Factors," Item 2. "Properties," Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 7A. "Quantitative and Qualitative Disclosures About Market Risk" contain forward-looking statements. Forward-looking statements inherently involve many risks and uncertainties that could cause actual results to differ materially from those projected in these statements. Where, in any forward-looking statement, we express an expectation or belief as to future results or events, such expectation or belief is expressed in good faith and believed to have a reasonable basis, but such statements necessarily involve risks and uncertainties and there can be no assurance that the expectation or belief will result or be achieved or accomplished. The following include some but not all of the factors that could cause actual results or events to differ materially from those anticipated:

- Charter’s ability to sustain and grow revenue and cash flow from operations by offering video, Internet, voice, mobile, advertising and other services to residential and commercial customers, to adequately meet the customer experience demands in its service areas and to maintain and grow its customer base, particularly in the face of increasingly aggressive competition, the need for innovation and the related capital expenditures;
- the impact of competition from other market participants, including but not limited to incumbent telephone companies, direct broadcast satellite (“DBS”) operators, wireless broadband and telephone providers, digital subscriber line (“DSL”) providers, fiber to the home providers, video provided over the Internet by (i) market participants that have not historically competed in the multichannel video business, (ii) traditional multichannel video distributors, and (iii) content providers that have historically licensed cable networks to multichannel video distributors, and providers of advertising over the Internet;
- Charter’s ability to efficiently and effectively integrate acquired operations;
- the effects of governmental regulation on the business of our equity affiliate and our operating subsidiary, including costs, disruptions and possible limitations on Charter’s operating flexibility related to, and its ability to comply with, regulatory conditions applicable to Charter as a result of the Transactions;
- general business conditions, economic uncertainty or downturn, unemployment levels and the level of activity in the housing sector;
- Charter’s ability to obtain programming at reasonable prices or to raise prices to offset, in whole or in part, the effects of higher programming costs (including retransmission consents);
- Charter’s ability to develop and deploy new products and technologies, including mobile products and any other consumer services and service platforms;
- failure to protect the security of personal information about the customers of our operating subsidiary and equity affiliate, subjecting us to costly government enforcement actions or private litigation and reputational damage;
- changes in, or failure or inability to comply with, government regulations, including, without limitation, regulations of the Federal Communications Commission (“FCC”), and adverse outcomes from regulatory proceedings;

- any events that disrupt Charter's or Skyhook's networks, information systems or properties and impair their operating activities or negatively impact their respective reputation;
- the ability to retain and hire key personnel;
- the ability of suppliers and vendors to deliver products, equipment, software and services;
- the outcome of any pending or threatened litigation;
- changes in the nature of key strategic relationships with partners, vendors and joint venturers;
- the availability and access, in general, of funds to meet debt obligations prior to or when they become due and to fund operations and necessary capital expenditures, either through (i) cash on hand, (ii) free cash flow, or (iii) access to the capital or credit markets;
- the ability of Charter and our company to comply with all covenants in their and our respective debt instruments, any violation of which, if not cured in a timely manner, could trigger a default of other obligations under cross-default provisions; and
- our ability to successfully monetize certain of our assets.

These forward-looking statements and such risks, uncertainties and other factors speak only as of the date of this Annual Report, and we expressly disclaim any obligation or undertaking to disseminate any updates or revisions to any forward-looking statement contained herein, to reflect any change in our expectations with regard thereto, or any other change in events, conditions or circumstances on which any such statement is based. When considering such forward-looking statements, you should keep in mind the factors described in Item 1A, "Risk Factors" and other cautionary statements contained in this Annual Report. Such risk factors and statements describe circumstances which could cause actual results to differ materially from those contained in any forward-looking statement.

This Annual Report includes information concerning Charter, a public company that files reports and other information with the Securities and Exchange Commission (the "SEC") in accordance with the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Information in this Annual Report concerning Charter has been derived from the reports and other information filed by it with the SEC. If you would like further information about Charter, the reports and other information it files with the SEC can be accessed on the Internet website maintained by the SEC at www.sec.gov. Those reports and other information are not incorporated by reference in this Annual Report.

Narrative Description of Business

Charter Communications, Inc.

Introduction

Charter is the second largest cable operator in the United States and a leading broadband communications services company providing video, Internet and voice services to approximately 28.1 million residential and small and medium business customers at December 31, 2018.

Charter also recently launched its Spectrum mobile service to residential customers. In addition, Charter sells video and online advertising inventory to local, regional and national advertising customers and fiber-delivered communications and managed information technology ("IT") solutions to large enterprise customers. Charter also owns and operates regional sports networks and local sports, news and community channels.

Charter owns and operates a high-capacity, two-way telecommunications network which passes over 50 million households and small and medium businesses across the United States. Charter's core strategy is to use its network to deliver high quality products at competitive prices, combined with outstanding service. This strategy, combined with simple, easy to understand pricing and packaging, is central to Charter's goal of growing its customer base while selling more of its core connectivity services, which include both fixed and mobile Internet, video and voice services, to each individual customer. Charter executes this strategy by managing its operations in a consumer-friendly, efficient and cost-effective manner. Charter's operating strategy includes insourcing nearly all of its customer care and field operations workforces, which results in higher quality service delivery. While an insourced operating model can increase field operations and customer care costs associated

with each service transaction, the higher quality nature of insourced labor service transactions significantly reduces the volume of service transactions per customer, more than offsetting the higher investment made in each insourced service transaction. As Charter reduces the number of service transactions and recurring costs per customer relationship, Charter continues to provide its customers with products and prices that Charter believes provides more value than what its competitors offer. The combination of offering high quality, competitively priced products and outstanding service, allows Charter to both increase the number of customers it serves over its fully deployed network, and to increase the number of products it sells to each customer. That combination also reduces the number of service transactions Charter performs per relationship, yielding higher customer satisfaction and lower customer churn, resulting in lower costs to acquire and serve customers. Charter is also modifying its service operations to allow its customers to (1) interact with Charter through a variety of new forums, including its customer website, online chat and social media, (2) have their services installed at the time and in the manner of their own choosing, including self-installation, and to (3) receive their selected services on devices of their own choosing, including connected devices, such as Apple TV and Roku. By offering its customers growing levels of choice in how they interact, install and receive their services, Charter is driving higher overall levels of customer satisfaction and reducing its operating costs and capital expenditures per customer relationship. Ultimately, this operating strategy enables Charter to offer high quality, competitively priced services profitably, while continuing to invest in new products and services.

The capability and functionality of Charter's two-way network continues to grow in a number of areas, especially with respect to wireless connectivity. Charter's Internet service offers consumers the ability to wirelessly connect to its network using WiFi technology. Charter estimates that approximately 250 million devices are wirelessly connected to its network. Charter's wireless strategy initially focused on offering wireless connectivity solutions inside the home and business. Increasingly, however, Charter is testing and evaluating opportunities for its customers to connect their devices to its network beyond their current service location or via Charter's mobile virtual network operator ("MVNO") reseller agreement with Verizon Communications Inc. ("Verizon"), using a combination of licensed and unlicensed radio spectrum for fixed and mobile service delivery from its highly distributed, high capacity network.

Time Warner Cable Merger

On May 18, 2016, the previously announced Time Warner Cable Merger was completed, which resulted in Legacy Charter and TWC becoming wholly owned subsidiaries of Charter, which was a wholly owned subsidiary of Legacy Charter at the time. As a result of the Time Warner Cable Merger, Charter became the new public parent company that holds the operations of the combined companies and was renamed Charter Communications, Inc. Pursuant to the terms of the merger agreement, upon consummation of the Time Warner Cable Merger, 285 million outstanding shares of TWC common stock were converted into 143 million shares of Charter Class A common stock valued at approximately \$32 billion as of the date of acquisition. In addition, TWC shareholders (excluding Liberty Broadband and Liberty Interactive) received approximately \$28 billion in cash. As of May 18, 2016, the total value of the Time Warner Cable Merger was approximately \$85 billion, including cash, equity and TWC assumed debt. The purchase price also includes an estimated pre-combination vesting period fair value of \$514 million for equity awards converted into Charter awards upon closing of the Time Warner Cable Merger and \$69 million of cash paid to former TWC employees and non-employee directors who held equity awards, whether vested or not vested.

Bright House Transaction

Also, on May 18, 2016, Charter and A/N completed the previously announced Bright House Transaction, pursuant to a definitive Contribution Agreement. Pursuant to the Bright House Transaction, Charter became the owner of the membership interests in Bright House and the other assets primarily related to Bright House (other than certain excluded assets and liabilities and non-operating cash). As of the date of acquisition, the purchase price totaled approximately \$12.2 billion consisting of (a) \$2 billion in cash, (b) 25 million convertible preferred units of Charter Communications Holdings, LLC ("Charter Holdings") with a face amount of \$2.5 billion that pay a 6% annual preferential dividend, (c) approximately 31.0 million common units of Charter Holdings that are exchangeable into Charter Class A common stock on a one-for-one basis and (d) one share of Charter Class B common stock.

Liberty Broadband Transactions

In connection with the Time Warner Cable Merger, Charter and Liberty Broadband completed their previously announced transactions pursuant to their investment agreement, in which Liberty Broadband purchased for cash approximately 22.0 million shares of Charter Class A common stock valued at \$4.3 billion at the closing of the Time Warner Cable Merger to

partially finance the cash portion of the Time Warner Cable Merger consideration. In connection with the Bright House Transaction, Liberty Broadband purchased approximately 3.7 million shares of Charter Class A common stock valued at \$700 million at the closing of the Bright House Transaction. See note 5 to the accompanying consolidated financial statements for more information on the Transactions.

Products and Services

Charter offers its customers subscription-based video services, including video on demand (“VOD”), high definition (“HD”) television, and digital video recorder (“DVR”) service, Internet services, voice and mobile services. As of December 31, 2018, Charter had eliminated the carriage of analog video signals (“all-digital”) in nearly all of Charter’s footprint, further freeing up network capacity and enabling Charter to offer more HD channels, faster Internet speeds and better video picture quality. Charter’s video, Internet, and voice services are offered to residential and commercial customers on a subscription basis, with prices and related charges based on the types of service selected, whether the services are sold as a “bundle” or on an individual basis, and the equipment necessary to receive Charter’s services. Bundled services are available to substantially all of Charter’s passings, and approximately 58% of Charter’s customers subscribe to a bundle of services, including video, Internet and voice.

The following table from Charter’s Form 10-K for the year ended December 31, 2018 summarizes Charter’s customer statistics for video, Internet and voice as of December 31, 2018 and 2017 (in thousands except per customer data and footnotes).

	Approximate as of December 31,	
	2018 (b)	2017 (a)(b)
Customer Relationships (c)		
Residential	26,270	25,499
Small and Medium Business	1,833	1,662
Total Customer Relationships	28,103	27,161
Residential Primary Service Units ("PSUs")		
Video	16,104	16,400
Internet	23,625	22,518
Voice	10,135	10,424
	<u>49,864</u>	<u>49,342</u>
Monthly Residential Revenue per Residential Customer (d)	\$ 111.56	\$ 110.28
Small and Medium Business PSUs		
Video	502	450
Internet	1,634	1,470
Voice	1,051	930
	<u>3,187</u>	<u>2,850</u>
Monthly Small and Medium Business Revenue per Customer (e)	\$ 174.88	\$ 187.24
Enterprise PSUs (f)	248	220

- (a) Between the closing of the Transactions in May 2016 through the first quarter of 2018, Charter has reported its customer data and results using legacy company reporting methodologies. During the second quarter of 2018, Charter implemented certain reporting changes on a retrospective basis which allowed for the recasting of historical customer data and results using consistent definitions and reporting methodologies across all three legacy companies. Legacy TWC Hawaii customer statistics are expected to move to Charter’s standard methodology in 2019 and variances, if any, will be disclosed at that time.
- (b) Customer statistics do not include mobile. Charter calculates the aging of customer accounts based on the monthly billing cycle for each account. On that basis, as of December 31, 2018 and 2017, customers include approximately 217,600 and 248,900 customers, respectively, whose accounts were over 60 days past due, approximately 24,000 and 20,600 customers, respectively, whose accounts were over 90 days past due, and approximately 19,200 and 13,200 customers, respectively, whose accounts were over 120 days past due.

- (c) Customer relationships include the number of customers that receive one or more levels of service, encompassing video, Internet and voice services, without regard to which service(s) such customers receive. Customers who reside in residential multiple dwelling units (“MDUs”) and that are billed under bulk contracts are counted based on the number of billed units within each bulk MDU. Total customer relationships exclude enterprise customer relationships.
- (d) Monthly residential revenue per residential customer is calculated as total residential video, Internet and voice annual revenue divided by twelve divided by average residential customer relationships during the respective year.
- (e) Monthly small and medium business revenue per customer is calculated as total small and medium business annual revenue divided by twelve divided by average small and medium business customer relationships during the respective year.
- (f) Enterprise PSUs represent the aggregate number of fiber service offerings counting each separate service offering at each customer location as an individual PSU.

Residential Services

Video Services

Charter’s video customers receive a package of programming which generally includes a digital set-top box that provides an interactive electronic programming guide with parental controls, access to pay-per-view services, including VOD (available to nearly all of its passings), digital music channels and the option to view certain video services on third-party devices. Customers have the option to purchase additional tiers of services including premium channels which provide original programming, commercial-free movies, sports, and other special event entertainment programming. Substantially all of Charter’s video programming is available in HD. Charter also offers certain video packages containing a limited number of channels via its cable television systems.

In the vast majority of its footprint, Charter offers VOD service which allows customers to select from over 50,000 titles at any time. VOD titles are typically offered in both standard and high definition. VOD programming options may be accessed for free if the content is associated with a customer’s linear subscription, or for a fee on a transactional basis. VOD services are also offered on a subscription basis included in a digital tier premium channel subscription or for a monthly fee. Pay-per-view channels allow customers to pay on a per-event basis to view a single showing of a one-time special sporting event, music concert, or similar event on a commercial-free basis.

Charter’s goal is to provide its video customers with the programming they want, when they want it, on any device. Customers are increasingly accessing their subscription content through connected devices, such as Apple TV and Roku. Customers can also use the Spectrum TV application on mobile devices and on Charter’s website to watch over 300 channels of cable TV, view VOD programming, remotely control digital set-top boxes while in the home and to program DVRs remotely. Charter also enables its customers to view approximately 200 channels out of the home, along with the vast majority of VOD titles. Charter’s video customers also have access to programmer authenticated applications and websites (known as TV Everywhere services) such as HBO Go®, Fox Now®, Discovery Go® and WatchESPN®.

Charter is deploying Spectrum Guide®, its network or “cloud-based” user interface, to new video customers in the majority of its service areas. Spectrum Guide® is designed to allow Charter’s customers to enjoy a state-of-the-art video experience on its set-top boxes, and provides access to third-party video applications such as Netflix. While Spectrum Guide runs on traditional set-top boxes, it offers an advanced look and feel that is similar to that of Charter’s Spectrum TV application, which is designed to work on third-party devices. Spectrum Guide enables customers to find video content more easily across cable TV channels and VOD options. Charter plans to continue to enhance and expand deployment of this user interface in 2019 and beyond.

Internet Services

Charter’s Spectrum pricing and packaging (“SPP”) offers an entry level Internet download speed of at least 100 megabits per second (“Mbps”) in 60% of its footprint and 200 Mbps across approximately 40% of its footprint, which among other things, allows several people within a single household to stream HD video content while simultaneously using their Internet service for non-video purposes. Additionally, leveraging DOCSIS 3.1 technology, Charter offers 940 Mbps speed service (“Spectrum

Internet Gig”) in nearly all of its footprint. Finally, Charter offers a security suite with its Internet services which, upon installation by customers, provides protection against computer viruses and spyware and includes parental control features.

Charter offers an in-home WiFi product that provides customers with high performance wireless routers to maximize their in-home wireless Internet experience. Additionally, Charter offers an out-of-home WiFi service, Spectrum WiFi, across its footprint to Internet customers at designated “hot spots.” Charter also offers Spectrum WiFi Plus in the majority of its footprint, which offers a more secure sign-in process and easier access for its customers based on the more advanced Hotspot 2.0 WiFi standards which enable seamless transition among WiFi networks and between WiFi and cellular networks.

Voice Services

Charter provides voice communications services using voice over Internet protocol (“VoIP”) technology to transmit digital voice signals over its network. Charter’s voice services include unlimited local and long distance calling to the United States, Canada, Mexico and Puerto Rico, voicemail, call waiting, caller ID, call forwarding and other features and offers international calling either by the minute, or through packages of minutes per month. For customers that subscribe to both voice and video offerings, caller ID on TV is also available in most areas.

Mobile Services

Charter’s mobile strategy is built on the long-term vision of an integrated fixed/wireless network with differentiated products, and the ability to maximize the potential of its existing network and cable business. At the end of the second quarter of 2018, Charter launched its mobile product, Spectrum Mobile, to residential customers under its MVNO reseller agreement with Verizon and began mass market advertising of its Spectrum Mobile service in September 2018. Charter currently offers its Spectrum Mobile service to residential customers subscribing to its Internet service. Charter expects to begin offering mobile service to its small and medium business customers on similar terms in 2019. Charter believes Spectrum-branded mobile services will drive more sales of its core products, create longer customer lives and increase profitability and cash flow over time. As Charter launches its new mobile services, it expects an initial funding period to grow a new product as well as negative working capital impacts from the timing of device-related cash flows when it provides the handset or tablet to customers pursuant to equipment installment plans.

Charter plans to use its WiFi network in conjunction with additional unlicensed or licensed spectrum to improve network performance and expand capacity to offer consumers a superior mobile service at a lower total cost to Charter. Further, Charter has experimental wireless licenses from the Federal Communications Commission (“FCC”) that it is utilizing to test next generation mobile services in several service areas around the country.

Charter is exploring working with a variety of partners and vendors in a number of operational areas within the wireless space, including creating common operating platforms, technical standards development and harmonization, device forward and reverse logistics, and emerging wireless technology platforms. The efficiencies created are expected to provide more choice, innovative products and competitive prices for customers. Charter intends to consider and pursue opportunities in the mobile space which may include entering into joint ventures or partnerships with wireless or cable providers which may require significant investment. In 2018, Charter invested in C&C Wireless Operations, LLC, a mobile operating partnership with Comcast Corporation (“Comcast”), for the mobile back office platform. There is no assurance Charter will enter into other such arrangements or that if it does, that they will be successful.

Commercial Services

Charter offers scalable broadband communications solutions for businesses and carrier organizations of all sizes, selling Internet access, data networking, fiber connectivity to cellular towers and office buildings, video entertainment services and business telephone services.

Small and Medium Business

Spectrum Business offers Internet, voice and video services to small and medium businesses over its hybrid fiber coaxial network that are similar to those that Charter provides to its residential customers. Spectrum Business includes a full range of

video programming and entry-level Internet speeds of 100 or 200 Mbps downstream (depending on service area) and 10 Mbps upstream. Additionally, customers can upgrade their Internet speeds by purchasing Internet Ultra (400 Mbps downstream) or Internet Gig (940 Mbps downstream). Spectrum Business also includes a set of business services including web hosting, e-mail and security, and multi-line telephone services with more than 30 business features including web-based service management, that are generally not available to residential customers.

Enterprise Solutions

Spectrum Enterprise offers fiber-delivered communications and managed IT solutions to larger businesses, as well as high-capacity last-mile data connectivity services to mobile and wireline carriers and other competitive carriers on a wholesale basis. Spectrum Enterprise's product portfolio includes fiber Internet access, voice trunking services, hosted voice, Ethernet services that privately and securely connect geographically dispersed client locations, and video solutions designed to meet the needs of hospitality, education, and healthcare clients. In addition, Spectrum Enterprise is running market field trials of an innovative Hybrid Software-Defined Wide Area Network that enables businesses to leverage the performance of Ethernet, the ubiquity of Internet connectivity and the flexibility of a software-defined solution to solve a wide array of business communications and networking challenges. Charter's managed IT portfolio includes Cloud Infrastructure as a Service and Cloud Desktop as a Service, and managed hosting, application, and messaging solutions, along with other related IT and professional services. Charter's large serviceable footprint allows it to effectively serve business customers with multiple sites across given geographic regions. These customers can benefit from obtaining advanced services from a single provider simplifying procurement and potentially reducing their costs.

Advertising Services

Charter's advertising sales division, Spectrum Reach®, offers local, regional and national businesses the opportunity to advertise in individual and multiple service areas on cable television networks and digital outlets. Charter receives revenue from the sale of local advertising across various platforms for networks such as MTV®, CNN® and ESPN®. In any particular service area, Charter typically inserts local advertising on 40 to 90 channels. Charter's large footprint provides opportunities for advertising customers to address broader regional audiences from a single provider and thus reach more customers with a single transaction. Charter's size also provides scale to invest in new technology to create more targeted and addressable advertising capabilities.

Available advertising time is generally sold by Charter's advertising sales force. In some service areas, Charter has formed advertising interconnects or entered into representation agreements with other video distributors, including, among others, Verizon's fiber optic service ("Fios"), AT&T Inc.'s ("AT&T") U-verse, Comcast and DIRECTV platforms, under which Charter sells advertising on behalf of those operators. In other service areas, Charter enters into representation agreements under which another operator in the area will sell advertising on its behalf. These arrangements enable Charter and its partners to deliver linear commercials across wider geographic areas, replicating the reach of local broadcast television stations to the extent possible. In addition, Charter enters into interconnect agreements from time to time with other cable operators, which, on behalf of a number of video operators, sells advertising time to national and regional advertisers in individual or multiple service areas.

Additionally, Charter sells the advertising inventory of its owned and operated local sports and news channels, of its regional sports networks that carry Los Angeles Lakers' basketball games and other sports programming and of SportsNet LA, a regional sports network that carries Los Angeles Dodgers' baseball games and other sports programming.

In 2018, Charter began deploying advanced advertising products such as its Audience App, which uses its proprietary set-top box viewership data (all anonymized and aggregated) to optimize linear inventory, and, in 2019, Charter will be ramping up its deployment of household addressability, which allows for more precise targeting within various parts of its footprint.

Other Services

Regional Sports and News Networks

Charter has an agreement with the Los Angeles Lakers for rights to distribute all locally available Los Angeles Lakers' games through 2033. Charter broadcasts those games on its regional sports network, Spectrum SportsNet. American Media

Productions, LLC ("American Media Productions"), an unaffiliated third party, owns SportsNet LA, a regional sports network carrying the Los Angeles Dodgers' baseball games and other sports programming. In accordance with agreements with American Media Productions, Charter acts as the network's exclusive affiliate and advertising sales representative and has certain branding and programming rights with respect to the network. In addition, Charter provides certain production and technical services to American Media Productions. The affiliate, advertising, production and programming agreements continue through 2038. Charter also owns 26.8% of Sterling Entertainment Enterprises, LLC (doing business as SportsNet New York), a New York City-based regional sports network that carries New York Mets' baseball games as well as other regional sports programming.

Charter manages local news channels, including Spectrum News NY1, a 24-hour news channel focused on New York City. In 2018, Charter launched 10 new local news channels, expanding its connection to the communities it serves and bringing its total local news channels to 26. Charter's local news channels provide 24/7 hyperlocal content, focusing on news, programming and storytelling that addresses the deeper needs and interests of the diverse communities and neighborhoods it serves.

Pricing of Charter's Products and Services

Charter's revenue is principally derived from the monthly fees customers pay for the services Charter provides. Charter typically charges a one-time installation fee which is sometimes waived or discounted in certain sales channels during certain promotional periods.

Charter's Spectrum pricing and packaging generally offers a standardized price for each tier of service, bundle of services, and add-on service in a service area. Charter sells video and Internet packages with the option to add on voice and mobile services at attractive pricing. Charter's mobile customers can choose one of two simple ways to pay for data. Customers can choose an unlimited data plan or a by-the-gig data usage plan. Both plans include free nationwide talk and text and customers can easily switch mobile data plans during the month. Customers can also purchase mobile devices and accessory products and have the option to pay for devices under interest-free monthly installment plans.

Charter's Network Technology and Customer Premise Equipment

Charter's network includes three key components: a national backbone, regional/metro networks and a "last-mile" network. Both its national backbone and regional/metro network components utilize a redundant Internet Protocol ("IP") ring/mesh architecture. The national backbone component provides connectivity from regional demarcation points to nationally centralized content, connectivity and services. The regional/metro network components provide connectivity between the regional demarcation points and headends within a specific geographic area and enable the delivery of content and services between these network components.

Charter's last-mile network utilizes a hybrid fiber coaxial cable ("HFC") architecture, which combines the use of fiber optic cable with coaxial cable. In most systems, Charter delivers its signals via fiber optic cable from the headend to a group of nodes, and uses coaxial cable to deliver the signal from individual nodes to the homes served by that node. For Charter's fiber Internet, Ethernet, carrier wholesale, Session Initiation Protocol ("SIP") and Primary Rate Interface ("PRI") Spectrum Enterprise customers, fiber optic cable is extended from individual nodes to the customer's site. For certain new build and MDU sites, Charter increasingly brings fiber to the customer site. Charter's design standard is six strands of fiber to each node, with two strands activated and four strands reserved for spares and future services. This design standard allows these additional strands to be utilized for additional residential traffic capacity, and enterprise customer needs as they arise. Charter believes that this hybrid network design provides high capacity and signal quality. The design also provides two-way signal capabilities for the support of interactive services.

HFC architecture benefits include:

- bandwidth capacity to enable traditional and two-way video and broadband services;
- dedicated bandwidth for two-way services; and
- signal quality and high service reliability.

As of December 31, 2018, approximately 99% of Charter's estimated passings were served by systems that have bandwidth of 750 megahertz or greater. This bandwidth capacity enables Charter to offer HD television, DOCSIS-based Internet services and voice services.

Charter is currently all-digital in nearly all of its footprint, which enables Charter to offer a larger selection of HD channels, faster Internet speeds and better picture quality while providing greater plant security and enabling lower installation and disconnect service truck rolls.

Charter developed a new conditional access security system which can be downloaded into set-top boxes with features Charter specifies that could be provided by a variety of manufacturers. Charter refers to its specified set-top box as its WorldBox. WorldBoxes are available to customers across most of Charter's footprints. Charter's WorldBox design has enabled it to purchase set-top boxes from a broader array of equipment vendors in addition to reducing its per set-top box costs. WorldBox includes more advanced features and functionality than older set-top boxes, including faster processing times, IP capabilities with increased speed, greater simultaneous recording capabilities, increased DVR storage capacity, and more flexibility for customers to take Charter-provisioned set-top boxes with them, if and when, they move residences. With the deployment of WorldBox, Charter often utilizes its new cloud-based user interface, Spectrum Guide®. Spectrum Guide® improves video content search and discovery, and fully enables Charter's on-demand offering. In addition, Spectrum Guide® can function on all of Charter's new set-top boxes, ensuring new customer connects are eligible for the newest functionality.

Management, Customer Operations and Marketing

Charter's operations are centralized, with senior executives located at several key corporate offices, responsible for coordinating and overseeing operations, including establishing company-wide strategies, policies and procedures. Sales and marketing, network operations, field operations, customer operations, engineering, advertising sales, human resources, legal, government relations, information technology and finance are all directed at the corporate level. Regional and local field operations are responsible for customer premise service transactions and maintaining and constructing that portion of Charter's network which is located outdoors.

Charter continues to focus on improving the customer experience through enhanced product offerings, reliability of services, and delivery of quality customer service. As part of Charter's operating strategy, Charter insources most of its customer operations workload. In 2018, Charter's in-house domestic call centers handled approximately 90% of Charter's total customer service calls. Charter manages its customer service calls centrally to ensure a consistent, high quality customer experience. In addition, Charter routes calls by call type to specific agents that only handle such call types, enabling agents to become experts in addressing specific customer needs, creating a better customer experience. Charter also continues to migrate its call centers to full virtualization, allowing calls to be routed across Charter's call centers regardless of the location origin of the call, reducing call wait times, and saving costs. A new call center agent desktop interface tool, already used at Legacy Charter, is being deployed in Legacy TWC and Legacy Bright House service areas. This new desktop interface tool, which is expected to be fully implemented in the second half of 2019, will enable full virtualization of all call centers, regardless of legacy billing platform, and will better serve its customers.

Charter also provides customers with the opportunity to interact with the company through a variety of forums in addition to telephonic communications, including through its customer website, mobile device applications, online chat, and social media. Charter's customer websites and mobile applications enable customers to pay their bills, manage their accounts, order new services and utilize self-service help and support.

Charter sells its residential and commercial services using a national brand platform known as Spectrum®, Spectrum Business® and Spectrum Enterprise®. These brands reflect Charter's comprehensive approach to industry-leading products, driven by speed, performance and innovation. Charter's marketing strategy emphasizes the sale of its bundled services through targeted direct response marketing programs to existing and potential customers, and increases awareness and the value of the Spectrum brand. Charter's marketing organization creates and executes marketing programs intended to grow customer relationships, increase the number of services it sells per relationship, retain existing customers and cross-sell additional products to current customers. Charter monitors the effectiveness of its marketing efforts, customer perception, competition, pricing, and service preferences, among other factors, in order to increase its responsiveness to customers and to improve sales and customer retention. Charter's marketing organization manages the majority of the sales channels including direct sales, on-line, outbound telemarketing and stores.

Programming

Charter believes that offering a wide variety of video programming choices influences a customer's decision to subscribe and retain its cable video services. Charter obtains basic and premium programming, usually pursuant to written contracts, from a number of suppliers. Media corporation consolidation has, however, resulted in fewer suppliers and additional selling power on the part of programming suppliers. Although an insignificant amount of Charter's programming budget, recently Charter has begun entering into agreements to co-produce or exclusively license original content which gives it the right to provide customers with certain exclusive content for a period of time.

Programming is usually made available to Charter for a license fee, which is generally paid based on the number of customers to whom it makes that programming available. Programming license fees may include "volume" discounts and financial incentives to support the launch of a channel and/or ongoing marketing support, as well as discounts for channel placement or service penetration. For home shopping channels, Charter typically receives a percentage of the revenue attributable to its customers' purchases, as well as channel placement fees. Charter also offers VOD and pay per view channels of movies and events that are subject to a revenue split with the content provider.

Charter's programming costs have increased in excess of customary inflationary and cost-of-living type increases. Charter expects programming costs to continue to increase due to a variety of factors including, annual increases pursuant to Charter's programming contracts, contract renewals with programmers and the carriage of incremental programming, including new services and VOD programming. Increases in the cost of sports programming and the amounts paid for broadcast station retransmission consent have been the largest contributors to the growth in Charter's programming costs over the last few years. Additionally, the demands of large media companies who link carriage of their most popular networks to carriage and cost increases of their less popular networks, has limited Charter's flexibility in creating more tailored and cost-sensitive programming packages for consumers.

Federal law allows commercial television broadcast stations to make an election between "must-carry" rights and an alternative "retransmission-consent" regime. When a station opts for retransmission-consent, Charter is not allowed to carry the station's signal without that station's permission. Continuing demands by owners of broadcast stations for cash payments at substantial increases over amounts paid in prior years in exchange for retransmission consent will increase Charter's programming costs or require Charter to cease carriage of popular programming, potentially leading to a loss of customers in affected service areas.

Over the past several years, increases in Charter's video service rates have not fully offset the increases in its programming costs, and with the impact of increasing competition and other marketplace factors, Charter does not expect the increases in its video service rates to fully offset the increase in its programming costs for the foreseeable future. Although Charter passes along a portion of amounts paid for retransmission consent to the majority of its customers, Charter's inability to fully pass programming cost increases on to its video customers has had, and is expected in the future to have, an adverse impact on Charter's cash flow and operating margins associated with its video product. In order to mitigate reductions of Charter's operating margins due to rapidly increasing programming costs, Charter continues to review its pricing and programming packaging strategies.

Charter's programming contracts are generally for a fixed period of time, usually for multiple years, and are subject to negotiated renewal. The contracts set to expire in any particular year vary with a higher concentration of programming costs set to expire at, or before the end, of 2019. Charter will seek to renew these agreements on terms that it believes are favorable. There can be no assurance, however, that these agreements will be renewed on favorable or comparable terms. To the extent that Charter is unable to reach agreements with certain programmers on terms that Charter believes are reasonable, Charter has been, and may in the future be, forced to remove such programming channels from its line-up, which may result in a loss of customers.

Regions

Charter operates in geographically diverse areas which are organized in regional clusters. These regions are managed centrally on a consolidated level. Charter's 11 regions and the customer relationships within each region as of December 31, 2018 are as follows (in thousands):

Regions	Total Customer Relationships
Carolinas	2,907
Central	2,941
Florida	2,498
Great Lakes	2,199
Northeast	2,997
Northwest	1,539
New York City	1,372
South	1,985
Southern Ohio	2,236
Texas	2,887
West	4,542

Ownership Interests

We own an approximate 24% economic ownership interest in Charter, based on shares of Charter's Class A common stock issued and outstanding as of December 31, 2018, and, pursuant to proxy agreements with GCI Liberty, Inc. and A/N, control 25.01% of the aggregate voting power of Charter. Upon the closing of the Time Warner Cable Merger, the Second Amended and Restated Stockholders Agreement, dated as of May 23, 2015, by and among Legacy Charter, Charter, Liberty Broadband and A/N, as amended (the "Stockholders Agreement"), became fully effective. Under the Stockholders Agreement, we have the right to designate three directors to the Charter board of directors, subject to certain exclusions and requirements. Charter has agreed to cause the appointment of at least one of our designees to serve on the nominating and corporate governance, finance, audit and compensation and benefits committees of the board, provided they meet the independence and other qualifications for membership on those committees.

Skyhook

Skyhook Holding, Inc. (formerly known as "TruePosition") was originally incorporated on November 24, 1992 to provide technology for locating wireless phones and other mobile devices. TruePosition offered a passive network-based location system based on its patented U-TDOA technology (the "U-TDOA Service") to provide E-9-1-1 services domestically and to enhance services in support of commercial applications and national security/law enforcement operations worldwide. In February 2014, TruePosition acquired Skyhook Wireless, Inc., an alternative location services provider that offered a positioning system using device-based measurements to calculate location, as opposed to TruePosition's network-based technology. In May 2016, TruePosition and Skyhook Wireless, Inc. combined operations in order to focus on the development and sale of Skyhook's device-based location technology. On January 1, 2017, TruePosition changed its name to Skyhook Holding, Inc. to reflect this combination of operations. Skyhook Holding, Inc. and Skyhook Wireless, Inc. are referred to collectively herein as "Skyhook."

Today, Skyhook markets and sells two primary products: (1) a location determination service called the Precision Location Solution; and (2) a location intelligence and data insights service called Geospatial Insights.

Skyhook's Precision Location Solution works by collecting nearby radio signals (such as information from WiFi access points, cell towers, IP addresses and other radio beacons) that are observed by a mobile device. The Precision Location Solution then matches these identified signals to the approximate geolocation of billions of geolocated WiFi access points, cell towers and IP addresses which are maintained in Skyhook's proprietary reference database. Based on the signal strength of the received measurements and the pre-determined positions of the access points, cell towers and other beacons that are stored in the reference database, Skyhook can then calculate a precise location of the mobile device. Since the Precision Location Solution uses the existing hardware on the mobile device and observes signal scans that have already been performed by the device, it does not require additional hardware installations or consume any additional power from the mobile device. The Precision Location Solution is primarily marketed to, and used by, mobile device makers (including phones, laptops, tablets, gaming devices,

wearables and other wireless-connected Internet of Things products), wireless carriers, and asset tracking platforms to understand the precise geographic location and movement of mobile devices. In addition, the Precision Location Solution can contribute to improving the location determination capabilities of a hybrid location system that utilizes other satellite and terrestrial location technologies, such as GPS, by increasing accuracy, reducing power consumption and improving the time it takes to deliver a location result.

Skyhook's Geospatial Insights product uses anonymized location data to analyze foot traffic patterns and better understand the real-world behavior of consumers. By mapping the movement of mobile devices to specific venues and points-of-interest, Skyhook can draw insights regarding user visits to retail stores, restaurants, hotels, airports and other locations, as well as attendance at concerts, sporting events or other public gatherings. The resulting data provides a rich view of customer behavior, loyalty and purchase intent, as well as insights about the performance of a business or its competitors. Skyhook markets and sells Geospatial Insights to enterprises, research and consulting firms, financial institutions and advertisers, among others. These customers use Geospatial Insights data to understand, measure and optimize the performance of businesses, to benchmark performance against competitors, to improve customer experience, to advertise to and target existing and prospective customers with the right message, and to measure the efficacy of advertising campaigns in driving real-world actions.

Skyhook's revenue is derived from the sale and integration of its Precision Location Solution (including the licensing of software and data components that make up that solution) and the licensing of Geospatial Insights data. In addition, Skyhook earns revenue through entering into licensing agreements with companies to utilize its underlying intellectual property (including patents).

Regulatory Matters

Charter

The following summary addresses the key regulatory and legislative developments affecting the cable industry and Charter's services for both residential and commercial customers. Cable system operations are extensively regulated by the federal government (primarily the FCC), certain state governments, and many local governments. A failure to comply with these regulations could subject Charter to substantial penalties. Charter's business can be dramatically impacted by changes to the existing regulatory framework, whether triggered by legislative, administrative, or judicial rulings. Congress and the FCC have frequently revisited the subject of communications regulation and they are likely to do so again in the future. Charter could be materially disadvantaged in the future if it is subject to new laws, regulations or regulatory actions that do not equally impact its key competitors. Charter cannot provide assurance that the already extensive regulation of its business will not be expanded in the future. In addition, Charter is already subject to Charter-specific conditions regarding certain business practices as a result of the FCC's approval of the Transactions.

Video Service

Must Carry/Retransmission Consent

There are two alternative legal methods for carriage of local broadcast television stations on cable systems. Federal "must carry" regulations require cable systems to carry local broadcast television stations upon the request of the local broadcaster. Alternatively, federal law includes "retransmission consent" regulations, by which popular commercial television stations can prohibit cable carriage unless the cable operator first negotiates for "retransmission consent," which may be conditioned on significant payments or other concessions. Popular stations invoking "retransmission consent" have been demanding substantial compensation increases in their recent negotiations with cable operators, thereby significantly increasing Charter's operating costs.

Additional government-mandated broadcast carriage obligations, including those related to the FCC's enhanced technical broadcasting option (Advanced Television Systems Committee 3.0) adopted in 2017, could disrupt existing programming commitments, interfere with Charter's preferred use of limited channel capacity, and limit Charter's ability to offer services that appeal to customers and generate revenue.

Cable Equipment

In 1996, Congress enacted a statute requiring the FCC to adopt regulations designed to assure the development of an independent retail market for “navigation devices,” such as cable set-top boxes. As a result, the FCC required cable operators to make a separate offering of security modules (i.e., a “CableCARD”) that can be used with retail navigation devices. A companion rule that effectively required Charter to use CableCARDS in Charter’s own new set-top boxes was repealed by Congress in 2014, but the basic obligation to provide separable security for retail devices remains in place. Various parties may continue to advocate new regulatory approaches to reduce consumer dependency on traditional operator provided set-top boxes that, if adopted, could affect Charter’s business in the future.

Privacy and Information Security Regulation

The Communications Act of 1934, as amended (the “Communications Act”) limits Charter’s ability to collect, use, and disclose customers’ personally identifiable information for its video, voice, and Internet services. Charter is subject to additional federal, state, and local laws and regulations that impose additional restrictions on the collection, use and disclosure of consumer information. Further, the FCC, Federal Trade Commission (“FTC”), and many states regulate and restrict the marketing practices of communications service providers, including telemarketing and sending unsolicited commercial emails.

As a result of the FCC’s 2017 decision reclassifying broadband Internet access service as an “information service,” the FTC once again has the authority, pursuant to its general authority to enforce against unfair or deceptive acts and practices, to protect the privacy of Internet service customers, including Charter’s use and disclosure of certain customer information.

Charter’s operations are also subject to federal and state laws governing information security. In the event of an information security breach, such rules may require consumer and government agency notification and may result in regulatory enforcement actions with the potential of monetary forfeitures. The FCC, the FTC and state attorneys general regularly bring enforcement actions against companies related to information security breaches and privacy violations. In addition, Congress and State legislatures may adopt new requirements and penalties for information security breaches and privacy violations.

Various security standards provide guidance to telecommunications companies in order to help identify and mitigate cybersecurity risk. One such standard is the voluntary framework released by the National Institute for Standards and Technology (“NIST”) in 2014 and updated in 2018, in cooperation with other federal agencies and owners and operators of U.S. critical infrastructure. The NIST cybersecurity framework provides a prioritized and flexible model for organizations to identify and manage cyber risks inherent to their business. It was designed to supplement, not supersede, existing cybersecurity regulations and requirements. Several government agencies have encouraged compliance with the NIST cybersecurity framework, including the FCC, which is also considering expansion of its cybersecurity guidelines or the adoption of cybersecurity requirements.

After the repeal of the FCC’s 2016 privacy rules through the Congressional Review Act in 2017, and despite language in the FCC’s 2017 decision reclassifying broadband Internet access service as an “information service” and preempting state and local privacy regulations conflicting with federal policy, many states and local authorities have considered legislative or other actions that would impose additional restrictions on Charter’s ability to collect, use and disclose certain information. California, for example, enacted in a complex law in June 2018 which, under certain circumstances, will regulate companies’ use and disclosure of the personal information of California residents and authorizes enforcement actions by the California Attorney General and private class actions. The California Consumer Privacy Act of 2018 is subject to amendment by the California legislature and further regulatory clarification by the California Attorney General before it takes effect in January 2020. Charter expects state and local efforts to regulate online privacy to continue in 2019. Additionally, several state legislatures are considering the adoption of new data security and cybersecurity legislation that could result in additional network and information security requirements for Charter’s business. There are also bills pending in both the U.S. House of Representatives and Senate that could impose new privacy and data security obligations. Charter cannot predict whether any of these efforts will be successful or preempted, or how new legislation and regulations, if any, would affect its business.

Pole Attachments

The Communications Act requires most utilities owning utility poles to provide cable systems with access to poles and conduits and simultaneously subjects the rates charged for this access to either federal or state regulation. After FCC regulatory

amendments and litigation challenging those amendments, the federally regulated rates now applicable to pole attachments used for cable, Internet, and telecommunications services are substantially similar. The FCC regulatory amendments do not directly affect the rate in states that self-regulate, but many of those states have substantially the same rate for all communications attachments.

Some municipalities have enacted “one-touch” make-ready pole attachment ordinances, which permit third parties to alter components of Charter’s network attached to utility poles in ways that could adversely affect its businesses. Some of these ordinances have been challenged with differing results. In 2018, the FCC adopted “one-touch” make-ready (“OTMR”) rules that will apply in states where pole attachments are FCC regulated, and they may impact many of Charter’s existing pole attachments. Various utilities have sought review of the OTMR rules in federal court.

Cable Rate Regulation

Federal law strictly limits the potential scope of cable rate regulation. Pursuant to federal law, all video offerings are universally exempt from rate regulation, except for a cable system’s minimum level of video programming service, referred to as “basic service,” and associated equipment. Rate regulation of basic service and associated equipment operates pursuant to a federal formula, with local governments, commonly referred to as local franchising authorities, primarily responsible for administering this regulation. FCC regulations require a local franchise authority interested in regulating cable rates to first make an affirmative showing that there is no “effective competition” (as defined under federal law) in the community. Very few local franchise authorities have filed the necessary rate regulation certification, and Charter has a petition pending at the FCC challenging the remaining certifications. The FCC is also considering possible reforms to any remaining rate regulations.

Access Channels

Local franchise agreements often require cable operators to set aside certain channels for public, educational, and governmental access programming. Federal law also requires cable systems to designate up to 15% of their channel capacity for commercial leased access by unaffiliated third parties, who may offer programming that Charter’s customers do not particularly desire. Although commercial leased access activity historically has been relatively limited, the FCC is currently considering changes to its leased access regulations, and increased activity in this area could further burden the channel capacity of Charter’s cable systems.

Other FCC Regulatory Matters

FCC regulations cover a variety of additional areas, including, among other things: (1) ownership restrictions; (2) equal employment opportunity obligations; (3) customer service standards; (4) technical service standards; (5) mandatory blackouts of certain network and syndicated programming; (6) restrictions on political advertising; (7) restrictions on advertising in children’s programming; (8) licensing of systems and facilities; (9) maintenance of public files; (10) emergency alert systems; (11) inside wiring and exclusive contracts for MDU complexes; and (12) disability access, including requirements governing video-description and closed-captioning. Each of these regulations restricts Charter’s business practices to varying degrees and may impose additional costs on Charter’s operations. Further, the FCC regulates spectrum usage and other communications enterprises in ways that could impact Charter’s operations. For example, the FCC is currently considering proposals to reallocate for other purposes certain spectrum currently used by cable operators to deliver video programming to individual cable systems.

It is possible that Congress or the FCC will expand or modify its regulation of cable systems in the future, and Charter cannot predict at this time how that might impact its business.

Copyright

Cable systems are subject to a federal compulsory copyright license covering carriage of television and radio broadcast signals. The copyright law provides copyright owners the right to audit Charter’s payments under the compulsory license, and the Copyright Office is currently considering modifications to the license’s royalty calculations and reporting obligations. The possible modification or elimination of this license is the subject of continuing legislative proposals and administrative review and could adversely affect Charter’s ability to obtain desired broadcast programming.

Copyright clearances for non-broadcast programming services are arranged through private negotiations. Cable operators also must obtain music rights for locally originated programming and advertising from the major music performing rights organizations. These licensing fees have been the source of litigation in the past, and Charter cannot predict with certainty whether license fee disputes may arise in the future.

Franchise Matters

Charter's cable systems generally are operated pursuant to nonexclusive franchises, permits, and similar authorizations granted by a municipality or other state or local government entity in order to utilize and cross public rights-of-way. Cable franchises generally are granted for fixed terms and in many cases include monetary penalties for noncompliance and may be terminable if the franchisee fails to comply with material provisions. The specific terms and conditions of cable franchises vary significantly between jurisdictions. Cable franchises generally contain provisions governing cable operations, franchise fees, system construction, maintenance, technical performance, customer service standards, supporting and carrying public access channels, and changes in the ownership of the franchisee. Although local franchising authorities have considerable discretion in establishing franchise terms, certain federal protections benefit cable operators. For example, federal law caps local franchise fees.

A number of states have adopted franchising laws that provide for statewide franchising, some of which subject cable systems to the jurisdiction of centralized state government agencies, such as public utility commissions. Generally, state-wide cable franchises are issued for a fixed term, but streamline many of the traditional local cable franchise requirements and eliminate local negotiation.

Prior to the scheduled expiration of Charter's franchises, it generally initiates renewal proceedings with the granting authorities. The Communications Act, which is the primary federal statute regulating interstate communications, provides for an orderly franchise renewal process in which granting authorities may not unreasonably withhold renewals. In connection with the franchise renewal process, however, many local governmental authorities and some state agencies, may require the cable operator to make additional costly commitments. Historically, Charter has been able to renew its franchises without incurring significant costs, although any particular franchise may not be renewed on commercially favorable terms or otherwise. If Charter fails to obtain renewals of franchises representing a significant number of its customers, it could have a material adverse effect on Charter's consolidated financial condition, results of operations, or its liquidity. Similarly, if a franchising authority's consent is required for the purchase or sale of a cable system, the franchising authority may attempt to impose more burdensome requirements as a condition for providing its consent. In July 2018, the New York State Public Service Commission revoked its earlier approval of Charter's acquisition of Legacy TWC, determining that Charter had not complied with its Transaction commitments to extend availability of high-speed Internet services to 145,000 underserved or unserved homes or businesses over a four year period. Charter is vigorously opposing the Public Service Commission's revocation, which, if not reversed, could materially impact its operations in New York state. See "Item 3. Legal Proceedings."

The traditional cable franchising regime has undergone significant change in recent years as a result of various federal and state actions and the FCC continues to address cable franchising issues

Internet Service

In 2015, the FCC determined that broadband Internet access services, such as those Charter offers, were "telecommunications services" under the Communications Act and, on that basis, imposed a number of "net neutrality" rules governing the provision of broadband service, including a "transparency" requirement, *i.e.*, an obligation to disclose all material terms and conditions of Charter's service to consumers.

In December 2017, the FCC adopted a new order reclassifying broadband as an "information service" and eliminating the 2015 rules other than the transparency requirement, which it eased in significant ways. The FCC also ruled that state regulators may not impose obligations similar to federal obligations that the FCC removed. Various parties have challenged the FCC's December 2017 ruling, seeking a court order to reinstate the FCC's 2015 rules. At the same time, several states (including California) have adopted state obligations replacing the Internet access obligations that the FCC removed. California's legislation has been challenged in court and it cannot be predicted how any such legislation and court challenges will be resolved. California has agreed not to enforce the new law pending the resolution of a petition to review the FCC's December 2017 ruling in the U.S. Court of Appeals for the District of Columbia Circuit and any subsequent proceedings before the U.S. Supreme Court. Moreover,

irrespective of these cases, it is possible that the FCC might further revise its approach to broadband Internet access in the future, or that Congress might enact legislation affecting the rules applicable to the service.

Notwithstanding the reclassification of Internet access service as an “information service,” broadband providers remain obliged by the Communications Assistance for Law Enforcement Act (“CALEA”) to configure their networks in a manner that facilitates the ability of law enforcement, with proper legal authorization, to obtain information about customers, including the content of their Internet communications. It is also possible that Internet access services will be subjected to Universal Service funding requirements. These funding requirements could impose significant new costs on Charter’s Internet service. The FCC and some state regulatory commissions direct certain subsidies to telephone companies deploying broadband to areas deemed to be “unserved” or “underserved.” Charter has opposed such subsidies when directed to areas that it serves. Despite Charter’s efforts, future subsidies may be directed to areas served by Charter, which could result in subsidized competitors operating in its service territories. State and local governmental organizations have also adopted Internet-related regulations. These various governmental jurisdictions are also considering additional regulations in these and other areas, such as privacy, pricing, service and product quality, imposition of local franchise fees on Internet-related revenue and taxation. The adoption of new Internet regulations or the adaptation of existing laws to the Internet, including potential responsibility for the infringing activities of Internet subscribers, could adversely affect Charter’s business.

Aside from the FCC’s generally applicable regulations, Charter has made certain commitments to comply with the FCC’s order in connection with the FCC’s approval of the Time Warner Cable Merger and the Bright House Transaction (discussed below).

Voice Service

The Telecommunications Act of 1996 created a more favorable regulatory environment for Charter to provide telecommunications and/or competitive voice services than had previously existed. In particular, it established requirements ensuring that competitive telephone companies could interconnect their networks with those providers of traditional telecommunications services to open the market to competition. The FCC has subsequently ruled that competitive telephone companies that support VoIP services, such as those Charter offers its customers, are entitled to interconnection with incumbent providers of traditional telecommunications services, which ensures that Charter’s VoIP services can compete in the market. Since that time, the FCC has initiated a proceeding to determine whether such interconnection rights should extend to traditional and competitive networks utilizing IP technology, and how to encourage the transition to IP networks throughout the industry. The FCC initiated a further proceeding in 2017 to consider whether additional changes to interconnection obligations are needed, including how and where companies interconnect their networks with the networks of other providers. New rules or obligations arising from these proceedings may affect Charter’s ability to compete in the provision of voice services.

Further regulatory changes are being considered that could impact Charter’s voice business and that of its primary telecommunications competitors. The FCC and state regulatory authorities are considering, for example, whether certain common carrier regulations traditionally applied to incumbent local exchange carriers should be modified or reduced, and, in some jurisdictions, the extent to which common carrier requirements should be extended to VoIP providers. The FCC has already determined that certain providers of voice services using Internet Protocol technology, like our VoIP services, must comply with requirements relating to 9-1-1 emergency services (“E-9-1-1”), the CALEA (the statute governing law enforcement access to and surveillance of communications), Universal Service Fund contributions, customer privacy and Customer Proprietary Network Information issues, number portability, network outage reporting, rural call completion, disability access, regulatory fees, back-up power obligations and discontinuance of service. In 2007, a federal appeals court affirmed the FCC’s decision concerning federal regulation of certain VoIP services, but declined to specifically find that VoIP service provided by cable companies, such as Charter provides, should be regulated only at the federal level. As a result, some states have begun proceedings to subject cable VoIP services to state level regulation, and at least one state has asserted jurisdiction over Charter’s VoIP services. Charter prevailed on a legal challenge to that state’s assertion of jurisdiction. Although Charter has registered with, or obtained certificates or authorizations from the FCC and the state regulatory authorities in those states in which Charter offers competitive voice services in order to ensure the continuity of its services and to maintain needed network interconnection arrangements, it is unclear whether and how these and other ongoing regulatory matters ultimately will be resolved.

Mobile Service

Charter recently launched its Spectrum mobile service to residential customers. Under current arrangements, Charter provisions this service as an MVNO which allows it to deliver service over Verizon’s network and its network of Spectrum WiFi hotspots. As an MVNO, Charter is subject to many of the same FCC regulations that apply to facilities-based wireless carriers, as well as certain state or local regulations, including (but not limited to): E911, local number portability, customer privacy, CALEA, universal service fund, hearing aid compatibility and other requirements, as well as safety and emission standards applicable to mobile devices. To the extent Spectrum Mobile provides broadband Internet access, it must comply with the FCC’s transparency rule. The FCC or other regulatory authorities may adopt new or different regulations for MVNOs and/or mobile broadband providers in the future, or impose new taxes or fees applicable to Spectrum Mobile, which could adversely affect the service offering or Charter’s business generally.

Transaction-Related Commitments

In connection with approval of the Transactions, federal and state regulators imposed a number of post-merger conditions on Charter including but not limited to the following.

FCC Conditions

- Offer settlement-free Internet interconnection to any party that meets the requirements of Charter’s Interconnection Policy (available on Charter’s website) on terms generally consistent with the policy for seven years (with a possible reduction to five);
- Deploy and offer high-speed broadband Internet access service to an additional two million locations over five years;
- Refrain from charging usage-based prices or imposing data caps on any fixed mass market broadband Internet access service plans for seven years (with a possible reduction to five);
- Offer 30/4 Mbps discounted broadband where technically feasible to eligible customers throughout Charter’s service area for four years from the offer’s commencement; and
- Continue to provide CableCARDS to any new or existing customer upon request for use in third-party retail devices for four years and continue to support such CableCARDS for seven years (in each case, unless the FCC changes the relevant rules).

The FCC conditions also contain a number of compliance reporting requirements.

DOJ Conditions

The Department of Justice (“DOJ”) Order prohibits Charter from entering into or enforcing any agreement with a video programmer that forbids, limits or creates incentives to limit the video programmer’s provision of content to online video distributors (“OVDs”). Charter will not be able to avail itself of other distributors’ contract provisions under Charter’s most favored nation (“MFN”) provisions if their provisions are inconsistent with this prohibition. The DOJ’s conditions are effective for seven years, although Charter may petition the DOJ to eliminate the conditions after five years.

State Conditions

Certain state regulators, including California, New York, Hawaii and New Jersey also imposed conditions in connection with the approval of the Transactions. These conditions include requirements related to:

- Upgrading networks within the designated state, including upgrades to broadband speeds and conversion of all households served within California and New York to an all-digital platform;
- Building out its network to certain households and business locations that are not currently served by cable within the designated states;

- Offering LifeLine service discounts and low-income broadband to eligible households served within the applicable states;
- Investing in service improvement programs and customer service enhancements and maintaining customer-facing jobs within the designated state;
- Continuing to make legacy service offerings available, including allowing Legacy TWC and Legacy Bright House customers to maintain their existing service offerings for a period of three years; and
- Complying with reporting requirements.

As noted above, in July 2018, the New York State Public Service Commission determined that Charter had not complied with its Transaction commitments to extend the availability of high-speed Internet services, which Charter contests. See “Item 3. Legal Proceedings.”

Skyhook

Skyhook is subject to a variety of laws and regulations in the United States and in foreign jurisdictions that involve matters central to its technology and ongoing business, including the collection and storage of location information, privacy and data protection, intellectual property, data security and data retention, and other business and compliance-related laws. The application, scope, interpretation, and enforcement of applicable laws and regulations in many of these areas are often uncertain, particularly in the new and rapidly-evolving mobile technology industry in which Skyhook operates. In addition, existing laws may be interpreted and applied inconsistently from one jurisdiction to another, and inconsistently with Skyhook’s current policies and practices. The introduction of new products or the expansion of Skyhook’s sales activities in certain jurisdictions may subject it to additional laws and regulations, or increase the risk posed to Skyhook’s business by non-compliance.

In particular, data protection, privacy, and other laws and regulations can be more restrictive in certain jurisdictions than those in the United States. For example, as a result of its international activities, Skyhook is subject to laws and regulations that dictate whether, how, and under what circumstances it can transfer or process from the European Union (the “EU”) to the United States. In addition, certain activities of Skyhook may be subject to the European Union’s General Data Protection Regulation (“GDPR”) which came into effect in May 2018. The GDPR is intended to reach broadly most companies that operate in any manner in the EU, and serves to impose certain requirements on businesses that collect and process “personal data” from individuals in the EU. The GDPR subjects businesses to significant fines and other penalties for non-compliance. Although the EU has released guidance regarding the application of the GDPR and enforcement actions have been initiated, it is unclear how the GDPR will be applied by EU authorities in any specific manner. However, the costs of compliance and potential disruption to available data flows could be high.

Skyhook is also monitoring additional proposed and pending legislation and regulations in the U.S. and abroad that are related to its technology and business operations, including regulations that implement specific privacy or data protection rules.

Competition

Charter

Residential Services

Charter faces intense competition for residential customers, both from existing competitors, and, as a result of the rapid development of new technologies, services and products, from new entrants.

Video competition

Charter’s residential video service faces competition from direct broadcast satellite (“DBS”) service providers, which have a national footprint and compete in all of Charter’s operating areas. DBS providers offer satellite-delivered pre-packaged programming services that can be received by relatively small and inexpensive receiving dishes. DBS providers offer aggressive promotional pricing, exclusive programming (e.g., NFL Sunday Ticket) and video services that are comparable in many respects to Charter’s residential video service. Charter’s residential video service also faces competition from large telecommunications

companies, primarily AT&T U-verse, Frontier Communications Corporation (“Frontier”) FiOS and Verizon Fios, which offer wireline video services in approximately 32%, 8% and 5%, respectively, of Charter’s operating areas. AT&T also owns DIRECTV, and as a combined company provides video service (via IP or satellite) and voice service (via fixed or wireless) across Charter’s entire footprint, and delivers video, Internet, voice and mobile services across 46% of Charter’s passings. AT&T also acquired Time Warner Inc. in 2018. It is not yet clear how AT&T will use the various programming and studio assets it acquired from Time Warner Inc. to benefit its own products on its four video platforms.

Charter’s residential video service also faces growing competition from a number of other sources, including companies that deliver linear network programming, movies and television shows on demand and other video content over broadband Internet connections to televisions, computers, tablets and mobile devices. These newer categories of competitors include virtual multichannel video programming distributors (“V-MVPD”) such as DirecTV NOW, Sling TV, Playstation Vue, YouTube TV and Hulu Live, and direct to consumer products offered by programmers that have not traditionally sold programming directly to consumers, such as HBO Now, CBS All Access and Showtime Anytime. In 2018, AT&T launched WatchTV, offering over 30 channels of live television for a low monthly cost or free with their wireless unlimited plan. Other online video business models have also developed, including, (i) subscription video on demand (“SVOD”) services such as Netflix, Amazon Prime, and Hulu Plus, (ii) ad-supported free online video products, including YouTube and Hulu, some of which offer programming for free to consumers that Charter currently purchases for a fee, (iii) pay-per-view products, such as iTunes, Amazon Instant and DAZN, and (iv) additional offerings from mobile providers which continue to integrate and bundle video services and mobile products. Historically, Charter has generally viewed SVOD online video services as complementary to its own video offering, and has developed a cloud-based guide that is capable of incorporating video from many online video services currently offered in the marketplace. As the proliferation of online video services grows, however, services from V-MVPDs and new direct to consumer offerings, as well as piracy and password sharing, could negatively impact the growth of Charter’s video business.

Internet competition

Charter’s residential Internet service faces competition from fiber-to-the-home (“FTTH”), wireless broadband offerings and DSL, as well as from a variety of companies that offer other forms of online services, including fixed wireless and satellite-based broadband services. AT&T, Frontier FiOS and Verizon’s Fios are Charter’s primary FTTH competitors. Given the FTTH deployments of Charter’s competitors, launches of broadband services offering 1 gigabits per second (“Gbps”) speed have recently grown. Several competitors, including AT&T, Frontier FiOS, Verizon’s Fios and Google, deliver 1 Gbps broadband speed in at least a portion of their footprints which overlap Charter’s footprint. DSL service is often offered at prices lower than Charter’s Internet services, although typically at speeds much lower than the minimum speeds Charter offers as part of SPP. Various mobile phone companies offer wireless Internet services delivered over networks which they continue to enhance to deliver faster speeds. Some have announced that they intend to offer faster fifth generation (5G) services in the future including Verizon which currently offers a 5G fixed wireless service in a small portion of Charter’s footprint and AT&T which has also announced its plans to launch 5G services. Some mobile phone companies offer unlimited data packages to customers. In addition, a growing number of commercial areas, such as retail malls, restaurants and airports, offer WiFi Internet service. Numerous local governments are also considering or actively pursuing publicly subsidized WiFi Internet access networks. These options offer alternatives to cable-based Internet access.

Voice competition

Charter’s residential voice service competes with wireless and wireline phone providers, as well as other forms of communication, such as text messaging on cellular phones, instant messaging, social networking services, video conferencing and email. Charter also competes with “over-the-top” phone providers, such as Vonage, Skype, magicJack, Google Voice and Ooma, Inc., as well as companies that sell phone cards at a cost per minute for both national and international service. The increase in the number of different technologies capable of carrying voice services and the number of alternative communication options available to customers as well as the replacement of wireline services by wireless have intensified the competitive environment in which Charter operates its residential voice service. Charter’s mobile service competes with other mobile providers such as Verizon, AT&T, T-Mobile US, Inc. (“T-Mobile”) and Sprint Corporation (“Sprint”). In April 2018, Sprint and T-Mobile announced their intent to merge. If approved, the resulting company would be one of the nation’s largest mobile carriers bringing increased competition with a stated intent of pursuing broad 5G network deployment.

Regional Competitors

In some of Charter's operating areas, other competitors have built networks that offer video, Internet and voice services that compete with its services. For example, in certain service areas, Charter's residential video, Internet and voice services compete with Google Fiber, Cincinnati Bell Inc., Hawaiian Telcom (owned by Cincinnati Bell Inc.), RCN Telecom Services, LLC, Grande Communications Networks, LLC and WideOpenWest Finance, LLC.

Additional competition

In addition to multi-channel video providers, cable systems compete with other sources of news, information and entertainment, including over-the-air television broadcast reception, live events, movie theaters and the Internet. Competition is also posed by fixed wireless and satellite master antenna television systems, or SMATV systems, serving MDUs, such as condominiums, apartment complexes, and private residential communities.

Business Services

Charter faces intense competition across each of its business services product offerings. Charter's small and medium business video, Internet, networking and voice services face competition from a variety of providers as described above. Charter's enterprise solutions also face competition from the competitors described above as well as other telecommunications carriers, such as metro and regional fiber-based carriers. Charter also competes with cloud, hosting and related service providers and application-service providers.

Advertising

Charter faces intense competition for advertising revenue across many different platforms and from a wide range of local and national competitors. Advertising competition has increased and will likely continue to increase as new advertising avenues seek to attract the same advertisers. Charter competes for advertising revenue against, among others, local broadcast stations, national cable and broadcast networks, radio stations, print media and online advertising companies and content providers.

Skyhook

Skyhook's Precision Location Solution competes against (1) other satellite and terrestrial based location technology offerings, such as GPS; (2) other providers of WiFi and cell-based positioning, such as Google and HERE, a former subsidiary of Nokia; and (3) other in-house developed location solutions. There are also a number of new location technologies in development which may further increase competition to be a location solution for new devices and which may require Skyhook to meet more stringent accuracy standards. In addition, Skyhook's Geospatial Insights services compete against other geofencing and location intelligence offerings from other niche location companies.

Skyhook owns significant intellectual property around the world that relates to its location products and services and provides possible competitive advantages. Skyhook's intellectual property portfolio includes patents, patent applications, copyrights, trade secrets, trademarks, and other intellectual property rights. Skyhook believes that it has a defensible and useful intellectual property portfolio and it actively seeks to protect and license its global intellectual property rights as well as to deter unauthorized use of its intellectual property and other assets. For example, in 2015, Skyhook entered into a settlement agreement and license that resolved a lawsuit that Skyhook had brought against Google, in connection with claims that Google had infringed eight Skyhook patents. In 2016 and again in 2018, Skyhook entered into a license agreement to grant to the licensee a perpetual, non-exclusive, non-transferable, worldwide license to patents and patent applications owned by Skyhook in exchange for a lump sum payment. Skyhook has successfully worked with customers to enter into license agreements but cannot provide assurance that current patents will be enforceable or infringed, that they will deter unauthorized use, that Skyhook's attempts to secure intellectual property licenses will be successful, or that its additional patent applications will ever be allowed or granted.

Seasonality and Cyclical

Charter

Charter's business is subject to seasonal and cyclical variations. Its results are impacted by the seasonal nature of customers receiving cable services in college and vacation service areas. Charter's revenue is subject to cyclical advertising patterns and changes in viewership levels. Its advertising revenue is generally higher in the second and fourth calendar quarters of each year, due in part to increases in consumer advertising in the spring and in the period leading up to and including the holiday season. U.S. advertising revenue is also cyclical, benefiting in even-numbered years from advertising related to candidates running for political office and issue-oriented advertising. Charter's capital expenditures and trade working capital are also subject to significant seasonality based on the timing of subscriber growth, network programs, specific projects and construction.

Employees

Liberty Broadband

Liberty Broadband currently does not have any corporate employees. Liberty provides Liberty Broadband with certain services pursuant to a services agreement, and certain of Liberty's corporate employees and executive officers serve as corporate employees and executive officers of Liberty Broadband.

Skyhook

As of December 31, 2018, Skyhook had 52 full and part-time employees. None of these employees is represented by a labor union or covered by a collective bargaining agreement. Liberty Broadband believes that relations with these employees are good.

Available Information

All of our filings with the SEC including our Form 10-Ks, Form 10-Qs and Form 8-Ks, as well as amendments to such filings are available on our Internet website free of charge generally within 24 hours after we file such material with the SEC. Our website address is www.libertybroadband.com.

Our corporate governance guidelines, code of business conduct and ethics, compensation committee charter, nominating and corporate governance committee charter, and audit committee charter are available on our website. In addition, we will provide a copy of any of these documents, free of charge, to any shareholder who calls or submits a request in writing to Investor Relations, Liberty Broadband Corporation, 12300 Liberty Boulevard, Englewood, Colorado 80112, Tel. No. (877) 772-1518.

The information contained on our website is not incorporated by reference herein.

Item 1A. Risk Factors

The risks described below and elsewhere in this annual report are not the only ones that relate to our businesses or our capitalization. The risks described below are considered to be the most material. However, there may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that also could have material adverse effects on our businesses. Past financial performance may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods. If any of the events described below were to occur, our businesses, prospects, financial condition, results of operations and/or cash flows could be materially adversely affected.

Factors Relating to Our Corporate History and Structure

We are a holding company, and we could be unable to obtain cash in amounts sufficient to service our financial obligations or meet our other commitments.

Our ability to meet our current and future financial obligations, including to make debt service obligations under the Amended 2017 Margin Loan Agreement (defined below), and other contractual commitments depends upon our ability to access cash. We are a holding company, and our sources of cash include our available cash balances, net cash from the operating activities of our wholly-owned subsidiary Skyhook, any dividends and interest we may receive from our investments, available funds under the Amended 2017 Margin Loan Agreement (defined below) (which was \$475 million as of December 31, 2018) and proceeds from any asset sales we may undertake in the future. In addition, the ability of our only operating subsidiary to pay dividends or to make other payments or advances to us depends on its operating results and any statutory, regulatory or contractual restrictions to which it may be or may become subject.

We do not have access to the cash that Charter generates from its operating activities.

Charter generated approximately \$11,767 million, \$11,954 million and \$8,041 million of cash from its operations during the years ended December 31, 2018, 2017 and 2016, respectively. Charter uses the cash it generates from its operations primarily to fund its business operations and to service its debt and other financial obligations. We do not have access to the cash that Charter generates unless Charter declares a dividend on its capital stock payable in cash, repurchases any or all of its outstanding shares of capital stock for cash (subject to any contractual restrictions on our ability to participate in any such repurchase) or otherwise distributes or makes payments to its stockholders, including us. Historically, Charter has not paid any dividends on its capital stock or, with limited exceptions, otherwise distributed cash to its stockholders and instead has used all of its available cash in the expansion of its business and to service its debt obligations. Covenants in Charter's existing debt instruments also restrict the payment of dividends and cash distributions to stockholders. We expect that Charter will continue to apply its available cash to the expansion of its business.

Our company may have future capital needs and may not be able to obtain additional financing, or refinance or renew our existing indebtedness, on acceptable terms.

We had outstanding borrowings of \$525 million, with \$475 million remaining available to be drawn until August 27, 2019 (the "Delayed Draw") at December 31, 2018 under a credit agreement (as amended, the "Amended 2017 Margin Loan Agreement") governing a multi-draw margin loan agreement credit facility entered into in 2017 by a bankruptcy remote wholly owned subsidiary ("SPV") of Liberty Broadband. The obligations under the Amended 2017 Margin Loan Agreement are secured by a portion of our ownership interest in Charter. Such equity interests are held through SPV. The terms of the Amended 2017 Margin Loan Agreement limit our company's ability to secure additional financing on favorable terms, and our cash flow from operations may be insufficient to satisfy our financial obligations under indebtedness outstanding from time to time. Our ability to secure additional financing and satisfy our financial obligations will depend upon the operating performance of our subsidiary, Skyhook, the value of our investment in Charter, prevailing general economic and credit market conditions, including interest rate levels and the availability of credit generally, and financial, business and other factors, many of which are beyond our control. There can be no assurance that sufficient financing will be available, or that we will be able to renew (in the case of the Delayed Draw) or refinance our existing indebtedness, on desirable terms or at all. If financing is not available when needed or is not available on favorable terms, we may be unable to take advantage of business or market opportunities as they arise, which could have a material adverse effect on our business and financial condition.

We have significant indebtedness, which could adversely affect our business and financial condition.

As discussed above, SPV entered into the Amended 2017 Margin Loan Agreement pursuant to which SPV had outstanding borrowings of \$525 million at December 31, 2018. As a result of this significant indebtedness, our company may:

- Experience increased vulnerability to general adverse economic and industry conditions;
- Be required to dedicate a substantial portion of its cash flow from operations to principal and interest payments on its indebtedness, thereby reducing the availability of cash flow to fund working capital, capital expenditures, strategic acquisitions and investments and other general corporate purposes;
- Be handicapped in its ability to optimally capitalize and manage the cash flow for its businesses; and
- Be exposed to the risk of increased interest rates with respect to any variable rate portion of its indebtedness.

In addition, it is possible that we may need to incur additional indebtedness in the future. If new debt is added to the current debt levels, the risks described above could intensify. For additional limitations on our company's ability to potentially service our direct debt obligations, see "We are a holding company, and we could be unable to obtain cash in amounts sufficient to service our financial obligations or meet our other commitments" and "We do not have access to the cash that Charter generates from its operating activities" above.

The agreements that govern our current and future indebtedness may contain various affirmative and restrictive covenants that will limit our discretion in the operation of our business.

As discussed above, SPV entered into the Amended 2017 Margin Loan Agreement pursuant to which SPV had outstanding borrowings of \$525 million, with \$475 million remaining available to be drawn until August 27, 2019, at December 31, 2018. The Amended 2017 Margin Loan Agreement contains various covenants, including those that limit our ability to, among other things, incur indebtedness by having SPV enter into financing arrangements with respect to the portion of stock of Charter pledged to secure the loans under the Amended 2017 Margin Loan Agreement, and cause SPV to enter into unrelated businesses or otherwise conduct business other than owning common stock of Charter and other assets as permitted under the Amended 2017 Margin Loan Agreement documents. We may also enter into certain other indebtedness arrangements in the future. The instruments governing such indebtedness, often contain covenants that, among other things, place certain limitations on our ability to incur more debt, exceed specified leverage ratios, pay dividends, make distributions, make investments, repurchase stock, create liens, enter into transactions with affiliates, merge or consolidate, and transfer or sell assets. Any failure to comply with such covenants could result in an event of default, which, if not cured or waived, could have a material adverse effect on our business and financial condition.

We rely on Charter to provide us with the financial information that we use in accounting for our ownership interest in Charter as well as information regarding Charter that we include in our public filings.

We account for our approximately 24% economic ownership interest in Charter using the equity method of accounting and, accordingly, in our financial statements we record our share of Charter's net income or loss. Within the meaning of U.S. accounting rules, we rely on Charter to provide us with financial information prepared in accordance with generally accepted accounting principles, which we use in the application of the equity method. We also rely on Charter to provide us with the information regarding their company that we include in our public filings. In addition, we cannot change the way in which Charter reports its financial results or require Charter to change its internal controls over financial reporting. No assurance can be given that Charter will provide us with the information necessary to enable us to complete our public filings on a timely basis or at all. Furthermore, any material misstatements or omissions in the information Charter provides to us or publicly files could have a material adverse effect on our financial statements and filing status under federal securities laws.

We may become subject to the Investment Company Act of 1940.

We do not believe we are currently subject to regulation under the Investment Company Act of 1940, because our investment in Charter enables us to exercise significant influence over Charter. We have substantial involvement in the management and affairs of Charter, including through our board nominees. We nominated three of Charter's thirteen current directors. In connection with the Bright House Transaction, on May 23, 2015, we entered into the Stockholders Agreement, which

continues to provide us with board nomination rights. If, however, our investment in Charter was deemed to become passive (such as in the event that our equity interests were significantly diluted and our nominees ceased to serve as directors of Charter), we could become subject to regulation under the Investment Company Act of 1940. In such event, we would be required to register as an investment company, which could result in significant registration and compliance costs, could require changes to our corporate governance structure and financial reporting and could restrict our activities going forward. Our restated certificate of incorporation includes a provision that would enable us, at the option of our board of directors, to automatically convert each outstanding share of our Series B common stock into one share of our Series A common stock at such time as we have outstanding less than 20% of the total number of shares of our Series B common stock issued in the Broadband Spin-Off. In addition, if we were to become inadvertently subject to the Investment Company Act of 1940, any violation of this act could subject us to material adverse consequences, including potentially significant regulatory penalties and the possibility that our contracts would be deemed unenforceable.

Our company has overlapping directors and officers with Liberty, Qurate Retail, Inc., Liberty TripAdvisor Holdings, Inc., Liberty Expedia Holdings, Inc. and GCI Liberty, Inc., which may lead to conflicting interests.

As a result of the Broadband Spin-Off and other transactions between 2011 and 2018 that resulted in the separate corporate existence of Liberty, Qurate Retail, Inc. (formerly known as Liberty Interactive Corporation, “Qurate Retail”), Liberty TripAdvisor Holdings, Inc. (“TripCo”), Liberty Expedia Holdings, Inc. (“ExpediaCo”) and GCI Liberty, Inc. (“GCI Liberty”), most of the executive officers of Broadband also serve as executive officers of Liberty, Qurate Retail, TripCo, ExpediaCo and GCI Liberty and there are overlapping directors. With the exception of GCI Liberty’s current ownership of shares of our non-voting Series C common stock, none of these companies has any ownership interest in any of the others. Our executive officers and members of our company’s board of directors have fiduciary duties to our stockholders. Likewise, any such persons who serve in similar capacities at Liberty, Qurate Retail, TripCo, ExpediaCo, GCI Liberty or any other public company have fiduciary duties to that company’s stockholders. For example, there may be the potential for a conflict of interest when our company, Liberty, Qurate Retail, TripCo, ExpediaCo or GCI Liberty pursues acquisitions and other business opportunities that may be suitable for each of them. Therefore, such persons may have conflicts of interest or the appearance of conflicts of interest with respect to matters involving or affecting more than one of the companies to which they owe fiduciary duties. Each of our company, TripCo, ExpediaCo and GCI Liberty has renounced its rights to certain business opportunities and their respective restated certificate of incorporation provides that no director or officer of the respective company will breach their fiduciary duty and therefore be liable to the respective company or its stockholders by reason of the fact that any such individual directs a corporate opportunity to another person or entity (including Liberty, Qurate Retail, TripCo, ExpediaCo and GCI Liberty) instead of the respective company, or does not refer or communicate information regarding such corporate opportunity to our company, unless (x) such opportunity was expressly offered to such person solely in his or her capacity as a director or officer of the respective company or as a director or officer of any of the respective company’s subsidiaries, and (y) such opportunity relates to a line of business in which the respective company or any of its subsidiaries is then directly engaged. In addition, any potential conflict that qualifies as a “related party transaction” (as defined in Item 404 of Regulation S-K) is subject to review by an independent committee of the applicable issuer’s board of directors in accordance with its corporate governance guidelines. Any other potential conflicts that arise will be addressed on a case-by-case basis, keeping in mind the applicable fiduciary duties owed by the executive officers and directors of each issuer. From time to time, we may enter into transactions with Liberty, Qurate Retail, TripCo, ExpediaCo or GCI Liberty and/or their respective subsidiaries or other affiliates. There can be no assurance that the terms of any such transactions will be as favorable to our company, Liberty, Qurate Retail, TripCo, ExpediaCo or GCI Liberty or any of their respective subsidiaries or affiliates as would be the case where there is no overlapping officer or director.

Our inter-company agreements were negotiated while we were a subsidiary of Liberty.

We entered into a number of inter-company agreements covering matters such as tax sharing and our responsibility for certain liabilities previously undertaken by Liberty for certain of our businesses. In addition, we entered into a services agreement with Liberty pursuant to which it will provide to us certain management, administrative, financial, treasury, accounting, tax, legal and other services, for which we will reimburse them on a fixed fee basis. The terms of all of these agreements were established while we were a wholly-owned subsidiary of Liberty, and hence may not be the result of arms’ length negotiations. We believe that the terms of these inter-company agreements are commercially reasonable and fair to all parties under the circumstances; however, conflicts could arise in the interpretation or any extension or renegotiation of the foregoing agreements after the Broadband Spin-Off.

Factors Relating to Charter

The following risks relate specifically to our equity affiliate Charter. If any of these risks were realized, they could have a material adverse effect on the value of our equity interest in Charter, which could negatively impact our stock price and our financial prospects.

Charter operates in a very competitive business environment, which affects its ability to attract and retain customers and can adversely affect its business, operations and financial results.

The industry in which Charter operates is highly competitive and has become more so in recent years. In some instances, Charter competes against companies with fewer regulatory burdens, better access to financing, greater personnel resources, greater resources for marketing, greater and more favorable brand name recognition, and long-established relationships with regulatory authorities and customers. Increasing consolidation in the telecommunications and content industries have provided additional benefits to certain of Charter's competitors, either through access to financing, resources, or efficiencies of scale including the ability to launch new video services.

Charter's video service faces competition from a number of sources, including DBS services, as well as other companies that deliver movies, television shows and other video programming over broadband Internet connections to TVs, computers, tablets and mobile devices. Charter's Internet service faces competition from the phone companies' DSL, FTTH and wireless broadband offerings as well as from a variety of companies that offer other forms of online services, including wireless and satellite-based broadband services. Various mobile phone companies offer wireless Internet services delivered over networks which they continue to enhance to deliver faster speeds and some have announced that they intend to offer faster 5G services in the future. Charter's voice and mobile services compete with mobile and wireline phone providers, as well as other forms of communication, such as text messaging on cellular phones, instant messaging, social networking services, video conferencing and email. Competition from these companies, including intensive marketing efforts with aggressive pricing, exclusive programming and increased HD broadcasting may have an adverse impact on Charter's ability to attract and retain customers.

Wireline and wireless overbuilds could also adversely affect Charter's growth, financial condition, and results of operations, by creating or increasing competition. Charter is aware of traditional overbuild situations impacting certain of its service areas, however, Charter is unable to predict the extent to which additional overbuild situations may occur.

Charter's services may not allow it to compete effectively. Competition may reduce its expected growth of future cash flows which may contribute to future impairments of Charter's franchises and goodwill and Charter's ability to meet cash flow requirements, including debt service requirements.

If Charter is not able to successfully complete the integration of its business with that of Legacy Time Warner Cable and Legacy Bright House, the anticipated benefits of the Transactions may not be fully realized or may take longer to realize than expected. In such circumstance, Charter may not perform as expected and the value of Charter's Class A common stock may be adversely affected.

There can be no assurances that Charter can successfully complete the integration of its business with that of Legacy Time Warner Cable and Legacy Bright House. Charter now has significantly more systems, assets, investments, businesses, customers and employees than each company did prior to the Transactions. It is possible that the integration process could result in the loss of customers, the disruption of Charter's ongoing businesses or in unexpected integration issues, higher than expected integration costs and an overall post-completion integration process that takes longer than originally anticipated. The process of integrating Legacy Time Warner Cable and Legacy Bright House with the Legacy Charter operations requires significant capital expenditures and the expansion of certain operations and operating and financial systems. Charter management continues to devote a significant amount of time and attention to the integration process and there is a significant degree of difficulty and management involvement inherent in that process.

Even if the new businesses are successfully integrated, it may not be possible to realize the benefits that are expected to result from the Transactions, or realize these benefits within the time frame that is expected. For example, the benefits of Charter's pricing and packaging and converting our video product to all-digital in certain Legacy Time Warner Cable and Legacy Bright House systems may not be fully realized or may take longer than anticipated to realize, or the benefits from the Transactions may

be offset by costs incurred or delays in integrating the businesses and increased operating costs. If the combined company fails to realize the anticipated benefits from the Transactions, its liquidity, results of operations, financial condition and/or share price may be adversely affected. In addition, at times, the attention of certain members of Charter's management and resources may be focused on the integration of the businesses and diverted from day-to-day business operations, which may disrupt the business of the combined company.

Charter faces risks relating to competition for the leisure time and discretionary spending of audiences, which has intensified in part due to advances in technology and changes in consumer expectations and behavior.

In addition to the various competitive factors discussed above, Charter is subject to risks relating to increasing competition for the leisure time, shifting consumer needs and discretionary spending of consumers. Charter competes with all other sources of entertainment, news and information delivery, as well as a broad range of communications products and services. Technological advancements, such as new video formats and Internet streaming and downloading of programming that can be viewed on televisions, computers, smartphones and tablets, many of which have been beneficial to Charter, have nonetheless increased the number of entertainment and information delivery choices available to consumers and intensified the challenges posed by audience fragmentation. These newer categories of competitors including V-MVPDs and other new direct to consumer offerings, as well as piracy and password sharing, could negatively impact the growth of Charter's business.

Newer products and services, particularly alternative methods for the distribution, sale and viewing of content will likely continue to be developed, further increasing the number of competitors that Charter faces. The increasing number of choices available to audiences, including low-cost or free choices, could negatively impact not only consumer demand for Charter's products and services, but also advertisers' willingness to purchase advertising from Charter. Charter competes for the sale of advertising revenue with television networks and stations, as well as other advertising platforms, such as radio, print and, increasingly, online media. Charter's failure to effectively anticipate or adapt to new technologies and changes in consumer expectations and behavior could significantly adversely affect its competitive position and its business and results of operations.

Charter's exposure to the economic conditions of its current and potential customers, vendors and third parties could adversely affect its cash flow, results of operations and financial condition.

Charter is exposed to risks associated with the economic conditions of its current and potential customers, the potential financial instability of its customers and their financial ability to purchase its products. If there were a general economic downturn, Charter may experience increased cancellations by its customers or unfavorable changes in the mix of products purchased, including an increase in the number of homes that replace their video service with Internet-delivered and/or over-air content, which would negatively impact Charter's ability to attract customers, increase rates and maintain or increase revenue. In addition, providing video services is an established and highly penetrated business. Charter's ability to gain new video subscribers is dependent to a large extent on growth in occupied housing in its service areas, which is influenced by both national and local economic conditions. Weak economic conditions may also have a negative impact on Charter's advertising revenue. These events have adversely affected Charter in the past, and may adversely affect its cash flow, results of operations and financial condition if a downturn were to occur.

In addition, Charter is susceptible to risks associated with the potential financial instability of the vendors and third parties on which Charter relies to provide products and services or to which it outsources certain functions. The same economic conditions that may affect Charter's customers, as well as volatility and disruption in the capital and credit markets, also could adversely affect vendors and third parties and lead to significant increases in prices, reduction in output or the bankruptcy of Charter's vendors or third parties upon which Charter relies. Any interruption in the services provided by Charter's vendors or by third parties could adversely affect Charter's cash flow, results of operation and financial condition.

Charter faces risks inherent in its commercial business.

Charter may encounter unforeseen difficulties as it increases the scale of its service offerings to businesses. Charter sells Internet access, data networking and fiber connectivity to cellular towers and office buildings, and video and business voice services to businesses. In order to grow its commercial business, Charter expects to continue to invest in technology, equipment and personnel focused on the commercial business. Commercial business customers often require service level agreements and generally have heightened customer expectations for reliability of services. If Charter's efforts to build the infrastructure to scale the commercial business are not successful, the growth of its commercial services business would be limited. Charter depends

on interconnection and related services provided by certain third parties for the growth of its commercial business. As a result, its ability to implement changes as the services grow may be limited. If Charter is unable to meet these service level requirements or expectations, its commercial business could be adversely affected. Competition continues to increase as well, as more companies deploy more fiber to more buildings, which may negatively impact Charter's growth and/or put pressure on margins. Finally, Charter expects advances in communications technology, as well as changes in the marketplace and the regulatory and legislative environment. Consequently, Charter is unable to predict the effect that ongoing or future developments in these areas might have on its voice and commercial businesses and operations.

Programming costs are rising at a much faster rate than wages or inflation, and Charter may not have the ability to reduce or moderate the growth rates of, or pass on to its customers, its increasing programming costs, which would adversely affect its cash flow and operating margins.

Video programming has been, and is expected to continue to be, Charter's largest operating expense item. In recent years, the cable industry has experienced a rapid escalation in the cost of programming. Media corporation consolidation has resulted in fewer suppliers and additional selling power on the part of programming suppliers. Charter expects programming costs to continue to increase due to a variety of factors including amounts paid for broadcast station retransmission consent, annual increases imposed by programmers, including sports programmers, and the carriage of incremental programming, including new services and VOD programming. The inability to fully pass programming cost increases on to its customers has had, and is expected in the future to have, an adverse impact on Charter's cash flow and operating margins associated with the video product. The contracts set to expire in any particular year vary with a higher concentration of programming costs set to expire at, or before the end of, 2019. There can be no assurance that these agreements will be renewed on favorable or comparable terms. In addition, a number of programmers have begun to sell their services through alternative distribution channels, including IP-based platforms, which are less secure than Charter's video distribution platforms. There is growing evidence that these less secure video distribution platforms are leading to video product theft via password sharing among consumers. Password sharing may drive down the number of customers who pay for certain programming, putting programmer revenue at risk, and which in turn may cause certain programmers to seek even higher programming fees from Charter. To the extent that Charter is unable to reach agreement with certain programmers on terms that it believes are reasonable, Charter has been, and may be in the future, forced to remove such programming channels from its line-up, which may result in a loss of customers. Charter's failure to carry programming that is attractive to its customers could adversely impact Charter's customer levels, operations and financial results. In addition, if Charter's Internet customers are unable to access desirable content online because content providers block or limit access by its customers as a class, its ability to gain and retain customers, especially Internet customers, may be negatively impacted.

Increased demands by owners of some broadcast stations for carriage of other services or payments to those broadcasters for retransmission consent are likely to further increase Charter's programming costs. Federal law allows commercial television broadcast stations to make an election between "must-carry" rights and an alternative "retransmission-consent" regime. When a station opts for the retransmission-consent regime, Charter is not allowed to carry the station's signal without that station's permission. In some cases, Charter carries stations under short-term arrangements while it attempts to negotiate new long-term retransmission agreements. If negotiations with these programmers prove unsuccessful, they could require Charter to cease carrying their signals, possibly for an indefinite period. Any loss of stations could make its video service less attractive to customers, which could result in less subscription and advertising revenue. In retransmission-consent negotiations, broadcasters often condition consent with respect to one station on carriage of one or more other stations or programming services in which they or their affiliates have an interest. Carriage of these other services, as well as increased fees for retransmission rights, may increase Charter's programming expenses and diminish the amount of capacity it has available to introduce new services, which could have an adverse effect on its business and financial results.

Charter's inability to respond to technological developments and meet customer demand for new products and services could adversely affect its ability to compete effectively.

Charter operates in a highly competitive, consumer-driven and rapidly changing environment. From time to time, Charter may pursue strategic initiatives, including, for example, its wireless strategy which includes the launch of its mobile product through an MVNO and testing the deployment of unlicensed and licensed spectrum for fixed and mobile wireless services. Charter's success is, to a large extent, dependent on its ability to acquire, develop, adopt, upgrade and exploit new and existing technologies to address consumers' changing demands and distinguish its services from those of its competitors. Charter may not be able to accurately predict technological trends or the success of new products and services. If Charter chooses

technologies or equipment that are less effective, cost-efficient or attractive to customers than those chosen by its competitors, if Charter offers services that fail to appeal to consumers, are not available at competitive prices or that do not function as expected, or Charter is not able to fund the expenditures necessary to keep pace with technological developments, its competitive position could deteriorate, and its business and financial results could suffer.

The ability of some of Charter's competitors to introduce new technologies, products and services more quickly than Charter does may adversely affect its competitive position. Furthermore, advances in technology, decreases in the cost of existing technologies or changes in competitors' product and service offerings may require Charter in the future to make additional research and development expenditures or to offer at no additional charge or at a lower price certain products and services that Charter currently offers to customers separately or at a premium. In addition, the uncertainty of Charter's ability, and the costs, to obtain intellectual property rights from third parties could impact its ability to respond to technological advances in a timely and effective manner.

Charter's inability to maintain and expand its upgraded systems and provide advanced services such as a state of the art user interface in a timely manner, or to anticipate the demands of the marketplace, could materially adversely affect Charter's ability to attract and retain customers. In addition, as Charter launches its new mobile services using virtual network operator rights from a third party, Charter expects an initial funding period to grow a new product as well as negative working capital impacts from the timing of device-related cash flows when Charter provides the handset or tablet pursuant to equipment installation plans. Consequently, its growth, financial condition and results of operations could suffer materially.

Charter depends on third party service providers, suppliers and licensors; thus, if it is unable to procure the necessary services, equipment, software or licenses on reasonable terms and on a timely basis, its ability to offer services could be impaired, and Charter's growth, operations, business, financial results and financial condition could be materially adversely affected.

Charter depends on a limited number of third party service providers, suppliers and licensors to supply some of the services, hardware, software and operational support necessary to provide some of its services. Some of Charter's hardware, software and operational support vendors, and service providers represent its sole source of supply or have, either through contract or as a result of intellectual property rights, a position of some exclusivity. If any of these parties breaches or terminates its agreement with Charter or otherwise fails to perform its obligations in a timely manner, demand exceeds these vendors' capacity, tariffs are imposed that impact vendors' ability to perform their obligations or significantly increase the amount Charter pays, they experience operating or financial difficulties, they significantly increase the amount Charter pays for necessary products or services, or they cease production of any necessary product due to lack of demand, profitability or a change in ownership or are otherwise unable to provide the equipment or services Charter needs in a timely manner, at its specifications and at reasonable prices, its ability to provide some services might be materially adversely affected, or the need to procure or develop alternative sources of the affected materials or services might delay Charter's ability to serve its customers. In addition, the existence of only a limited number of vendors of key technologies can lead to less product innovation and higher costs. These events could materially and adversely affect Charter's ability to retain and attract customers and its operations, business, financial results and financial condition.

Charter's business may be adversely affected if Charter cannot continue to license or enforce the intellectual property rights on which its business depends.

Charter relies on patent, copyright, trademark and trade secret laws and licenses and other agreements with its employees, customers, suppliers and other parties to establish and maintain Charter's intellectual property rights in technology and the products and services used in its operations. Also, because of the rapid pace of technological change, Charter both develops its own technologies, products and services and relies on technologies developed or licensed by third parties. However, any of Charter's intellectual property rights, or the rights of its suppliers, could be challenged or invalidated, or such intellectual property rights may not be sufficient to permit Charter to take advantage of current industry trends or otherwise to provide competitive advantages, which could result in costly redesign efforts, discontinuance of certain product or service offerings or other competitive harm. Charter may not be able to obtain or continue to obtain licenses from these third parties on reasonable terms, if at all. In addition, claims of intellectual property infringement could require Charter to enter into royalty or licensing agreements on unfavorable terms, incur substantial monetary liability or be enjoined preliminarily or permanently from further use of the intellectual property in question, which could require Charter to change its business practices or offerings and limit its ability to compete effectively. Even unsuccessful claims can be time-consuming and costly to defend and may divert management's attention and resources away from Charter's business. Infringement claims continue to be brought frequently in

the communications and entertainment industries, and Charter is also often a party to such litigation alleging that certain of its services or technologies infringe the intellectual property rights of others.

Various events could disrupt or result in unauthorized access to Charter's networks, information systems or properties and could impair its operating activities and negatively impact Charter's reputation and financial results.

Network and information systems technologies are critical to Charter's operating activities, both for its internal uses, such as network management and supplying services to Charter's customers, including customer service operations and programming delivery. Network or information system shutdowns or other service disruptions caused by events such as computer hacking, phishing, dissemination of computer viruses, worms and other destructive or disruptive software, "cyber attacks," process breakdowns, denial of service attacks and other malicious activity pose increasing risks. Both unsuccessful and successful "cyber attacks" on companies have continued to increase in frequency, scope and potential harm in recent years. While Charter develops and maintains systems seeking to prevent systems-related events and security breaches from occurring, the development and maintenance of these systems is costly and requires ongoing monitoring and updating as techniques used in such attacks become more sophisticated and change frequently. Charter, and the third parties on which Charter relies, may be unable to anticipate these techniques or implement adequate preventive measures. While from time to time attempts have been made to access Charter's network, these attempts have not as yet resulted in any material release of information, degradation or disruption to its network and information systems.

Charter's network and information systems are also vulnerable to damage or interruption from power outages, telecommunications failures, accidents, natural disasters (including extreme weather arising from short-term or any long-term changes in weather patterns), terrorist attacks and similar events. Further, the impacts associated with extreme weather or long-term changes in weather patterns, such as rising sea levels or increased and intensified storm activity, may cause increased business interruptions or may require the relocation of some of Charter's facilities. Charter's system redundancy may be ineffective or inadequate, and Charter's disaster recovery planning may not be sufficient for all eventualities.

Any of these events, if directed at, or experienced by, Charter or technologies upon which Charter depends, could have adverse consequences on Charter's network, customers and business, including degradation of service, service disruption, excessive call volume to call centers, and damage to Charter's or its customers' equipment and data. Large expenditures may be necessary to repair or replace damaged property, networks or information systems or to protect them from similar events in the future. Moreover, the amount and scope of insurance that Charter maintains against losses resulting from any such events or security breaches may not be sufficient to cover Charter's losses or otherwise adequately compensate Charter for any disruptions to its business that may result. Any such significant service disruption could result in damage to Charter's reputation and credibility, customer dissatisfaction and ultimately a loss of customers or revenue. Any significant loss of customers or revenue, or significant increase in costs of serving those customers, could adversely affect Charter's growth, financial condition and results of operations.

Furthermore, Charter's operating activities could be subject to risks caused by misappropriation, misuse, leakage, falsification or accidental release or loss of information maintained in its information technology systems and networks and those of its third-party vendors, including customer, personnel and vendor data. Charter provides certain confidential, proprietary and personal information to third parties in connection with its business, and there is a risk that this information may be compromised.

As a result of the increasing awareness concerning the importance of safeguarding personal information, the potential misuse of such information and legislation that has been adopted or is being considered regarding the protection, privacy and security of personal information, information-related risks are increasing, particularly for businesses like Charter's that process, store and transmit large amount of data, including personal information for Charter's customers. Charter could be exposed to significant costs if such risks were to materialize, and such events could damage Charter's reputation, credibility and business and have a negative impact on its revenue. Charter could be subject to regulatory actions and claims made by consumers in private litigations involving privacy issues related to consumer data collection and use practices. Charter also could be required to expend significant capital and other resources to remedy any such security breach.

For tax purposes, Charter could experience a deemed ownership change in the future that could limit its ability to use its tax loss carryforwards.

Charter had approximately \$10.2 billion of federal tax net operating loss carryforwards resulting in a gross deferred tax asset of approximately \$2.1 billion as of December 31, 2018. These losses resulted from the operations of Charter Communications Holdings Company, LLC (“Charter Holdco”) and its subsidiaries, and from loss carryforwards received as a result of the Time Warner Cable Merger. Federal tax net operating loss carryforwards expire in the years 2019 through 2035. In addition, Charter had state tax net operating loss carryforwards resulting in a gross deferred tax asset (net of federal tax benefit) of approximately \$309 million as of December 31, 2018. State tax net operating loss carryforwards generally expire in the years 2019 through 2038.

In the past, Charter has experienced “ownership changes” as defined in Section 382 of the Internal Revenue Code of 1986, as amended (the “Code”). In general, an “ownership change” occurs whenever the percentage of the stock of a corporation owned, directly or indirectly, by “5-percent stockholders” (within the meaning of Section 382 of the Code) increases by more than 50 percentage points over the lowest percentage of the stock of such corporation owned, directly or indirectly, by such “5-percent stockholders” at any time over the preceding three years. As a result, Charter is subject to an annual limitation on the use of its loss carryforwards which existed at November 30, 2009 for the first “ownership change,” those that existed at May 1, 2013 for the second “ownership change,” and those created at May 18, 2016 for the third “ownership change.” The limitation on Charter’s ability to use its loss carryforwards, in conjunction with the loss carryforward expiration provisions, could reduce its ability to use a portion of its loss carryforwards to offset future taxable income, which could result in Charter being required to make material cash tax payments. Charter’s ability to make such income tax payments, if any, will depend at such time on its liquidity or its ability to raise additional capital, and/or on receipt of payments or distributions from Charter Holdco and its subsidiaries.

If Charter were to experience additional ownership changes in the future (as a result of purchases and sales of stock by its “5-percent stockholders,” new issuances or redemptions of its stock, certain acquisitions of its stock and issuances, redemptions, sales or other dispositions or acquisitions of interests in Charter’s “5-percent stockholders”), its ability to use its loss carryforwards could become subject to further limitations.

If Charter is unable to retain key employees, its ability to manage its business could be adversely affected.

Charter’s operational results have depended, and its future results will depend, upon the retention and continued performance of its management team. Charter’s ability to retain and hire new key employees for management positions could be impacted adversely by the competitive environment for management talent in the broadband communications industry. The loss of the services of key members of management and the inability or delay in hiring new key employees could adversely affect Charter’s ability to manage its business and its future operational and financial results.

Charter has a significant amount of debt and expects to incur significant additional debt, including secured debt, in the future, which could adversely affect its financial health and its ability to react to changes in its business.

Charter has a significant amount of debt and expects to (subject to applicable restrictions in its debt instruments) incur additional debt in the future as Charter maintains its stated objective of 4.0 to 4.5 times leverage (its net debt divided by its last twelve months Adjusted EBITDA). As of December 31, 2018, Charter’s total principal amount of debt was approximately \$72.0 billion with a leverage ratio of 4.5 times.

Charter’s significant amount of debt could have consequences, such as:

- impact its ability to raise additional capital at reasonable rates, or at all;
- make it vulnerable to interest rate increases, in part because approximately 15% of its borrowings as of December 31, 2018 were, and may continue to be, subject to variable rates of interest;
- expose it to increased interest expense to the extent it refinances existing debt with higher cost debt;
- require it to dedicate a significant portion of its cash flow from operating activities to make payments on its debt, reducing its funds available for working capital, capital expenditures, and other general corporate expenses;

- limit its flexibility in planning for, or reacting to, changes in its business, the cable and telecommunications industries, and the economy at large;
- place it at a disadvantage compared to its competitors that have proportionately less debt; and
- adversely affect its relationship with customers and suppliers.

If current debt amounts increase, Charter's business results are lower than expected, or credit rating agencies downgrade its debt limiting its access to investment grade markets, the related risks that Charter now faces will intensify. In addition, Charter's variable rate indebtedness may use London Interbank Offering Rate ("LIBOR") as a benchmark for establishing the rate. LIBOR is the subject of recent national, international and other regulatory guidance and proposals for reform. These reforms and other pressures may cause LIBOR to disappear entirely or to perform differently than in the past. The consequences of these developments cannot be entirely predicted, but could include an increase in the cost of Charter's variable rate indebtedness.

The agreements and instruments governing Charter's debt contain restrictions and limitations that could significantly affect its ability to operate its business, as well as significantly affect its liquidity.

Charter's credit facilities and the indentures governing its debt contain a number of significant covenants that could adversely affect Charter's ability to operate its business, its liquidity, and its results of operations. These covenants restrict, among other things, Charter's and Charter's subsidiaries' ability to:

- incur additional debt;
- repurchase or redeem equity interests and debt;
- issue equity;
- make certain investments or acquisitions;
- pay dividends or make other distributions;
- dispose of assets or merge;
- enter into related party transactions; and
- grant liens and pledge assets.

Additionally, the Charter Communications Operating, LLC ("Charter Operating") credit facilities require Charter Operating to comply with a maximum total leverage covenant and a maximum first lien leverage covenant. The breach of any covenants or obligations in Charter's indentures or credit facilities, not otherwise waived or amended, could result in a default under the applicable debt obligations and could trigger acceleration of those obligations, which in turn could trigger cross defaults under other agreements governing Charter's long-term indebtedness. In addition, the secured lenders under Charter's notes and the Charter Operating credit facilities could foreclose on their collateral, which includes equity interests in Charter's subsidiaries, and exercise other rights of secured creditors.

Charter's business is subject to extensive governmental legislation and regulation, which could adversely affect its business.

Regulation of the cable industry has increased cable operators' operational and administrative expenses and limited their revenue. Cable operators are subject to various laws and regulations including those covering the following:

- the provision of high-speed Internet service, including transparency rules;
- the provision of voice communications;
- cable franchise renewals and transfers;
- the provisioning and marketing of cable equipment and compatibility with new digital technologies;
- customer and employee privacy and data security;

- limited rate regulation of video service;
- copyright royalties for retransmitting broadcast signals;
- when a cable system must carry a particular broadcast station and when it must first obtain retransmission consent to carry a broadcast station;
- the provision of channel capacity to unaffiliated commercial leased access programmers;
- limitations on Charter's ability to enter into exclusive agreements with multiple dwelling unit complexes and control Charter's inside wiring;
- equal employment opportunity, emergency alert systems, disability access, technical standards, marketing practices, customer service, and consumer protection; and
- approval for mergers and acquisitions often accompanied by the imposition of restrictions and requirements on an applicant's business in order to secure approval of the proposed transaction.

Legislators and regulators at all levels of government frequently consider changing, and sometimes do change, existing statutes, rules, regulations, or interpretations thereof, or prescribe new ones. Any future legislative, judicial, regulatory or administrative actions may increase Charter's costs or impose additional restrictions on Charter's businesses.

As a result of the closing of the Transactions, Charter's businesses are subject to the conditions set forth in the related FCC Order and DOJ Order and those imposed by state utility commissions and local franchise authorities, and there can be no assurance that these conditions will not have an adverse effect on its businesses and results of operations.

In connection with the Transactions, the related FCC Order, DOJ Order, and approvals from state utility commissions and local franchise authorities incorporated numerous commitments and voluntary conditions made by the parties and imposed numerous conditions on Charter's businesses relating to the operation of Charter's business and other matters. Under federal approvals, among other things, (i) Charter is not permitted to charge usage-based prices or impose data caps and is prohibited from charging interconnection fees for qualifying parties; (ii) Charter is prohibited from entering into or enforcing any agreement with a programmer that forbids, limits or creates incentives to limit the programmer's provision of content to OVDs and cannot retaliate against programmers for licensing to OVDs; (iii) Charter is not able to avail itself of other distributors' contract provisions under Charter's MFN provisions if their provisions are inconsistent with this prohibition; (iv) Charter must undertake a number of actions designed to promote diversity; (v) Charter appointed an independent compliance monitor and complies with a broad array of reporting requirements; and (vi) Charter must satisfy various other conditions relating to its Internet services, including building out an additional two million locations with access to a high-speed connection of at least 60 megabits per second, and implementing a reduced price high-speed Internet program for low income families. These and other conditions and commitments relating to the Transactions are of varying duration, ranging from three to seven years after the effective dates of the FCC Order, DOJ Order, and other approvals. In light of the breadth and duration of the conditions and potential changes in market conditions during the time the conditions and commitments are in effect, there can be no assurance that Charter's compliance, and ability to comply, with the conditions will not have a material adverse effect on its business or results of operations. For example, in July 2018, the New York State Public Service Commission revoked its earlier approval of Charter's acquisition of TWC, determining that Charter had not complied with its Transaction commitments to extend availability of high-speed Internet services to 145,000 underserved or unserved homes or businesses over a four year period. Although Charter is vigorously opposing the Public Service Commission's revocation, if this, or any similar, revocation is not reversed, it could materially impact Charter's operations. See "Item 3. Legal Proceedings."

Changes to existing statutes, rules, regulations, or interpretations thereof, or adoption of new ones, could have an adverse effect on Charter's business.

There are ongoing efforts to amend or expand the federal, state, and local regulation of some of the services offered over Charter's cable systems, which may compound the regulatory risks Charter already faces. For example, with respect to its retail broadband Internet access service, the FCC has reclassified the service twice in the last five years, with the first change adding regulatory obligations and the second change largely removing those new regulatory obligations. These changes reflect a lack of regulatory certainty in this business area, which may continue as a result of litigation, as well as future legislative or administrative changes.

Other potential legislative and regulatory changes could adversely impact Charter's business by increasing its costs and competition and limiting its ability to offer services in a manner that that would maximize its revenue potential. These changes could include, for example, the adoption of new privacy restrictions on Charter's collection, use and disclosure of certain customer information, new data security and cybersecurity mandates that could result in additional network and information security requirements for Charter's business, new restraints on its discretion over programming decisions, including the provision of public, educational and governmental access programming and unaffiliated, commercial leased access programming, new restrictions on the rates Charter charges for video programming and the marketing of that video programming, changes to the cable industry's compulsory copyright license to carry broadcast signals, new requirements to assure the availability of navigation devices (such as set-top boxes) from third party providers, new Universal Service Fund obligations on Charter's provision of Internet service that would add to the cost of that service; increases in government-administered broadband subsidies to rural areas that could result in subsidized overbuilding of Charter's more rural facilities, and changes in the regulatory framework for VoIP phone service, including the scope of regulatory obligations associated with Charter's VoIP service and Charter's ability to interconnect its VoIP service with incumbent providers of traditional telecommunications service.

If any of these such laws or regulations are enacted, they could affect Charter's operations and require significant expenditures. Charter cannot predict future developments in these areas, and Charter is already subject to Charter-specific conditions regarding certain Internet practices as a result of the FCC's approval of the Transactions, but any changes to the regulatory framework for Charter's video, Internet or VoIP services could have a negative impact on its business and results of operations.

It remains uncertain what rule changes, if any, will ultimately be adopted by Congress and the FCC and what operating or financial impact any such rules might have on Charter, including, for example, on its programming agreements, customer privacy and the user experience. In addition, the FCC, the FTC, and various state agencies and attorney generals actively investigate industry practices and could impose substantial forfeitures for alleged regulatory violations.

Charter's cable system franchises are subject to non-renewal or termination and are non-exclusive. The failure to renew a franchise or the grant of additional franchises in one or more service areas could adversely affect its business.

Charter's cable systems generally operate pursuant to franchises, permits, and similar authorizations issued by a state or local governmental authority controlling the public rights-of-way. Many franchises establish comprehensive facilities and service requirements, as well as specific customer service standards and monetary penalties for non-compliance. In many cases, franchises are terminable if the franchisee fails to comply with significant provisions set forth in the franchise agreement governing system operations. Franchises are generally granted for fixed terms and must be periodically renewed. Franchising authorities may resist granting a renewal if either past performance or the prospective operating proposal is considered inadequate. Franchise authorities often demand concessions or other commitments as a condition to renewal. In some instances, local franchises have not been renewed at expiration, and Charter has operated and is operating under either temporary operating agreements or without a franchise while negotiating renewal terms with the local franchising authorities.

There can be no assurance that Charter will be able to comply with all significant provisions of its franchise agreements and certain of its franchisers have from time to time alleged that Charter has not complied with these agreements. Additionally, although historically Charter has renewed its franchises without incurring significant costs, there can be no assurance that Charter will be able to renew, or to renew as favorably, its franchises in the future. A termination of or a sustained failure to renew a franchise in one or more service areas could adversely affect Charter's business in the affected geographic area.

Charter's cable system franchises are non-exclusive. Consequently, local and state franchising authorities can grant additional franchises to competitors in the same geographic area or operate their own cable systems. In some cases, local government entities and municipal utilities may legally compete with Charter on more favorable terms. Potential competitors (like Google) have recently pursued and obtained local franchises that are more favorable than the incumbent operator's franchise.

Tax legislation and administrative initiatives or challenges to Charter's tax and fee positions could adversely affect its results of operations and financial condition.

Charter operates cable systems in locations throughout the United States and, as a result, is subject to the tax laws and regulations of federal, state and local governments. From time to time, various legislative and/or administrative initiatives may be proposed that could adversely affect Charter's tax positions. There can be no assurance that its effective tax rate or tax

payments will not be adversely affected by these initiatives. Certain states and localities have imposed or are considering imposing new or additional taxes or fees on Charter's services or changing the methodologies or base on which certain fees and taxes are computed. Potential changes include additional taxes or fees on Charter's services which could impact its customers, changes to income tax sourcing rules and other changes to general business taxes, central/unit-level assessment of property taxes and other matters that could increase Charter's income, franchise, sales, use and/or property tax liabilities. For example, some local franchising authorities are seeking to impose franchise fee assessments on our broadband Internet access service, and more may do so in the future. If they do so, and challenges to such assessments are unsuccessful, it could adversely impact Charter's costs. In addition, federal, state and local tax laws and regulations are extremely complex and subject to varying interpretations. There can be no assurance that Charter's tax positions will not be challenged by relevant tax authorities or that it would be successful in any such challenge.

Factors Relating to Skyhook

Skyhook faces competition from multiple sources.

Skyhook's Precision Location Solution competes against (1) other satellite and terrestrial based location technology offerings, such as GPS, Observed Time Difference of Arrival and terrestrial beacons; (2) other providers of WiFi and cell-based positioning, such as Google and HERE, a former subsidiary of Nokia; and (3) other in-house developed location solutions. In the smartphone location provider market, because Apple and Google control a large percentage of the market share for smartphone operating systems and both offer location provider services free as part of the iOS and Android markets, Skyhook is constrained in the distribution and monetization of the Precision Location Solution in that market. There are also a number of new location technologies in development which may further increase competition to be a location solution for new devices (such as Internet of Things and wearable devices) and which may require Skyhook to meet more stringent accuracy standards. In addition, Skyhook's Geospatial Insights services compete against other geofencing and location data offerings from other niche location companies.

Certain of Skyhook's competitors are substantially larger than Skyhook and have greater financial, technical, marketing and other resources. Thus, many of these large enterprises are in a better position to withstand any significant reduction in spending by customers in its markets, and often have broader product lines and market focus, have greater brand recognition and may not be as susceptible to downturns in a single market. These competitors may also be able to bundle their products together (such as with mapping software) to meet the needs of a particular customer, may be able to respond more rapidly to new or emerging technologies or changes in customer requirements and may be capable of delivering more complete solutions than Skyhook is able to provide. If large enterprises that currently do not compete directly with Skyhook choose to enter its markets by acquisition or otherwise, competition for both revenue and data would likely intensify. In addition, the growth of new location technologies currently in development may further increase competition to provide these new technologies. If Skyhook is not able to compete successfully for customers, its financial position may be materially adversely affected.

Skyhook is investing in a number of new markets, products and services, but those efforts are still in the early stages and there is no guarantee that such investments will be successful.

In addition to its traditional Precision Location Solution, Skyhook is also investing significant capital in the development, introduction and sale of its Geospatial Insights products. Investing in these new markets and technologies – many of which are early stage – necessarily involves significant risks and uncertainties, including the possibility that revenue from such investments will be insufficient to offset any new liabilities assumed and expenses, an inadequate return of capital on its investments, and the distraction of management and Skyhook from current operations. Such risks and uncertainties could cause Skyhook to fail to realize the anticipated benefits of such investments and incur unanticipated liabilities.

Skyhook's research, development and other investments in new technologies, products or services may not succeed due to, among other things: improvements in alternate technologies in ways that reduce the advantages it anticipates from its investments; competitors' products or services being more cost effective, having more capabilities or fewer limitations or being brought to market faster than Skyhook's new products and services; and competitors having longer operating histories in industry segments that are new to Skyhook. Skyhook may also underestimate the costs of or overestimate the future operating income and/or margins that could result from these investments, and these investments may not, or may take many years to, generate material returns. If Skyhook's new technologies, products or services are not successful, or are not successful in the time frame

Skyhook anticipates, Skyhook may incur significant costs and/or asset impairments, its business may not grow as anticipated, its revenue and/or margins may be negatively impacted and/or its reputation may be harmed.

The revenue of Skyhook depends on a limited number of customers, and the loss of its more significant customers could adversely affect its business.

Skyhook derives a significant amount of its revenue from a limited number of customers, and it is anticipated that these customers will continue to represent a significant portion of the revenue of Skyhook. Because Skyhook depends on a limited number of customers, the loss of one or more of these customers could have a material adverse effect on its operating results. Certain of these customers may fail to renew their contracts with Skyhook from time to time, creating additional risk with respect to the potential loss of revenue from these customers. In addition, Skyhook depends on certain customers to transmit location data that assists in keeping Skyhook's proprietary reference database current. If Skyhook is unable to maintain access to these data sources (or alternative sources are unavailable), then Skyhook's ability to derive revenue for its capabilities could be harmed. The loss or reduction of business or data from any combination of these existing customers of Skyhook would materially adversely affect revenue, financial condition and results of operations of Skyhook.

The revenue of Skyhook depends on the performance of device manufacturers, application developers and other resellers of its technology.

Skyhook does not sell its Precisions Location Solution directly to end consumers. Instead, Skyhook provides location technology that integrates with devices and applications that are created or distributed by third parties. Accordingly, Skyhook's future growth significantly depends on third parties choosing to incorporate its technology into new device types and markets other than smartphone devices, such as industrial Internet of Things, connected home and wearable markets. Skyhook also depends on its customers, resellers and licensees to develop products and services with value-added features to drive sales and demand. There can be no assurance that such efforts will be successful.

Skyhook has reported net operating losses in prior years as a result of its investments in new products and markets, and there is no assurance it will be able to attain consistently profitable operations.

Skyhook has reported net operating losses in prior years due, in part, to significant operating expenses related to the aforementioned investments in new markets, products and services. Although Skyhook recognized \$8.5 million in revenue during the first quarter of 2018, this was the result of a one-time lump sum payment to Skyhook relating to a license granted by Skyhook relating to patents and patent applications. See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations – Results of Operations – Consolidated". These new investments are intended to replace the revenue that Skyhook lost from the decline of its U-TDOA Service and the loss of another large Skyhook customer, as well as to further grow and diversify Skyhook's revenue stream in a competitive technological environment. There can be no assurance that these investments will drive the revenue growth that is necessary to replace contracts that were lost or that they will be sufficient to achieve profitability.

The underlying business and technology of Skyhook depends on the commercial deployment of wireless and other communications technologies and its ability to continue to drive customer demand for Skyhook products and services in a rapidly evolving and developing industry.

Skyhook develops, patents and commercializes products and services based on wireless and other communications technologies. Skyhook depends on third parties to deploy these wireless technologies and networks in order to operate and deploy Skyhook's products and services. If third parties do not deploy wireless networks or other communication technologies used by Skyhook to operate its location services, or if new technologies or standards are introduced, it could have a material adverse effect on Skyhook's results of operations and financial condition.

As a result of this possibility, Skyhook must stay abreast of rapidly evolving technological developments and offerings (such as the introduction of LoRa Wireless RF technology, a long range, low power consumption and data transmission protocol for Internet of Things devices) to remain competitive and increase the utility of their products and services, and it must be able to incorporate new technologies into its products and services in order to address the needs of its customers. The failure to successfully introduce new or enhanced products and services on a timely and cost-competitive basis that complies with evolving

industry standards and regulations or the inability to continue to market existing products on a cost-competitive basis could also have a material adverse effect on Skyhook's results of operations and financial condition.

In addition, in order to successfully develop and market certain of Skyhook's products and services, Skyhook may be required to enter into technology development or licensing agreements with third parties. Skyhook cannot provide assurances that it will be able to timely enter into necessary technology development or licensing agreements on reasonable terms, or at all.

Actions taken by Skyhook to protect its intellectual property rights, such as through a licensing program or through litigation to enforce its intellectual property rights, could result in substantial costs, and Skyhook's ability to compete could be harmed if it fails to take such actions or is unsuccessful in doing so.

Skyhook relies primarily on a combination of patents, trademarks, trade secrets, employee and third-party nondisclosure agreements, licensing arrangements and other methods to protect its intellectual property in the United States and internationally. Skyhook has numerous patents issued, allowed and pending in the United States and/or in foreign jurisdictions which primarily relate to products and the technology used in connection with the products and services it offers. Skyhook cannot be certain that the steps it has taken, or may take in the future, will prevent the misappropriation or unauthorized use of its proprietary information and technologies, particularly in foreign countries where international treaties, organizations and foreign laws may not protect its proprietary intellectual property rights as fully or as readily as United States laws or where the enforcement of such laws may be lacking or ineffective. Any pending patent applications and any future applications may not be approved, and any issued patents may not provide Skyhook with competitive advantages, or such issued patents may be challenged, invalidated, infringed, circumvented or misappropriated by third parties.

While Skyhook believes that it has a defensible and useful patent portfolio and it actively seeks to generate revenue through the licensing of its patents and other assets, it cannot assure you that its attempts to secure future patent licenses will be successful or that it will generate meaningful revenue from licensing. In addition, in connection with actively seeking to license and enforce its patents and other intellectual property, Skyhook has in the past been required and may be required in the future to initiate litigation in order to assert claims of infringement of its intellectual property, enforce patents issued or licensed to them, protect their trade secrets or know-how or to determine the scope and/or validity of a third party's patent or other proprietary rights. Such litigation may involve significant costs and any such litigation could also result in rulings impacting the validity or enforceability of Skyhook's patents, which could result in new or increased competition that could have a material adverse effect on Skyhook's results of operations and financial condition. There can be no assurances that Skyhook would be successful in any such litigation.

Skyhook could face intellectual property lawsuits from competitors or non-practicing entities.

Other companies, including some of Skyhook's largest competitors, hold intellectual property rights in its industry which could inhibit Skyhook's ability to introduce new products and services unless it secures necessary licenses on commercially reasonable terms. Furthermore, as the number of issued patents increases and as competition intensifies, the volume of intellectual property infringement claims and lawsuits may also increase. Skyhook may in the future become involved in lawsuits or other legal proceedings alleging patent infringement or other intellectual property rights violations by Skyhook or parties that it has agreed to indemnify for certain claims of infringement. Third parties may also claim that employees of Skyhook have misappropriated or divulged their former employers' trade secrets or confidential information. Any such litigation, regardless of outcome, could subject Skyhook to significant costs or liabilities or require it to cease using proprietary third party technology and, consequently, could have a material adverse effect on its results of operations and financial condition. If infringement claims are made against Skyhook or its products are found to infringe a third parties' patent or intellectual property, Skyhook or one of its indemnitees may have to seek a license to the third parties' patent or other intellectual property rights. However, Skyhook may not be able to obtain licenses at all or on terms acceptable to it particularly from its competitors. If Skyhook or one of its indemnitees is unable to obtain a license from a third party for technology that Skyhook uses or that is used in one of its products, Skyhook could be subject to substantial liabilities or have to suspend or discontinue the manufacture and sale of one or more of its products. It may also have to make royalty or other payments, cross license technology or make payments pursuant to third party indemnitees.

The success of Skyhook depends on the integrity of its systems and infrastructures.

Skyhook relies on its enterprise resource planning systems to support such critical business operations as processing sales orders and invoicing, purchasing and supply chain management, human resources and financial reporting. Portions of Skyhook's IT infrastructure may experience interruptions of service or produce errors in connection with systemic failures, systems integration or migration work that takes place from time to time. Skyhook may not be successful in implementing new systems and transitioning data, which could cause business disruptions and be more expensive, time consuming, disruptive and resource-intensive. If Skyhook is unable to successfully implement major systems initiatives and maintain critical information systems, it could encounter difficulties that could have a material adverse impact on its business.

Furthermore, the businesses of Skyhook depend on delivering products and services of consistently high quality and reliability to customers. If the services offered by Skyhook were to fail or not to perform as expected, its services could be rendered ineffective, and any significant or systemic service failure could also result in a loss of customer confidence, as well as reputational damage, resulting in a material adverse impact on Skyhook's business.

The regulatory environment in which Skyhook operates is complex.

Skyhook is subject to a variety of laws and regulations in the United States and in foreign jurisdictions that involve matters central to its technology and ongoing business, including the collection and storage of location information, privacy and data protection, intellectual property, data security and data retention, and other business and ethics compliance-related laws. The application, scope, interpretation, and enforcement of applicable laws and regulations in many of these areas are often uncertain, particularly in the new and rapidly-evolving mobile technology industry in which Skyhook operates. In addition, existing laws may be interpreted and applied inconsistently from one jurisdiction to another, and inconsistently with Skyhook's current policies and practices. The introduction of new products or the expansion of Skyhook's sales activities in certain jurisdictions may subject it to additional laws and regulations, or increase the risk posed to Skyhook's business by non-compliance.

Skyhook is also monitoring additional proposed and pending legislation and regulations in the U.S. and abroad that are related to its technology and business operations, including regulations that implement specific privacy or data protection rules. There can be no assurance that future legislation or regulations will not have a material impact upon Skyhook's ability to operate its business, collect the location data required for its operational needs, or generate revenue.

The existing and proposed laws and regulations that are applicable to Skyhook's business, as well as any associated inquiries, investigations, or actions from governmental authorities or private citizens, can be costly to comply with, can delay or impede the development of new products, may result in negative publicity or cause reputational damage, may increase operating cost and require significant management time and attention, and may subject Skyhook to various possible remedies, including fines, penalties, injunctions or other orders.

New data protection and data transfer laws around the world could impact Skyhook's business and its ability to collect location data, and impose significant compliance costs.

Skyhook is, or may become, subject to various data protection, privacy, and other laws and regulations in various jurisdictions around the world. Such laws could impact Skyhook's ability to generate revenue, to transfer or collect data necessary to its operations, or prevent, slow or deter Skyhook's entry into certain regions. For example, as a result of its international activities, Skyhook is subject to laws and regulations that dictate whether, how, and under what circumstances it can transfer or process data from the EU to the United States. In addition, certain activities of Skyhook are subject to the GDPR which came into effect in May 2018 and imposes stringent requirements on businesses that collect and process "personal data" from individuals in the EU. The GDPR subjects businesses to significant fines and other penalties for non-compliance.

Since the GDPR took effect, the EU has released guidance regarding the application of the regulation, and enforcement actions have been initiated pursuant to the GDPR. However, the scope, application and enforcement of the GDPR are uncertain. There can be no assurance that Skyhook will be compliant, or that the costs of compliance (and the resources and changes to technology and infrastructure that could be required) will not be material to Skyhook's business.

Privacy concerns relating to location data generally and Skyhook's technology could damage its reputation and deter current and potential users from using its products and applications.

Concerns about the collection of location data generally, or about the specific practices of Skyhook with regard to the collection, use, disclosure, or security of location information or other privacy related matters, even if unfounded, could damage its reputation and operating results. While Skyhook strives to comply with all applicable data protection laws and regulations, as well as its own posted privacy policies, any failure or perceived failure to comply may result in proceedings or actions against Skyhook by government entities or others, or could cause it to lose users and customers, which could potentially have an adverse effect on Skyhook's data inflows and revenue generating capabilities.

Security breaches and other disruptions, including as a result of cyber attacks, could compromise the information collected and stored by Skyhook and expose it to liability, which would cause business and reputational damage.

In the ordinary course of business, Skyhook collects and stores sensitive data, including intellectual property, its proprietary business information and information about mobile device and radio beacon locations (of its customers and suppliers). The secure processing, maintenance and transmission of this information in its facilities and on its networks is important to its operations. Despite security measures in place at Skyhook, its information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error or other disruptions. Any such breach could compromise its networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, disruption of operations, reputational damage, and cause a loss of confidence, which could adversely affect Skyhook's business and revenue.

Factors Relating to our Common Stock and the Securities Market

We expect our stock price to continue to be directly affected by the results of operation of Charter and developments in its business.

The fair value of our investment in Charter, on an as-converted basis, was approximately \$15.4 billion as of December 31, 2018, which represents all of our total market value. As a result, our stock price will continue to be directly affected by the results of operations of Charter and the developments in its business.

Although our Series B common stock is quoted on the OTC Markets, there is no meaningful trading market for the stock.

Our Series B common stock is not widely held, with approximately 96% of the outstanding shares beneficially owned by John C. Malone, the Chairman of the board and a director of our company as of January 31, 2019. Although it is quoted on the OTC Markets, it is sparsely traded and does not have an active trading market. The OTC Markets tend to be highly illiquid, in part, because there is no national quotation system by which potential investors can track the market price of shares except through information received or generated by a limited number of broker-dealers that make markets in particular stocks. There is also a greater chance of market volatility for securities that trade on the OTC Markets as opposed to a national exchange or quotation system. This volatility is due to a variety of factors, including a lack of readily available price quotations, lower trading volume, absence of consistent administrative supervision of "bid" and "ask" quotations, and market conditions. Each share of the Series B common stock is convertible, at any time at the option of the holder, into one share of our Series A common stock, which is listed and traded on the Nasdaq Global Select Market under the symbol "LBRDA."

It may be difficult for a third party to acquire us, even if doing so may be beneficial to our stockholders.

Certain provisions of our certificate of incorporation and bylaws may discourage, delay or prevent a change in control of our company that a stockholder may consider favorable. These provisions include the following:

- authorizing a capital structure with multiple series of common stock: a Series B that entitles the holders to ten votes per share, a Series A that entitles the holders to one vote per share and a Series C that, except as otherwise required by applicable law, entitles the holders to no voting rights;
- authorizing the issuance of "blank check" preferred stock, which could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt;

- classifying our board of directors with staggered three-year terms, which may lengthen the time required to gain control of our board of directors;
- limiting who may call special meetings of stockholders;
- prohibiting stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of the stockholders;
- establishing advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by stockholders at stockholder meetings;
- requiring stockholder approval by holders of at least 80% of our voting power or the approval by at least 75% of our board of directors with respect to certain extraordinary matters, such as a merger or consolidation of our company, a sale of all or substantially all of our assets or an amendment to our restated certificate of incorporation; and
- the existence of authorized and unissued stock which would allow our board of directors to issue shares to persons friendly to current management, thereby protecting the continuity of its management, or which could be used to dilute the stock ownership of persons seeking to obtain control of us.

In addition, John C. Malone currently beneficially owns shares representing the power to direct approximately 49% of the aggregate voting power in our company, due to his beneficial ownership of approximately 96% of the outstanding shares of our Series B common stock as of January 31, 2019.

Holders of a single series of our common stock may not have any remedies if an action by our directors has an adverse effect on only that series of our common stock.

Principles of Delaware law and the provisions of our certificate of incorporation may protect decisions of our board of directors that have a disparate impact upon holders of any single series of our common stock. Under Delaware law, the board of directors has a duty to act with due care and in the best interests of all of our stockholders, including the holders of all series of our common stock. Principles of Delaware law established in cases involving differing treatment of multiple classes or series of stock provide that a board of directors owes an equal duty to all common stockholders regardless of class or series and does not have separate or additional duties to any group of stockholders. As a result, in some circumstances, our directors may be required to make a decision that is viewed as adverse to the holders of one series of our common stock. Under the principles of Delaware law and the business judgment rule, holders may not be able to successfully challenge decisions that they believe have a disparate impact upon the holders of one series of our stock if our board of directors is disinterested and independent with respect to the action taken, is adequately informed with respect to the action taken and acts in good faith and in the honest belief that the board is acting in the best interest of all of our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties.

Liberty Broadband

In connection with the Broadband Spin-Off, a wholly-owned subsidiary of Liberty entered into a facilities sharing agreement with Liberty Broadband, pursuant to which Liberty Broadband shares office facilities with Liberty located at 12300 Liberty Boulevard, Englewood, Colorado, 80112.

Skyhook

Skyhook maintains corporate offices in two locations: Boston, Massachusetts and Wayne, Pennsylvania. Skyhook leases a 7,900 square foot facility in Boston, which expires in December 2019, and a 6,751 square foot facility in Wayne, which expires in December 2020.

Item 3. Legal Proceedings

Charter and Liberty Broadband - Delaware Litigation

On August 21, 2015, a purported stockholder of Legacy Charter filed a lawsuit in the Delaware Court of Chancery (the “Court”), on behalf of a putative class of Legacy Charter stockholders, challenging the Transactions. The lawsuit is captioned *Sciabacucchi v. Liberty Broadband Corp.*, C.A. No. 11418-VCG (the “Delaware Action”), and names as defendants Liberty Broadband, Charter and the board of directors of Charter. Plaintiff alleged that the Transactions resulted from breaches of fiduciary duty by Charter’s directors and that Liberty Broadband improperly benefited from the challenged transactions at the expense of other Charter stockholders. The lawsuit has proceeded to the discovery phase. Charter and Liberty Broadband deny any liability, believe that they have substantial defenses, and intend to vigorously defend this lawsuit. Although Charter is unable to predict the outcome of this lawsuit, it does not expect the outcome will have a material effect on its operations, financial condition or cash flows.

Other Charter Proceedings

The California Attorney General and the Alameda County, California District Attorney are investigating whether certain of Charter’s waste disposal policies, procedures and practices are in violation of the California Business and Professions Code and the California Health and Safety Code. That investigation was commenced in January 2014. A similar investigation involving TWC was initiated in February 2012. Charter is cooperating with these investigations. While Charter is unable to predict the outcome of these investigations, it does not expect that the outcome will have a material effect on its operations, financial condition, or cash flows.

On December 19, 2011, Sprint Communications Company L.P. (“Sprint”) filed a complaint in the U.S. District Court for the District of Kansas alleging that TWC infringed certain U.S. patents purportedly relating to VoIP services. A trial began on February 13, 2017. The plaintiff is seeking monetary damages of approximately \$150 million. On March 3, 2017 the jury returned a verdict of \$140 million against TWC and further concluded that TWC had willfully infringed Sprint’s patents. The court subsequently declined to enhance the damage award as a result of the purported willful infringement and awarded Sprint an additional \$6 million, representing pre-judgment interest on the damages award. Charter appealed the case to the United States Court of Appeals for the Federal Circuit where it lost the appeal. Charter expects to petition the court of appeals for rehearing and continues to pursue its appeal rights. In addition to its appeal, Charter continues to pursue indemnity from one of its vendors and has brought a patent suit against Sprint (*TC Tech v. Sprint*) in the U.S. District Court for the District of Delaware implicating Sprint’s LTE technology. Charter does not expect that the outcome of this litigation will have a material adverse effect on its operations or financial condition. The ultimate outcomes of this appeal of the Sprint Kansas case, the pursuit of indemnity against Charter’s vendor and the TC Tech litigation cannot be predicted.

Sprint filed suit against Charter on December 2, 2017 in the United States District Court for the District of Delaware. The suit alleges infringement of 15 patents related to Charter’s provision of VoIP services (ten of which were already asserted against Legacy TWC in the matter described above). Charter will vigorously defend this case. While Charter is unable to predict the outcome of this Sprint suit, it does not expect that this litigation will have a material effect on its operations, financial condition, or cash flows.

Sprint filed a third suit against Charter on May 17, 2018 in the United States District Court for the Eastern District of Virginia. This suit alleges infringement of three patents related to the Company’s video on demand services. Charter will vigorously defend this case. The parties recently agreed to transfer this case to the United States District Court for the District of Delaware. While Charter is unable to predict the outcome of this litigation, it does not expect that this litigation will have a material effect on its operations, financial condition, or cash flows.

On October 23, 2015, the New York Office of the Attorney General (the “NY AG”) began an investigation of TWC’s advertised Internet speeds and other Internet product advertising. On February 1, 2017, the NY AG filed suit in the Supreme Court for the State of New York alleging TWC’s advertising of Internet speeds was false and misleading. The case settled in December 2018.

On March 28, 2017, prior to the expiration of the collective bargaining agreement on March 31, 2017, approximately 1,600 of our employees in New York City and New Jersey, represented by Local 3 of the International Brotherhood of Electrical

Workers (the “IBEW”) commenced a strike. Charter proposed substantial wage increases and a reduction of its share in contributions into IBEW-sponsored multi-employer pension and healthcare plans. Local 3 rejected Charter’s proposal and went on strike in furtherance of its demand that Charter increase its contributions into the IBEW-sponsored plans with only modest wage increases. As a result of an impasse in the negotiations, Charter implemented the terms of its last proposal, which included substantial wage increases and replaced the IBEW-sponsored plans with Charter benefit plans. In May 2018, a bargaining unit petitioned the National Labor Relations Board (“NLRB”) for an election to decertify the IBEW as the collective bargaining representative for the New York City and New Jersey bargaining unit employees. The ballots for the decertification vote were mailed by the NLRB on January 25, 2019 with a return date of February 22 and a ballot count scheduled for February 25, 2019.

During this period of the IBEW strike, the New York Public Service Commission (the “PSC”) issued multiple orders against Charter. These orders included two orders on July 27, 2018 relating to the agreement by which the PSC approved Charter’s merger with Time Warner Cable. One order rejected Charter’s arguments as to why Charter continued to be compliant with the merger conditions and determined that Charter had failed to satisfy one of its merger conditions by not extending its high speed broadband network according to the PSC’s recent interpretation of which homes and businesses Charter built to should count. The order further directed the initiation of a court action to impose financial and other penalties on Charter. The second order, based primarily upon Charter’s progress in meeting its broadband expansion commitment as judged by the PSC, purported to rescind the PSC’s January 2016 approval of Charter’s acquisition of Time Warner Cable’s New York operations and directs Charter to submit a plan to effect an orderly transition to a successor provider or providers for Charter to cease operations in New York within six months of the order. Such plan had been ordered to be submitted within 60 days of the July 27, 2018 order. However, as the PSC and Charter entered into discussions with the possibility of resolving the PSC related matters, the PSC extended such deadline on five occasions with the last extension requiring submission of an exit plan by March 4, 2019 with a February 4, 2019 deadline by when Charter would have to file formal oppositions to the PSC orders. On July 30, 2018, the PSC filed a petition for penalties and injunctive relief in the Supreme Court of the State of New York seeking penalties of \$100,000 per day from June 18, 2018 and until Charter complies with the PSC order and also seeks injunctive relief from the court to enjoin failure to comply with the New York Public Service Laws or any regulation or order of the PSC.

Charter continues to believe that its plain reading of the merger conditions is correct and that it is in compliance with the merger conditions. Although Charter has entered into discussions with the PSC with the possibility of resolving the PSC matters, Charter has substantial defenses and appeal rights regarding the actions of the PSC and will aggressively defend against these unprecedented actions by the PSC. Charter expects these proceedings to continue for up to several years unless a settlement is reached. While Charter believes the actions by the PSC are without merit and intends to defend the actions vigorously and does not believe the results of the proceedings will have a material adverse effect on Charter, no assurance can be given that, should an adverse outcome result, it would not be material to its consolidated financial condition, results of operations or liquidity. Charter cannot predict the outcome of the PSC claims, including any negotiations, nor can Charter reasonably estimate a range of possible loss in the event of an adverse result.

In addition to the Sprint litigation described above, Charter is a defendant or co-defendant in several additional lawsuits involving alleged infringement of various patents relating to various aspects of its businesses. Other industry participants are also defendants in certain of these cases. In the event that a court ultimately determines that Charter infringes on any intellectual property rights, Charter may be subject to substantial damages and/or an injunction that could require Charter or its vendors to modify certain products and services it offers to its subscribers, as well as negotiate royalty or license agreements with respect to the patents at issue. While Charter believes the lawsuits are without merit and intends to defend the actions vigorously, no assurance can be given that any adverse outcome would not be material to Charter’s consolidated financial condition, results of operations, or liquidity. Charter cannot predict the outcome of any such claims nor can it reasonably estimate a range of possible loss.

Charter is party to other lawsuits, claims and regulatory inquiries that arise in the ordinary course of conducting its business. The ultimate outcome of these other legal matters pending against Charter or its subsidiaries cannot be predicted, and although such lawsuits and claims are not expected individually to have a material adverse effect on our or Charters’ consolidated financial condition, results of operations, or liquidity, such lawsuits could have in the aggregate a material adverse effect on ours or Charter’s consolidated financial condition, results of operations, or liquidity. Whether or not Charter ultimately prevails in any particular lawsuit or claim, litigation can be time consuming and costly and injure its reputation.

Item 4. Mine Safety Disclosures

Not applicable.

PART II**Item 5. Market for Registrant's Common Equity and Related Stockholder Matters of Equity Securities.*****Market Information***

Our Series A and Series C common stock trade on the Nasdaq Global Select Market under the symbols “LBRDA” and “LBRDK,” respectively. Our Series B common stock is quoted on the OTC Markets under the symbol “LBRDB”, but it is not actively traded. Stock price information for securities traded on the Nasdaq Global Select Market can be found on the Nasdaq’s website at www.nasdaq.com.

The following table sets forth the quarterly range of high and low sales prices of our Series B common stock for the years ended December 31, 2018 and 2017. There is no established public trading market for our Series B common stock, which is quoted on the OTC Markets. Such over-the-counter market quotations reflect inter-dealer prices without dealer mark-ups, mark-downs or commissions, and may not necessarily represent actual transactions.

	Liberty Broadband Corporation	
	Series B (LBRDB)	
	High	Low
<u>2017</u>		
First quarter	\$ 83.96	75.75
Second quarter	\$ 91.71	82.43
Third quarter	\$ 104.19	86.14
Fourth quarter	\$ 96.64	83.90
<u>2018</u>		
First quarter	\$ 94.05	86.17
Second quarter	\$ 77.22	68.32
Third quarter	\$ 84.93	79.09
Fourth quarter	\$ 84.70	74.50

Holdings

As of January 31, 2019, there were 783, 53 and 997 holders of our Series A, Series B and Series C common stock, respectively. The foregoing numbers of record holders do not include the number of stockholders whose shares are held nominally by banks, brokerage houses or other institutions, but include each such institution as one shareholder.

Dividends

We have not paid any cash dividends on our common stock, and we have no present intention of so doing. Payment of cash dividends, if any, in the future will be determined by our board of directors in light of our earnings, financial condition and other relevant considerations.

Securities Authorized for Issuance Under Equity Compensation Plans

Information required by this item is incorporated by reference to our definitive proxy statement for our 2019 Annual Meeting of Stockholders.

Purchases of Equity Securities by the Issuer

There were no repurchases of Liberty Broadband Series A, B or C common stock during the three months ended December 31, 2018. During the three months ended December 31, 2018, no shares of Liberty Broadband common stock were

surrendered by our officers and employees to pay withholding taxes and other deductions in connection with the vesting of their restricted stock.

Item 6. Selected Financial Data.

The following tables present selected historical information relating to our financial condition and results of operations for the past five years. The following data should be read in conjunction with our consolidated financial statements.

	December 31,				
	2018	2017	2016	2015	2014
<i>Summary Balance Sheet Data:</i>					
	amounts in thousands				
Cash and cash equivalents	\$ 83,103	81,257	205,728	655,079	44,809
Investments in available for sale securities (1)	\$ —	—	—	439,560	360,762
Investment in affiliates, accounted for using the equity method (1)	\$ 12,004,376	11,835,613	9,315,253	2,372,699	2,498,804
Net deferred income tax assets	\$ —	—	—	55,368	30,822
Total assets	\$ 12,098,437	11,931,789	9,590,960	3,565,741	3,003,471
Long-term debt	\$ 522,928	497,370	198,512	399,703	371,539
Net deferred income tax liabilities (2)	\$ 965,829	932,593	504,644	—	—
Total equity (3)	\$ 10,598,618	10,486,901	8,473,092	3,148,219	2,494,769

	Years Ended December 31,				
	2018	2017	2016	2015	2014
<i>Summary Statement of Operations Data:</i>					
	amounts in thousands, except per share amounts				
Revenue	\$ 22,256	13,092	30,586	91,182	69,045
Operating income (loss)	\$ (12,014)	(25,478)	(21,160)	58,955	(42,974)
Share of earnings (losses) of affiliate (1)(4)	\$ 166,146	2,508,991	641,544	(120,962)	(127,573)
Gain (loss) on dilution of investment in affiliate (1)	\$ (43,575)	(17,872)	770,766	(7,198)	(87,158)
Realized and unrealized gains (losses) on financial instruments	\$ 3,659	3,098	94,122	2,619	51,189
Net earnings (loss) attributable to Liberty Broadband shareholders	\$ 69,953	2,033,667	917,303	(50,187)	(134,605)
Basic earnings (loss) per common share (5)	\$ 0.39	11.19	6.03	(0.49)	(1.52)
Diluted earnings (loss) per common share (5)	\$ 0.38	11.10	6.00	(0.49)	(1.52)

- (1) As discussed in note 5 to the accompanying consolidated financial statements, on May 18, 2016 Time Warner Cable merged with Charter, causing a significant increase in Share of earnings (losses) of affiliate and gain on dilution of investment in affiliate in 2016. As a result of the merger transaction, Time Warner Cable is no longer accounted for as an available for sale security as of December 31, 2016.
- (2) The increase in deferred tax liabilities is due to recognition of deferred tax liabilities at the closing of the transactions, further increased in 2016, 2017 and 2018 by share of earnings in the equity investment in Charter.
- (3) As discussed in note 8 to the accompanying consolidated financial statements, in connection with the Time Warner Cable Merger, in May 2016, Liberty Broadband funded its purchase of Charter Class A common stock using proceeds of \$4.4 billion related to subscriptions for approximately 78.3 million newly issued shares of Liberty Broadband Series C common stock.
- (4) Share of earnings (losses) of affiliate increased in 2016 due primarily to Charter releasing approximately \$3.3 billion of its preexisting valuation allowance, which was recognized directly to income tax benefit for the year ended December 31, 2016. Additionally, Charter recognized \$9.1 billion of income tax benefit, as a result of the enactment of the Tax Cuts and Jobs Act (the "Tax Act") in 2017. See further discussion in Item 7 regarding the tax reform implications.
- (5) We issued 85,761,332 common shares, which is the aggregate number of shares of Series A, Series B and Series C common stock outstanding upon the completion of the Broadband Spin-Off on November 4, 2014. Additionally, Liberty Broadband distributed subscription rights, which were priced at a discount to the market value, to all holders of Liberty Broadband common stock as of the rights record date. Because of the discount, the rights offering is considered a stock

dividend which requires retroactive treatment for prior periods for the weighted average shares outstanding based on a factor determined by the fair value per share immediately prior to the rights exercise and the theoretical fair value after the rights exercise. The number of shares issued upon completion of the Broadband Spin-Off, adjusted for the rights factor, was used to determine both basic and diluted earnings (loss) per share ("EPS") for the years ended December 31, 2013 and 2012 and for the period from January 1, 2014 through the date of the Broadband Spin-Off, as no Company equity awards were outstanding prior to the Broadband Spin-Off. Basic EPS subsequent to the Broadband Spin-Off was computed using the weighted average number of shares outstanding ("WASO"), adjusted for the rights factor, from the date of the completion of the Broadband Spin-Off through January 9, 2015, the date on which the rights offering was fully subscribed. Diluted EPS subsequent to the Broadband Spin-Off was computed using the WASO from the date of the completion of the Broadband Spin-Off through January 9, 2015, adjusted for the rights factor and potentially dilutive equity awards outstanding during the same period. Subsequent to January 9, 2015, basic EPS was computed using the WASO during the period, and diluted EPS was computed using the WASO adjusted for potentially dilutive equity awards outstanding during the period.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis provides information concerning our results of operations and financial condition. This discussion should be read in conjunction with our accompanying consolidated financial statements and the notes thereto. Additionally, see note 3 in the accompanying consolidated financial statements for an overview of new accounting standards that we have adopted or that we plan to adopt that have had or may have an impact on our financial statements.

Overview

During May 2014, the board of directors of Liberty Media Corporation and its subsidiaries (“Liberty”) authorized management to pursue a plan to spin-off to its stockholders common stock of a wholly-owned subsidiary, Liberty Broadband Corporation (“Liberty Broadband”), and to distribute subscription rights to acquire shares of Liberty Broadband’s common stock (the “Broadband Spin-Off”). At the time of the Broadband Spin-Off, Liberty Broadband was comprised of, (i) Liberty’s former interest in Charter Communications, Inc. (“Legacy Charter”), (ii) Liberty’s former wholly-owned subsidiary TruePosition, Inc. (“TruePosition”), (iii) Liberty’s former minority equity investment in Time Warner Cable, Inc. (“Time Warner Cable”, “TWC”, “Legacy Time Warner Cable” or “Legacy TWC”), (iv) certain deferred tax liabilities, as well as liabilities related to the Time Warner Cable written call options and (v) initial indebtedness, pursuant to margin loans entered into prior to the completion of the Broadband Spin-Off. The Broadband Spin-Off was accounted for at historical cost due to the pro rata nature of the distribution to holders of Liberty common stock. In the Broadband Spin-Off, record holders of Liberty Series A, Series B and Series C common stock received one-fourth of a share of the corresponding series of Liberty Broadband common stock for each share of Liberty common stock held by them, with cash paid in lieu of fractional shares. In addition, following the completion of the Broadband Spin-Off, on December 10, 2014, stockholders received a subscription right to acquire one share of Series C Liberty Broadband common stock for every five shares of Liberty Broadband common stock. The Broadband Spin-Off and rights offering were intended to be tax-free to stockholders of Liberty. During September 2015, Liberty entered into a closing agreement with the IRS which provided that the Broadband Spin-Off qualified for tax-free treatment.

On May 18, 2016, Time Warner Cable merged with Legacy Charter (the “Time Warner Cable Merger”). In connection with the Time Warner Cable Merger, Legacy Charter underwent a corporate reorganization, resulting in CCH I, LLC, a former subsidiary of Legacy Charter (“Charter”), becoming the new publicly traded parent company. Also on May 18, 2016, the previously announced acquisition of Bright House Networks, LLC (“Bright House” or “Legacy Bright House”) from Advance/Newhouse Partnership (“A/N”) by Charter (the “Bright House Transaction”) was completed. In connection with the Time Warner Cable Merger and Bright House Transaction, Liberty Broadband entered into certain agreements with Legacy Charter, Charter, Liberty Interactive Corporation (“Liberty Interactive”) and Time Warner Cable. In connection with the Time Warner Cable Merger and Bright House Transaction (collectively, the “Transactions”), Liberty Broadband exchanged its shares of Time Warner Cable for shares of Charter and purchased additional shares of Charter. As a result, and pursuant to proxy agreements with GCI Liberty, Inc. and A/N, Liberty Broadband controls 25.01% of the aggregate voting power of Charter. In addition, in connection with the Time Warner Cable Merger, Liberty Broadband funded its purchase of shares of Charter Class A common stock using proceeds of \$4.4 billion related to subscriptions for approximately 78.3 million newly issued shares of Liberty Broadband Series C common stock.

The financial information represents a combination of the historical financial information of Skyhook, Liberty Broadband’s interest in Charter, Liberty’s former minority equity investment in Time Warner Cable and certain deferred tax liabilities. This financial information refers to the combination of the aforementioned subsidiary, investments, and financial instruments, as “Liberty Broadband,” “the Company,” “us,” “we” and “our” here and in the notes to the consolidated financial statements, except as the context otherwise requires.

Strategies and Challenges

Executive Summary

Skyhook Holding, Inc. (formerly known as “TruePosition”) markets and sells two primary products: (1) a location determination service called the Precision Location Solution; and (2) a location intelligence and data insights service called Geospatial Insights. Skyhook’s revenue is derived from the sale and integration of its Precision Location Solution (including the licensing of software and data components that make up that solution) and the licensing of Geospatial Insights data. In addition, Skyhook earns revenue through entering into licensing agreements with companies to utilize its underlying intellectual property (including patents).

Charter is the second largest cable operator in the United States and a leading broadband communications services company providing video, Internet and voice services to approximately 28.1 million residential and small and medium business customers at December 31, 2018.

Charter also recently launched its Spectrum mobile service to residential customers. In addition, Charter sells video and online advertising inventory to local, regional and national advertising customers and fiber-delivered communications and managed information technology (“IT”) solutions to large enterprise customers. Charter also owns and operates regional sports networks and local sports, news and community channels. Liberty acquired its interest in Charter on May 1, 2013. At December 31, 2018, Liberty Broadband owned approximately 54.1 million shares of Charter Class A common stock, representing an approximate 24% economic ownership interest in Charter’s issued and outstanding shares. Upon the closing of the Time Warner Cable Merger, the Second Amended and Restated Stockholders Agreement, dated as of May 23, 2015, by and among Legacy Charter, Charter, Liberty Broadband and A/N, as amended (the “Stockholders Agreement”), became fully effective. Under the Stockholders Agreement, we have the right to designate three directors to the Charter board of directors, subject to certain exclusions and requirements. Charter has agreed to cause the appointment of at least one of our designees to serve on the nominating and corporate governance, finance, audit and compensation and benefits committees of the board, provided they meet the independence and other qualifications for membership on those committees.

Key Drivers of Revenue

Skyhook earns revenue from the sale and integration of its Precision Location Solution (including the licensing of software and data components that make up that solution) and the licensing of Geospatial Insights data. In addition, Skyhook earns revenue from licensing its intellectual property (including patents) to other enterprises. Prior to 2016, Skyhook also earned significant revenue from the sale of hardware and the licensing of its U-TDOA Service, and from professional and support services related thereto.

Charter’s revenue is principally derived from the monthly fees customers pay for the residential and commercial video, Internet and voice services provided. Charter also earns revenue from one-time installation fees and advertising sales. Charter’s marketing organization creates and executes marketing programs intended to grow customer relationships, increase the number of services they sell per relationship, retain existing customers and cross-sell additional products to current customers.

Current Trends Affecting Our Business

Skyhook’s location determination services compete against (1) other satellite and terrestrial based location technology offerings, such as GPS; (2) other providers of WiFi and cell-based positioning, such as Google, Inc. (“Google”) and HERE, a former subsidiary of Nokia; and (3) other in-house developed location solutions. In the smartphone location provider market, because Apple and Google control a large percentage of the market share for smartphone operating systems and both offer location provider services free as part of the iOS and Android markets, Skyhook is constrained in the distribution and monetization of the Precision Location Solution in that market. There are also a number of new location technologies in development which may further increase competition to be a location solution for new devices (including Internet of Things devices and wearable) and which may require Skyhook to meet more stringent accuracy standards. In addition, Skyhook’s context services compete against other geofencing and location data offerings from other niche location companies.

Charter faces intense competition for residential customers, both from existing competitors and, as a result of the rapid development of new technologies, services and products, from new entrants. With respect to its residential business, Charter competes with other providers of video, high-speed Internet access, telephone services, and other sources of home entertainment. Specifically, newer categories of competitors include virtual multichannel video programming distributors such as DirecTV NOW, Sling TV, Playstation Vue, YouTube TV and Hulu Live. In the broadband communications industry, Charter’s principal competitors for video services are DBS service providers and telephone companies that offer video services. Charter’s principal competitors for high-speed Internet services are the broadband services provided by telephone companies, including fiber-to-the-home wireless broadband offerings and DSL. A growing number of commercial areas, such as retail malls, restaurants and airports, offer WiFi Internet service. Numerous local governments are also considering or actively pursuing publicly subsidized WiFi Internet access networks. These options offer alternatives to cable-based Internet access. Charter’s principal competitors for voice and mobile services are other mobile and wireline phone providers, as well as other forms of communication, such as instant messaging, social networking services, video conferencing and email. The increase in the number of different technologies capable of carrying voice services and the number of alternative communication options available to customers as well as the replacement of wireline services by wireless have intensified the competitive environment in which Charter operates its residential voice service.

Skyhook and Charter must stay abreast of rapidly evolving technological developments and offerings to remain competitive and increase the utility of their products and services. These companies must be able to incorporate new technologies into their products and services in order to address the needs of their customers.

Results of Operations—Consolidated

Consolidated operating results:

	Years ended December 31,		
	2018	2017	2016
	amounts in thousands		
Revenue	\$ 22,256	13,092	30,586
Operating expenses, excluding stock-based compensation			
Operating expense	2,034	2,584	2,798
Research and development	5,852	7,973	10,082
Selling, general and administrative	17,898	18,951	29,148
Stock-based compensation	5,707	5,292	5,713
Depreciation and amortization	2,779	3,770	4,005
Operating income (loss)	\$ (12,014)	(25,478)	(21,160)
Less impact of stock-based compensation and depreciation and amortization	8,486	9,062	9,718
Adjusted OIBDA	\$ (3,528)	(16,416)	(11,442)

Revenue

Revenue increased \$9.2 million and decreased \$17.5 million for the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The increase in revenue in 2018 was primarily due to a new license agreement. On February 16, 2018, Skyhook entered into a license agreement pursuant to which Skyhook agreed to grant to the licensee a perpetual, non-exclusive, non-transferable, worldwide license to patents and patent applications owned by Skyhook. In exchange for this grant, the licensee agreed to pay a one-time lump sum payment of \$8.5 million that was recognized as revenue during the three months ended March 31, 2018.

The decrease in revenue in 2017 was attributable to the fact that Skyhook entered into a patent license in 2016 pursuant to which Skyhook agreed to grant to the licensee a perpetual, non-exclusive, non-transferable, worldwide license to patents and patent applications for a one-time payment of \$17.5 million, and no comparable license was entered in 2017.

Operating, research and development, and selling, general and administrative expenses

Operating, research and development, and selling, general and administrative expenses, decreased collectively by \$3.7 million and \$12.5 million for December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The decrease in 2018 was primarily as a result of decreased expenses resulting from headcount reductions and other cost containment measures taken by Skyhook in late 2017, partially offset by increased legal expenses of \$976 thousand and other costs associated with the license agreement. The decrease in 2017 was due to headcount reductions and other cost containment measures taken by Skyhook upon combining the operations of its businesses in mid-2016, coupled with reduced legal expenses at both Skyhook and corporate of \$3.2 million. The decrease in legal expenses during 2017 was due to a decrease in activity associated with license sales, as well as a significant decrease in legal expenses related to the Time Warner Cable Merger in 2016.

Stock-based compensation

Stock-based compensation expense increased \$415 thousand and decreased \$421 thousand for the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The increase in stock-based compensation during 2018 was primarily due to an increase in the fair value of outstanding awards under Skyhook's long-term incentive plans as of December 31, 2018 as compared to December 31, 2017, coupled with additional grants of awards and the ongoing vestings of outstanding grants. The decrease in 2017 is due to a decrease in the fair value of outstanding awards under

Skyhook's long-term incentive plans as of December 31, 2017 as compared to December 31, 2016, coupled with adjustments made to certain outstanding awards in 2016 that increased their fair value, partially offset by additional grants of awards and the ongoing vesting of outstanding grants.

Depreciation and amortization

Depreciation and amortization decreased \$991 thousand and \$235 thousand for the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The decrease in depreciation and amortization expense during 2018 and 2017 was due to certain assets becoming fully depreciated.

Operating Income (Loss)

Operating income (loss) improved \$13.5 million and declined \$4.3 million for the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods, due to the items discussed above.

Adjusted OIBDA

We define Adjusted OIBDA as revenue less operating expenses and selling, general and administrative expenses (excluding stock compensation). Our chief operating decision maker and management team use this measure of performance in conjunction with other measures to evaluate our businesses and make decisions about allocating resources among our businesses. We believe this is an important indicator of the operational strength and performance of our businesses, including each business's ability to service debt and fund capital expenditures. In addition, this measure allows us to view operating results, perform analytical comparisons and benchmarking between businesses and identify strategies to improve performance. This measure of performance excludes such costs as depreciation and amortization, stock-based compensation, separately reported litigation settlements and restructuring and impairment charges that are included in the measurement of operating income pursuant to Generally Accepted Accounting Principles in the United States ("GAAP"). Accordingly, Adjusted OIBDA should be considered in addition to, but not as a substitute for, operating income, net income, cash flow provided by operating activities and other measures of financial performance prepared in accordance with GAAP. See note 12 to the accompanying consolidated financial statements for a reconciliation of Adjusted OIBDA to Operating income and Earnings (loss) from continuing operations before income taxes.

Adjusted OIBDA improved \$12.9 million and declined \$5.0 million in the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. Adjusted OIBDA for the years ended December 31, 2018, 2017 and 2016 included \$6.7 million, \$6.9 million, and \$8.7 million of corporate selling, general and administrative expenses, respectively. The increase in Adjusted OIBDA for the year ended December 31, 2018 is due to increased revenue of \$9.2 million, discussed above, coupled with lower operating expenses of \$3.7 million, discussed above. The decrease in Adjusted OIBDA for the year ended December 31, 2017 is due to decreased revenue of \$17.5 million, discussed above, partially offset by a \$3.2 million decline in legal expenses and a \$9.3 million improvement in operating, research and development, and selling, general and administrative expenses during the year (discussed above).

Other Income and Expense:

Components of Other Income (Expense) are presented in the table below.

	Years ended December 31,		
	2018	2017	2016
	amounts in thousands		
Other income (expense):			
Interest expense	\$ (23,302)	(19,570)	(14,956)
Dividend and interest income	881	1,449	5,020
Share of earnings (losses) of affiliate	166,146	2,508,991	641,544
Gain (loss) on dilution of investment in affiliate	(43,575)	(17,872)	770,766
Realized and unrealized gains (losses) on financial instruments, net	3,659	3,098	94,122
Other, net	82	(18)	336
	<u>\$ 103,891</u>	<u>2,476,078</u>	<u>1,496,832</u>

Interest expense

Interest expense increased \$3.7 million and \$4.6 million during the years ended December 31, 2018 and 2017, respectively. The increase in 2018 was attributable to additional amounts outstanding on the Amended 2017 Margin Loan during 2018 as compared to the prior year, as well as an increase in our weighted average interest rate and LIBOR during 2018 as compared to the prior year. The increase in 2017 was primarily due to an increase in LIBOR during 2017 as compared to the prior year.

Dividend and interest income

Dividend and interest income decreased \$0.6 million and \$3.6 million for each of the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The decrease in 2018 was the result of lower cash balances in the current period. The decrease in 2017 was the result of a loss of dividend income previously received from Time Warner Cable, following the Time Warner Cable Merger during May 2016.

Share of earnings (losses) of affiliates

Share of earnings (losses) from affiliates declined \$2,342.8 million and improved \$1,867.4 million during the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. Share of earnings (losses) from affiliates is attributable to the Company's ownership interest in Charter. In May 2013, the Company acquired its initial investment in Legacy Charter. Upon acquisition, the Company allocated the excess basis, between the book basis of Legacy Charter and fair value of the shares acquired, and ascribed remaining useful lives of 7 years and 13 years to property and equipment and customer relationships, respectively, and indefinite lives to franchise fees, trademarks and goodwill. Outstanding debt is amortized over the contractual period using the effective interest rate method. Amortization related to debt and intangible assets with identifiable useful lives is included in the Company's share of earnings (losses) from affiliates line item in the accompanying consolidated statements of operations and aggregated \$119 million, \$277 million, and \$42 million, net of related taxes, for the years ended December 31, 2018, 2017 and 2016, respectively.

On May 18, 2016, the Time Warner Cable Merger and Bright House Transaction were completed. The Time Warner Cable Merger resulted in Legacy Charter and Time Warner Cable becoming wholly owned subsidiaries of Charter, which was a wholly owned subsidiary of Legacy Charter at the time. As a result of the Time Warner Cable Merger and Bright House Transaction, Liberty Broadband exchanged its shares of Time Warner Cable for shares of Charter and purchased additional shares of Charter. As a result, and pursuant to proxy agreements with GCI Liberty, Inc. and A/N, Liberty Broadband controls 25.01% of the aggregate voting power of Charter following the completion of the Transactions. The increase in share of earnings from affiliates during 2016 is attributable to the earnings of Charter subsequent to the Time Warner Cable Merger and Bright House Transaction. See note 5 in the accompanying notes to the consolidated financial statements for additional discussion of the Company's investment in Charter.

The following is a discussion of Charter’s stand alone results of operations. In order to provide a better understanding of Charter’s operations, we have included a summarized presentation of Charter’s results from operations. Charter is a separate publicly traded company and additional information about Charter can be obtained through its website and public filings, which are not incorporated by reference. The amounts included in the table below, derived from Charter’s public filings, represent Charter’s results for each of the years ended December 31, 2018, 2017 and 2016, as well as a year over year comparison on a pro forma basis as if the Transactions were completed on January 1, 2015.

	Years ended December 31,			Pro forma (2)
	2018	2017	2016	Years ended December 31, 2016
	amounts in millions			
Revenue	\$ 43,634	41,581	29,003	40,023
Operating expenses, excluding stock-based compensation	(27,810)	(26,626)	(19,396)	
Adjusted OIBDA	15,824	14,955	9,607	13,736
Depreciation and amortization	(10,318)	(10,588)	(6,907)	
Stock-based compensation	(285)	(261)	(244)	
Operating income (1)	5,221	4,106	2,456	3,886
Other expenses, net	(3,535)	(3,078)	(1,636)	
Net income (loss) before income taxes	1,686	1,028	820	
Income tax benefit (expense)	(180)	9,087	2,925	
Net income (loss)	\$ 1,506	10,115	3,745	

- (1) Income from operations for the year ended December 31, 2016 has been reduced from what was previously reported to reflect the adoption of pension accounting guidance by \$899 million and \$915 million on an actual and pro forma basis, respectively.
- (2) Pro forma information was determined assuming the transactions occurred as of January 1, 2015.

Charter’s revenue increased \$2.1 billion and \$12.6 billion during the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior years. Revenue growth primarily reflects increases in the number of residential Internet and commercial business customers, price adjustments as well as the launch of Charter’s mobile service in 2018 offset by a decrease in limited basic video customers. The Transactions increased revenue for the year ended December 31, 2017 as compared to 2016 by approximately \$11.4 billion. Actual revenue increased \$1.6 billion for the year ended December 31, 2017 as compared to the pro forma revenue for the year ended December 31, 2016.

The increase in revenue during 2018 and 2017 was partially offset by the net impact of an increase in operating expenses, excluding stock-based compensation, of \$1.2 billion and \$7.2 billion respectively. The increase in operating expenses in 2017 was primarily due to the Transactions. Operating costs also increased due to an increase in programming costs as a result of contractual rate adjustments, including renewals and increases in amounts paid for retransmission consents partly offset by lower video customers, pay-per-view and one-time programming benefits during the year ended December 31, 2018. Charter expects programming expenses to continue to increase in future periods due to a variety of factors, including annual increases imposed by programmers with additional selling power as a result of media consolidation, increased demands by owners of broadcast stations for payment for retransmission consent or linking carriage of other services to retransmission consent, and additional programming, particularly new services. Charter has been unable to fully pass these increases on to its customers and do not expect to be able to do so in the future without a potential loss of customers.

Operating costs also increased due to incremental mobile costs which were comprised of mobile launch costs, mobile device costs and mobile services and operating costs. As Charter continues to launch its mobile service and scale the business, it is expected that these investments will have continued negative impacts on operating costs and Adjusted OIBDA.

Charter’s Adjusted OIBDA in 2018 and 2017 increased as a result of the above discussion. Actual December 31, 2017 Adjusted OIBDA increased by \$1.2 billion as compared to the pro forma Adjusted OIBDA for the year ended December 31, 2016. Increases in both of these periods primarily were the result of an increase in residential and commercial revenue offset by increases in programming costs and other expenses.

Depreciation and amortization expense decreased \$0.3 billion and increased \$3.7 billion during the years ended December 31, 2018 and 2017, respectively. The decrease in 2018 as compared to 2017 was primarily due to a decrease in depreciation and amortization as certain assets acquired from Legacy TWC and Legacy Bright House become fully depreciated offset by an increase in depreciation as a result of more recent capital expenditures. The increase in 2017 as compared to 2016 was impacted by additional depreciation and amortization related to the Transactions, inclusive of the incremental amounts as a result of the higher fair values recorded in acquisition accounting.

Stock compensation expense increased \$24 million and \$17 million in the years ended December 31, 2018 and 2017, respectively. Stock compensation expense increased primarily as a result of the Transactions.

Other expenses increased \$0.5 billion and \$1.4 billion in the years ended December 31, 2018 and 2017, respectively, compared to the corresponding prior year periods. Net interest expense increased by \$450 million and \$591 million during the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The increases in 2018 and 2017, as compared to the corresponding prior periods, are primarily due to an increase in weighted average debt outstanding of approximately \$6.6 billion and \$11.6 billion, respectively, primarily as a result of the issuance of notes in 2018 and 2017 for general corporate purposes including stock buybacks. Interest expense associated with debt assumed from Legacy TWC also increased interest expense during the year ended December 31, 2017. Additionally, other pension benefits decreased by \$898 million during 2017 compared to 2017 primarily due to the pension curtailment gain of \$675 million and remeasurement gain of \$195 million recognized in 2016 as opposed to remeasurement losses of \$55 million recognized in 2017.

Income tax benefit (expense) decreased \$9.3 billion and 6.2 billion during the years ended December 31, 2018 and 2017, respectively, compared to the corresponding prior year periods. The income tax benefit for the year ended December 31, 2017 of \$9.1 billion was primarily due to the impact of the 2017 tax reform, which was enacted on December 22, 2017.

Gain (loss) on dilution of investment in equity affiliate

The loss on dilution of investment in affiliate during 2018 and 2017 is primarily due to the issuance of Charter common stock from the exercise of stock options held by employees and other third parties, as prices below Liberty Broadband's book basis per share. As Liberty Broadband's ownership in Charter changes due to exercises of Charter warrants and stock options, a loss is recorded with the effective sale of common stock, because the exercise price of Charter warrants or stock options is typically lower than the book value of the Charter shares held by Liberty Broadband.

The gain during 2016 is primarily due to the Time Warner Cable Merger. Even after considering the exchange of Time Warner Cable shares held by Liberty Broadband to shares of Charter, Liberty Broadband's interest in Charter was diluted as a result of the conversion of outstanding Time Warner Cable shares held by third parties into shares of Charter. However, Liberty Broadband recognized a gain during the period as Liberty Broadband's investment basis in Legacy Charter was at a price per share below the new equity issued in the Time Warner Cable Merger. This gain was slightly offset by losses due to the issuance of Charter common stock from the exercise of warrants and stock options, held by outside investors (employees and other third parties), at prices below Liberty Broadband's book basis per share during the year.

Realized and unrealized gains (losses) on financial instruments, net

Realized and unrealized gains on financial instruments, net increased \$0.6 million and decreased \$91.0 million for each of the years ended December 31, 2018 and 2017, respectively, as compared to the corresponding prior year periods. The realized gains during the years ended December 31, 2018 and 2017 were related to zero-strike call options (see note 4 in the accompanying consolidated financial statements for additional discussion). Realized and unrealized gains on financial instruments, net during the year ended December 31, 2016 were attributable to changes in the fair value of our former investment in Time Warner Cable and corresponding outstanding written call options and collar agreement. Historically, the change in fair value of our investment in Time Warner Cable was directly correlated to changes in the underlying Time Warner Cable stock price. The change in fair value of our derivative instruments related to our former investment in Time Warner Cable was typically inversely correlated to changes in the underlying Time Warner Cable stock price. The net realized gain of \$94.1 million during the year ended December 31, 2016, was attributable to gains in the fair value of our investment in Time Warner Cable prior to the Time Warner Cable Merger, due to increases in the Time Warner Cable stock price during the period.

Income taxes

Our effective tax rate for the years ended December 31, 2018, 2017 and 2016 was 24%, 17% and 38%, respectively. During 2018, our effective tax rate was higher than the federal tax rate of 21% primarily due to state income taxes, partially offset by unrealized gains attributable to the Company's own stock which is not recognized for tax purposes. During 2017, our effective tax rate was lower than the federal tax rate of 35% primarily due to the effect of changes in the U.S. federal corporate tax rate from 35% to 21% on deferred taxes partially offset by the effect of state income taxes. During 2016, our effective tax rate was higher than the federal tax rate of 35% primarily due to the effect of state income taxes.

Net earnings (losses)

We had net earnings of \$70.0 million, \$2,033.7 million and \$917.3 million for the years ended December 31, 2018, 2017 and 2016, respectively. The change in net earnings (losses) was the result of the above-described fluctuations in our revenue, expenses and other gains and losses.

Liquidity and Capital Resources

As of December 31, 2018, substantially all of our cash and cash equivalents are invested in U.S. Treasury securities, other government securities or government guaranteed funds, AAA rated money market funds and other highly rated financial and corporate debt instruments.

The following are potential sources of liquidity: available cash balances, cash generated by the operating activities of our privately-owned subsidiaries (to the extent such cash exceeds the working capital needs of the subsidiaries and is not otherwise restricted), proceeds from asset sales, monetization of our other investments, outstanding debt facilities including \$475 million available to be drawn under our Amended 2017 Margin Loan Agreement until August 27, 2019, debt and equity issuances, and dividend and interest receipts.

As of December 31, 2018, Liberty Broadband had a cash balance of \$83.1 million.

	Years ended December 31,		
	2018	2017	2016
amounts in thousands			
Cash flow information			
Net cash provided (used) by operating activities	\$ (26,260)	(30,031)	(11,898)
Net cash provided (used) by investing activities	\$ (41)	(56)	(4,990,800)
Net cash provided (used) by financing activities	\$ 28,147	(94,384)	4,553,347

The decrease in cash used by operating activities in 2018 was primarily driven by the increase in operating income, as well as the timing of differences in cash receipts and payments.

The increase in cash used by operating activities in 2017 was primarily driven by the increase in operating loss and interest payments, as well as the timing of differences in cash receipts and payments.

The most significant factor contributing to the cash used by operations during 2016 was a decline in revenue related to the loss of Skyhook's largest legacy U-TDOA Service customer at the end of 2015. Due to the loss of this customer, we expect declines in cash flows from operations to continue in future periods.

During the year ended December 31, 2018, net cash flows from financing activities were primarily related to the settlement of zero-strike call options, as well as the modification to the Amended 2017 Margin Loan Agreement and a drawdown of \$25 million on the Amended 2017 Margin Loan Agreement. During the year ended December 31, 2017, net cash flows from financing activities were primarily related to the net debt repayments of \$103 million and settlement of zero-strike call options.

As discussed in note 5 of the accompanying consolidated financial statements, in support of the Time Warner Cable Merger, the Company issued \$4.4 billion in additional shares of Liberty Broadband Series C common stock in order to purchase \$4.3 billion in shares of Charter Class A common stock. Furthermore, as also discussed in note 5 of the accompanying

consolidated financial statements, Liberty Broadband used cash on hand and proceeds from a new margin loan to purchase an additional \$700 million of Charter Class A common stock in connection with Charter’s acquisition of Bright House from A/N. Additionally, the Company had incremental borrowings of \$200 million during the year ended December 31, 2016.

The projected use of our cash will be primarily to fund any operational needs of our subsidiary, to service debt, to fund potential investment opportunities, and refinance Liberty Broadband’s margin loan, under its Amended 2017 Margin Loan Agreement, that comes due in 2020. We expect corporate cash to cover these expenses for the foreseeable future.

Off-Balance Sheet Arrangements and Aggregate Contractual Obligations

Information about the amount and timing of required payments, both accrued and off-balance sheet, under our contractual obligations, without uncertain tax positions as it is indeterminable when payments will be made, is summarized below.

	Payments due by period				
	Total	Less than 1 year	2 - 3 years	4 - 5 years	After 5 years
amounts in thousands					
<i>Consolidated contractual obligations</i>					
Long-term debt	\$ 525,000	—	525,000	—	—
Interest payments (1)	\$ 41,679	25,312	16,366	—	—
Other	\$ 1,541	1,009	532	—	—
Total	\$ 568,220	26,321	541,898	—	—

(1) Amounts (i) are based on our understanding of debt at December 31, 2018, (ii) assume the interest rates on our variable debt remain constant at the December 31, 2018 rates and (iii) assume that our existing debt is repaid at maturity.

Critical Accounting Estimates and Policies

The preparation of our financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Listed below are the accounting estimates and accounting policies that we believe are critical to our financial statements due to the degree of uncertainty regarding the estimates or assumptions involved and the magnitude of the asset, liability, revenue or expense being reported. All of these accounting estimates and assumptions, as well as the resulting impact to our financial statements, have been discussed with our audit committee.

Application of the Equity Method of Accounting for Investments in Affiliates. For those investments in affiliates in which the Company has the ability to exercise significant influence, the equity method of accounting is used. Under this method, the investment, originally recorded at cost, is adjusted to recognize the Company’s share of net earnings or losses of the affiliate as they occur rather than as dividends or other distributions are received. Losses are limited to the extent of the Company’s investment in, advances to and commitments for the investee. The Company determines the difference between the purchase price of the investee and the underlying equity which results in an excess basis in the investment. This excess basis is allocated to the underlying assets and liabilities of the Company’s investee through a purchase accounting exercise and is allocated within memo accounts used for equity accounting purposes. Depending on the applicable underlying assets, these amounts are either amortized over the applicable useful lives or determined to be indefinite lived.

Changes in the Company’s proportionate share of the underlying equity of an equity method investee, which result from the issuance of additional equity securities by such equity investee, to investors other than the Company, are recognized in the statement of operations through the gain (loss) on dilution of investment in affiliate line item. We periodically evaluate our equity method investment to determine if decreases in fair value below our cost basis are other than temporary. If a decline in fair value is determined to be other than temporary, we are required to reflect such decline in our consolidated statement of operations. Other than temporary declines in fair value of our equity method investment would be included in share of earnings (losses) of affiliates in our consolidated statement of operations.

The primary factors we consider in our determination of whether declines in fair value are other than temporary are the length of time that the fair value of the investment is below our carrying value; the severity of the decline; and the financial

condition, operating performance and near term prospects of the investee. In addition, we consider the reason for the decline in fair value, be it general market conditions, industry specific or investee specific; analysts' ratings and estimates of 12 month share price targets for the investee; changes in stock price or valuation subsequent to the balance sheet date; and our intent and ability to hold the investment for a period of time sufficient to allow for a recovery in fair value. Fair value of our publicly traded cost and equity investments is based on the market prices of the investments at the balance sheet date. Impairments are calculated as the difference between our carrying value and our estimate of fair value. As our assessment of the fair value of our investments and any resulting impairment losses and the timing of when to recognize such charges requires a high degree of judgment and includes significant estimates and assumptions, actual results could differ materially from our estimates and assumptions.

Our evaluation of the fair value of our investments and any resulting impairment charges are made as of the most recent balance sheet date. Changes in fair value subsequent to the balance sheet date due to the factors described above are possible. Subsequent decreases in fair value will be recognized in our consolidated statement of operations in the period in which they occur to the extent such decreases are deemed to be other than temporary. Subsequent increases in fair value will be recognized in our consolidated statement of operations only upon our ultimate disposition of the investment.

Income Taxes. We are required to estimate the amount of tax payable or refundable for the current year and the deferred income tax liabilities and assets for the future tax consequences of events that have been reflected in our financial statements or tax returns for each taxing jurisdiction in which we operate. This process requires our management to make judgments regarding the timing and probability of the ultimate tax impact of the various agreements and transactions that we enter into. Based on these judgments we may record tax reserves or adjustments to valuation allowances on deferred tax assets to reflect the expected realizability of future tax benefits. Actual income taxes could vary from these estimates due to future changes in income tax law, significant changes in the jurisdictions in which we operate, our inability to generate sufficient future taxable income or unpredicted results from the final determination of each year's liability by taxing authorities. These changes could have a significant impact on our financial position.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

We are exposed to market risk in the normal course of business due to our ongoing investing and financial activities. Market risk refers to the risk of loss arising from adverse changes in stock prices and interest rates. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. We have established policies, procedures and internal processes governing our management of market risks and the use of financial instruments to manage our exposure to such risks.

We are exposed to changes in interest rates primarily as a result of our borrowing and investment activities, which could include investments in fixed and floating rate debt instruments and borrowings used to maintain liquidity and to fund business operations. The nature and amount of our long-term and short-term debt are expected to vary as a result of future requirements, market conditions and other factors. We manage our exposure to interest rates by maintaining what we believe is an appropriate mix of fixed and variable rate debt. We believe this best protects us from interest rate risk. In the future, we could achieve this mix by (i) issuing fixed rate debt that we believe has a low stated interest rate and significant term to maturity, (ii) issuing variable rate debt with appropriate maturities and interest rates and (iii) entering into interest rate swap arrangements when we deem appropriate. As of December 31, 2018, our debt is comprised of the following amounts:

Variable rate debt		Fixed rate debt	
Principal amount	Weighted avg interest rate	Principal amount	Weighted avg interest rate
dollar amounts in millions			
\$ 525	3.9%	\$ —	NA

Our stock in Charter (our equity method affiliate) is publicly traded and not reflected at fair value in our balance sheet. Our investment in Charter is also subject to market risk that is not directly reflected in our financial statements.

Item 8. Financial Statements and Supplementary Data.

The consolidated financial statements of Liberty Broadband Corporation are filed under this Item, beginning on Page II-18. The financial statement schedules required by Regulation S-X are filed under Item 15 of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

In accordance with Exchange Act Rules 13a-15 and 15d-15, the Company carried out an evaluation, under the supervision and with the participation of management, including its chief executive officer and its principal accounting and financial officer (the "Executives"), of the effectiveness of its disclosure controls and procedures as of the end of the period covered by this report. Based on that evaluation, the Executives concluded that the Company's disclosure controls and procedures were effective as of December 31, 2018 to provide reasonable assurance that information required to be disclosed in its reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms.

See page II-15 for *Management's Report on Internal Control Over Financial Reporting*.

See page II-16 for *Report of Independent Registered Public Accounting Firm* for their attestation regarding our internal control over financial reporting.

There has been no change in the Company's internal control over financial reporting that occurred during the three months ended December 31, 2018 that has materially affected, or is reasonably likely to materially affect, its internal control over financial reporting.

Item 9B. Other Information.

None.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Liberty Broadband Corporation's (the "Company") management is responsible for establishing and maintaining adequate internal control over the Company's financial reporting, as such term is defined in Rule 13a-15(f) of the Securities Exchange Act of 1934, as amended. The Company's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. Because of inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies and procedures may deteriorate.

The Company's management assessed the effectiveness of internal control over financial reporting as of December 31, 2018, using the criteria in *Internal Control-Integrated Framework (2013)*, issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation the Company's management believes that, as of December 31, 2018, its internal control over financial reporting is effective.

The Company's independent registered public accounting firm that audited the consolidated financial statements and related disclosures in the Annual Report on Form 10-K has issued an audit report on the effectiveness of the Company's internal control over financial reporting. This report appears on page II-16 of this Annual Report on Form 10-K.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Liberty Broadband Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Liberty Broadband Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive earnings (loss), cash flows and equity for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements), and our report dated February 8, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Denver, Colorado
February 8, 2019

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Liberty Broadband Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Liberty Broadband Corporation and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive earnings (loss), cash flows and equity for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 8, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2014.

Denver, Colorado
February 8, 2019

LIBERTY BROADBAND CORPORATION

Consolidated Balance Sheets

December 31, 2018 and 2017

	<u>2018</u>	<u>2017</u>
	amounts in thousands	
<i>Assets</i>		
Current assets:		
Cash and cash equivalents	\$ 83,103	81,257
Other current assets	1,471	2,797
Total current assets	84,574	84,054
Investment in Charter, accounted for using the equity method (note 5)	12,004,376	11,835,613
Other assets	9,487	12,122
Total assets	<u>\$ 12,098,437</u>	<u>11,931,789</u>
<i>Liabilities and Equity</i>		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 3,504	5,381
Deferred revenue and other current liabilities	4,691	5,168
Total current liabilities	8,195	10,549
Debt (note 6)	522,928	497,370
Deferred income tax liabilities (note 7)	965,829	932,593
Other liabilities	2,867	4,376
Total liabilities	1,499,819	1,444,888
<i>Equity</i>		
Preferred stock, \$.01 par value. Authorized 50,000,000 shares; no shares issued	—	—
Series A common stock, \$.01 par value. Authorized 500,000,000 shares; issued and outstanding 26,311,681 and 26,301,755 at December 31, 2018 and 2017, respectively	263	262
Series B common stock, \$.01 par value. Authorized 18,750,000 shares; issued and outstanding 2,454,520 and 2,455,179 at December 31, 2018 and 2017, respectively	25	25
Series C common stock, \$.01 par value. Authorized 500,000,000 shares; issued and outstanding 152,591,939 and 152,563,229 at December 31, 2018 and 2017, respectively	1,526	1,526
Additional paid-in capital	7,938,357	7,907,900
Accumulated other comprehensive earnings, net of taxes	7,778	8,424
Retained earnings (accumulated deficit)	2,650,669	2,568,764
Total equity	10,598,618	10,486,901
Commitments and contingencies (note 11)		
Total liabilities and equity	<u>\$ 12,098,437</u>	<u>11,931,789</u>

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION
Consolidated Statements of Operations
Years Ended December 31, 2018, 2017 and 2016

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	amounts in thousands, except per share amounts		
Revenue:			
Software sales	\$ 22,256	12,320	28,597
Service	—	772	1,858
Other	—	—	131
Total revenue	<u>22,256</u>	<u>13,092</u>	<u>30,586</u>
Operating costs and expenses			
Operating, including stock-based compensation (note 9)	2,038	2,582	2,798
Selling, general and administrative, including stock-based compensation (note 9)	23,497	24,065	34,703
Research and development, including stock-based compensation (note 9)	5,956	8,153	10,240
Depreciation and amortization	2,779	3,770	4,005
	<u>34,270</u>	<u>38,570</u>	<u>51,746</u>
Operating income (loss)	(12,014)	(25,478)	(21,160)
Other income (expense):			
Interest expense	(23,302)	(19,570)	(14,956)
Dividend and interest income	881	1,449	5,020
Share of earnings (losses) of affiliate (note 5)	166,146	2,508,991	641,544
Gain (loss) on dilution of investment in affiliate (note 5)	(43,575)	(17,872)	770,766
Realized and unrealized gains (losses) on financial instruments, net (note 4)	3,659	3,098	94,122
Other, net	82	(18)	336
Earnings (loss) from continuing operations before income taxes	<u>91,877</u>	<u>2,450,600</u>	<u>1,475,672</u>
Income tax benefit (expense)	(21,924)	(416,933)	(558,369)
Net earnings (loss) attributable to Liberty Broadband shareholders	<u>\$ 69,953</u>	<u>2,033,667</u>	<u>917,303</u>
Basic earnings (loss) from continuing operations attributable to Series A, Series B and Series C Liberty Broadband shareholders per common share (note 3)	\$ 0.39	11.19	6.03
Diluted net earnings (loss) attributable to Series A, Series B and Series C Liberty Broadband shareholders per common share (note 3)	\$ 0.38	11.10	6.00

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION
Consolidated Statements of Comprehensive Earnings (Loss)
Years ended December 31, 2018, 2017 and 2016

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	amounts in thousands		
Net earnings (loss)	\$ 69,953	2,033,667	917,303
Other comprehensive earnings (loss), net of taxes:			
Unrealized holding gains (losses) arising during the period	—	—	(221)
Share of other comprehensive earnings (loss) of equity affiliate and other	(172)	768	811
Other	(474)	—	(1,839)
Other comprehensive earnings (loss), net of taxes	(646)	768	(1,249)
Comprehensive earnings (loss) attributable to Liberty Broadband shareholders	<u>\$ 69,307</u>	<u>2,034,435</u>	<u>916,054</u>

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION
Consolidated Statements of Cash Flows
Years ended December 31, 2018, 2017 and 2016

	2018	2017	2016
	amounts in thousands		
Cash flows from operating activities:			
Net earnings (loss)	\$ 69,953	2,033,667	917,303
Adjustments to reconcile net earnings (loss) to net cash provided by operating activities:			
Depreciation and amortization	2,779	3,770	4,005
Stock-based compensation	5,707	5,292	5,713
Cash payments for stock-based compensation	(342)	(525)	(591)
Share of (earnings) losses of affiliate, net	(166,146)	(2,508,991)	(641,544)
(Gain) loss on dilution of investment in affiliate	43,575	17,872	(770,766)
Realized and unrealized (gains) losses on financial instruments, net	(3,659)	(3,098)	(94,122)
Deferred income tax expense (benefit)	21,569	416,838	560,778
Other, net	1,838	2,030	1,033
Changes in operating assets and liabilities:			
Current and other assets	1,476	2,310	9,161
Payables and other liabilities	(3,010)	804	(2,868)
Net cash provided by operating activities	<u>(26,260)</u>	<u>(30,031)</u>	<u>(11,898)</u>
Cash flows from investing activities:			
Capital expended for property and equipment	(41)	(70)	(267)
Investments in equity investees	—	—	(5,000,000)
Purchases of short term investments and other marketable securities	—	—	(155,444)
Sales of short term investments and other marketable securities	—	—	164,458
Other investing activities, net	—	14	453
Net cash used in investing activities	<u>(41)</u>	<u>(56)</u>	<u>(4,990,800)</u>
Cash flows from financing activities:			
Borrowings of debt	158,000	500,000	200,000
Repayments of debt	(133,000)	(600,000)	—
Cash received from issuance of Series C Liberty Broadband common stock	—	—	4,400,000
Proceeds (payments) from issuances of financial instruments	(142,824)	(149,368)	(47,888)
Proceeds (payments) from settlements of financial instruments	146,483	155,683	—
Other financing activities, net	(512)	(699)	1,235
Net cash provided by (used in) financing activities	<u>28,147</u>	<u>(94,384)</u>	<u>4,553,347</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	1,846	(124,471)	(449,351)
Cash, cash equivalents and restricted cash, beginning of period	81,257	205,728	655,079
Cash, cash equivalents and restricted cash, end of period	<u>\$ 83,103</u>	<u>81,257</u>	<u>205,728</u>

Supplemental disclosure to the consolidated statements of cash flows:

	Years ended December 31,		
	2018	2017	2016
	amounts in thousands		
Cash paid for interest	\$ 21,948	17,496	13,783
Cash paid (received) for taxes	\$ (730)	(1,787)	(9,410)

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION
Consolidated Statement of Equity
Years ended December 31, 2018, 2017 and 2016

	Preferred Stock	Common stock			Additional paid-in capital	Accumulated other comprehensive earnings	Retained earnings (accumulated deficit)	Total equity
		Series A	Series B	Series C	amounts in thousands			
Balance at December 31, 2015	\$ —	262	25	746	3,537,848	8,905	(399,567)	3,148,219
Net earnings (loss)	—	—	—	—	—	—	917,303	917,303
Other comprehensive earnings (loss)	—	—	—	—	—	(1,249)	—	(1,249)
Stock-based compensation	—	—	—	—	5,362	—	—	5,362
Issuance of common stock upon exercise of stock options	—	—	—	1	3,529	—	—	3,530
Issuance of common stock	—	—	—	783	4,399,217	—	—	4,400,000
Other	—	—	—	—	(73)	—	—	(73)
Balance at December 31, 2016	—	262	25	1,530	7,945,883	7,656	517,736	8,473,092
Net earnings (loss)	—	—	—	—	—	—	2,033,667	2,033,667
Other comprehensive earnings (loss)	—	—	—	—	—	768	—	768
Stock-based compensation	—	—	—	—	5,358	—	—	5,358
Issuance of common stock upon exercise of stock options	—	—	—	1	2,456	—	—	2,457
Cumulative effect of accounting change at Charter	—	—	—	—	—	—	17,361	17,361
Non-cash settlement of financial instrument	—	—	—	(5)	(45,797)	—	—	(45,802)
Balance at December 31, 2017	—	262	25	1,526	7,907,900	8,424	2,568,764	10,486,901
Net earnings (loss)	—	—	—	—	—	—	69,953	69,953
Other comprehensive earnings (loss)	—	—	—	—	—	(646)	—	(646)
Stock-based compensation	—	—	—	—	5,402	—	—	5,402
Issuance of common stock upon exercise of stock options	—	1	—	—	737	—	—	738
Cumulative effect of accounting change (note 3)	—	—	—	—	—	—	1,223	1,223
Cumulative effect of accounting change at Charter	—	—	—	—	—	—	10,729	10,729
Noncontrolling interest activity at Charter	—	—	—	—	24,318	—	—	24,318
Balance at December 31, 2018	\$ —	263	25	1,526	7,938,357	7,778	2,650,669	10,598,618

See accompanying notes to consolidated financial statements.

LIBERTY BROADBAND CORPORATION

Notes to Consolidated Financial Statements

December 31, 2018, 2017 and 2016

(1) Basis of Presentation

During May 2014, the board of directors of Liberty Media Corporation and its subsidiaries (“Liberty”) authorized management to pursue a plan to spin-off to its stockholders common stock of a wholly-owned subsidiary, Liberty Broadband Corporation (“Liberty Broadband” or the “Company”), and to distribute subscription rights to acquire shares of Liberty Broadband’s common stock (the “Broadband Spin-Off”). At the time of the Broadband Spin-off, Liberty Broadband was comprised of (i) Liberty’s former interest in Charter Communications, Inc. (“Legacy Charter”), (ii) Liberty’s former wholly-owned subsidiary TruePosition, Inc. (“TruePosition”), (iii) Liberty’s former minority equity investment in Time Warner Cable, Inc. (“Time Warner Cable”), (iv) certain deferred tax liabilities, as well as liabilities related to the Time Warner Cable written call options and (v) initial indebtedness, pursuant to margin loans entered into prior to the completion of the Broadband Spin-Off. These financial statements refer to the combination of the aforementioned subsidiary, investments, and financial instruments, as “Liberty Broadband,” “the Company,” “us,” “we” and “our” in the notes to the consolidated financial statements. The Broadband Spin-Off was accounted for at historical cost due to the pro rata nature of the distribution to holders of Liberty common stock.

In the Broadband Spin-Off, record holders of Liberty Series A, Series B and Series C common stock received one-fourth of a share of the corresponding series of Liberty Broadband common stock for each share of Liberty common stock held by them, with cash paid in lieu of fractional shares. In addition, following the completion of the Broadband Spin-Off, on December 10, 2014, Liberty Broadband stockholders received a subscription right to acquire one share of Series C Liberty Broadband common stock for every five shares of Liberty Broadband common stock. See note 8 for additional information related to the rights offering.

Following the Broadband Spin-Off, Liberty and Liberty Broadband operate as separate, publicly traded companies, and neither has any stock ownership, beneficial or otherwise, in the other. In connection with the Broadband Spin-Off, Liberty (for accounting purposes a related party of the Company) and Liberty Broadband entered into certain agreements in order to govern certain of the ongoing relationships between the two companies after the Broadband Spin-Off and to provide for an orderly transition. These agreements include a reorganization agreement, a services agreement, a facilities sharing agreement and a tax sharing agreement.

The reorganization agreement provides for, among other things, the principal corporate transactions (including the internal restructuring) required to effect the Broadband Spin-Off, certain conditions to the Broadband Spin-Off and provisions governing the relationship between Liberty Broadband and Liberty with respect to and resulting from the Broadband Spin-Off. The tax sharing agreement provides for the allocation and indemnification of tax liabilities and benefits between Liberty and Liberty Broadband and other agreements related to tax matters. Pursuant to the tax sharing agreement, Liberty Broadband has agreed to indemnify Liberty, subject to certain limited exceptions, for losses and taxes resulting from the Broadband Spin-Off to the extent such losses or taxes result primarily from, individually or in the aggregate, the breach of certain restrictive covenants made by Liberty Broadband (applicable to actions or failures to act by Liberty Broadband and its subsidiaries following the completion of the Broadband Spin-Off). Pursuant to the services agreement, Liberty provides Liberty Broadband with general and administrative services including legal, tax, accounting, treasury and investor relations support. Under the facilities sharing agreement, Liberty Broadband shares office space with Liberty and related amenities at Liberty’s corporate headquarters. Liberty Broadband will reimburse Liberty for direct, out-of-pocket expenses incurred by Liberty in providing these services which will be negotiated semi-annually. Under these various agreements, approximately \$3.5 million and \$3.2 million were reimbursed to Liberty for the years ended December 31, 2018 and 2017, respectively.

On May 18, 2016, Time Warner Cable merged with Charter (the “Time Warner Cable Merger”). In connection with the Time Warner Cable Merger, Legacy Charter underwent a corporate reorganization, resulting in CCH I, LLC (“Charter”), a former subsidiary of Charter, becoming the new publicly traded parent company. Also on May 18, 2016, the previously announced acquisition of Bright House Networks, LLC (“Bright House”) from Advance/Newhouse Partnership (“A/N”) by Charter (the “Bright House Transaction”) was completed. In connection with the Time Warner Cable Merger and Bright House Transaction,

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Liberty Broadband entered into certain agreements with Legacy Charter, Charter (for accounting purposes a related party of the Company), Liberty Interactive Corporation (“Liberty Interactive,” for accounting purposes a related party of the Company) and Time Warner Cable. As a result of the Time Warner Cable Merger and Bright House Transaction (collectively, the “Transactions”), Liberty Broadband exchanged its shares of Time Warner Cable for shares of Charter and purchased additional shares of Charter. As a result, and pursuant to proxy agreements with GCI Liberty, Inc. (the “GCI Liberty Agreement”) and A/N (the “A/N Proxy”), Liberty Broadband controls 25.01% of the aggregate voting power of Charter. See note 5 for additional detail regarding these transactions and corresponding agreements.

The accompanying consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States (“GAAP”) and represent the historical consolidated financial information of Skyhook, the Company’s interest in Charter, the Company’s former minority equity investment in Time Warner Cable and certain deferred tax liabilities. All significant intercompany accounts and transactions have been eliminated in the consolidated financial statements.

(2) Description of Business

Skyhook Holding, Inc. (formerly known as TruePosition) was originally incorporated on November 24, 1992 to provide technology for locating wireless phones and other mobile devices. TruePosition offered a passive network-based location system based on its patented U-TDOA technology (“U-TDOA Service”) to provide E-9-1-1 services domestically and to enhance services in support of commercial applications and national security law enforcement worldwide. In February 2014, TruePosition acquired 100% of the outstanding common shares of Skyhook Wireless, Inc., for approximately \$57.5 million in cash. Skyhook Wireless, Inc. was an alternative location services provider that offered a positioning system that used device-based measurements, as opposed to TruePosition’s network-based technology.

In May 2016, TruePosition and Skyhook Wireless, Inc. combined operations in order to focus on the development and sale of Skyhook’s device-based location technology, and TruePosition subsequently changed its name to Skyhook Holding, Inc. Skyhook Holding, Inc. and Skyhook Wireless, Inc. are referred to collectively herein as “Skyhook.”

Today, Skyhook markets and sells two primary products: (1) a location determination service called the Precision Location Solution; and (2) a location intelligence and data insights service called Geospatial Insights.

Skyhook’s Precision Location Solution works by collecting nearby radio signals (such as information from WiFi access points, cell towers, IP addresses and other radio beacons) that are observed by a mobile device. Skyhook’s Geospatial Insights product uses anonymized location data to analyze foot traffic patterns and better understand the real-world behavior of consumers. Skyhook’s revenue is derived from the sale and integration of its Precision Location Solution (including the licensing of software and data components that make up that solution) and the licensing of Geospatial Insights data. In addition, Skyhook earns revenue through entering into licensing agreements with companies to utilize its underlying intellectual property (including patents).

Charter is the second largest cable operator in the United States and a leading broadband communications services company providing video, Internet and voice services to residential and small and medium business customers. Charter also recently launched its Spectrum mobile service to residential customers. In addition, Charter sells video and online advertising inventory to local, regional and national advertising customers and fiber-delivered communications and managed information technology (“IT”) solutions to large enterprise customers. Charter also owns and operates regional sports networks and local sports, news and community channels. Charter’s core strategy is to use its network to deliver high quality products at highly competitive prices, combined with outstanding service.

Also included in Liberty Broadband is a former investment in outstanding shares of Time Warner Cable, which was classified as available-for-sale and carried at fair value based on quoted market prices until the second quarter of 2016 when Time Warner Cable merged with Charter. Additionally, the Company historically had written call options and a cashless collar

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agreement on Time Warner Cable shares. See note 4 for information regarding the Time Warner Cable written call options and cashless collar agreement.

(3) Summary of Significant Accounting Policies

Cash and Cash Equivalents

Cash consists of cash deposits held in global financial institutions. Cash equivalents consist of highly liquid investments with original maturities of three months or less at the time of acquisition. Cash that has restrictions upon its usage has been excluded from cash and cash equivalents.

Derivative Instruments and Hedging Activities

All of the Company's derivatives, whether designated in hedging relationships or not, are recorded on the balance sheet at fair value. None of the Company's derivatives are currently designated as hedges, as a result, changes in the fair value of the derivative are recognized in earnings.

The fair value of certain of the Company's derivative instruments are estimated using the Black Scholes Merton option-pricing model ("Black-Scholes model"). The Black-Scholes model incorporates a number of variables in determining such fair values, including expected volatility of the underlying security and an appropriate discount rate. The Company obtained volatility rates from pricing services based on the expected volatility of the underlying security over the remaining term of the derivative instrument. A discount rate was obtained at the inception of the derivative instrument and updated each reporting period, based on the Company's estimate of the discount rate at which it could currently settle the derivative instrument. The Company considered its own credit risk as well as the credit risk of its counterparties in estimating the discount rate. Management judgment was required in estimating the Black-Scholes variables. The Company had no outstanding derivative instruments at December 31, 2018 or December 31, 2017.

Investment in Equity Method Affiliate

For those investments in affiliates in which the Company has the ability to exercise significant influence, the equity method of accounting is used. Under this method, the investment, originally recorded at cost, is adjusted to recognize the Company's share of net earnings or losses of the affiliate as they occur rather than as dividends or other distributions are received. Losses are limited to the extent of the Company's investment in, advances to and commitments for the investee. The Company determines the difference between the purchase price of the investee and the underlying equity which results in an excess basis in the investment. This excess basis is allocated to the underlying assets and liabilities of the Company's investee through a purchase accounting exercise and is allocated within memo accounts used for equity accounting purposes. Depending on the applicable underlying assets, these amounts are either amortized over the applicable useful lives or determined to be indefinite lived. Changes in the Company's proportionate share of the underlying equity of an equity method investee, which result from the issuance of additional equity securities by such equity investee, are recognized in the statement of operations through the gain (loss) on dilution of investment in affiliate line item. We periodically evaluate our equity method investment to determine if decreases in fair value below our cost basis are other than temporary. If a decline in fair value is determined to be other than temporary, we are required to reflect such decline in our consolidated statement of operations. Other than temporary declines in fair value of our equity method investment would be included in share of earnings (losses) of affiliate in our consolidated statement of operations.

The primary factors we consider in our determination of whether declines in fair value are other than temporary are the length of time that the fair value of the investment is below our carrying value; the severity of the decline; and the financial condition, operating performance and near term prospects of the investee. In addition, we consider the reason for the decline in fair value, be it general market conditions, industry specific or investee specific; analysts' ratings and estimates of 12 month share price targets for the investee; changes in stock price or valuation subsequent to the balance sheet date; and our intent and ability to hold the investment for a period of time sufficient to allow for a recovery in fair value. Fair value of our publicly traded cost

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and equity investments is based on the market prices of the investments at the balance sheet date. Impairments are calculated as the difference between our carrying value and our estimate of fair value. As our assessment of the fair value of our investments and any resulting impairment losses and the timing of when to recognize such charges requires a high degree of judgment and includes significant estimates and assumptions, actual results could differ materially from our estimates and assumptions.

As Liberty Broadband does not control the decision making process or business management practices of our affiliate accounted for using the equity method, Liberty Broadband relies on management of its affiliate to provide it with accurate financial information prepared in accordance with GAAP that the Company uses in the application of the equity method. In addition, Liberty Broadband relies on the audit reports that are provided by the affiliate's independent auditors on the financial statements of such affiliate. The Company is not aware, however, of any errors in or possible misstatements of the financial information provided by its equity affiliate that would have a material effect on Liberty Broadband's consolidated financial statements. See note 5 for additional discussion regarding our investment in Charter and the Transactions that occurred during the second quarter of 2016.

Foreign Currency Translation and Transaction Gains and Losses

The functional currency of the Company is the United States ("U.S.") dollar. Transactions denominated in currencies other than the functional currency are recorded based on exchange rates at the time such transactions arise. Subsequent changes in exchange rates result in transaction gains and losses which are reflected in the accompanying consolidated statements of operations and comprehensive earnings (loss) as unrealized (based on the applicable period end exchange rate) or realized upon settlement of the transactions.

Revenue Recognition

As of January 1, 2018, the Company adopted the Accounting Standards Updates ("ASU") amending revenue recognition guidance using the modified retrospective method for all contracts reflecting the aggregate effect of modifications prior to the date of adoption. Results for reporting periods beginning after January 1, 2018 are presented under the new guidance, while prior period amounts were not adjusted and continue to be reported under the accounting standards in effect for those periods.

Upon adoption, we recognized a net cumulative effect of applying the new revenue guidance as a net increase to the opening balance of retained earnings of \$1.2 million, as well as an increase to other current assets of \$0.3 million, an increase to deferred income tax liabilities of \$0.4 million and a decrease to deferred revenue and other current liabilities of \$1.3 million, primarily due to changes in the timing of revenue recognition. The impact of the new accounting guidance to our consolidated statement of operations was not meaningful for the year ended December 31, 2018, and we do not expect it to be meaningful going forward.

Skyhook earns revenue from the sale and integration of its Precision Location Solution (including the licensing of software and data components that make up that solution) and the licensing of Geospatial Insights data. In addition, Skyhook earns revenue through entering into licensing agreements with companies to utilize its underlying intellectual property.

Revenue is recognized upon transfer of control of promised products or services to its customers in an amount that reflects the consideration expected to be received in exchange for those products and services.

Skyhook sells its Precision Location Solution and Geospatial Insights data via fixed fee, usage basis or revenue share licensing arrangements. Revenue for fixed fee arrangements is recognized on a straight-line basis over the performance period. Revenue for usage based contracts or revenue share arrangements is recognized upon transfer of the service to its customers. Contracts with customers often include multiple products and services, which in general are not distinct within the context of the contract. Transaction prices of individual products and services are not allocated to specific performance obligations and are recognized ratably.

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Skyhook recognizes fees received from intellectual property licensing at the inception of a license term for perpetual licenses when there are no ongoing performance obligations. Revenue recognition is deferred when there are ongoing performance obligations. In such circumstances, revenue would be allocated to the performance obligation and recognized upon the transfer of control of the promised product or service.

Deferred Revenue. At January 1, 2018, deferred revenue liabilities consisted of \$4.5 million and \$2.3 million, included in deferred revenue and other current liabilities, and other liabilities, respectively. Of this \$6.8 million that was recorded as deferred revenue, \$4.2 million was recognized as revenue during the year ended December 31, 2018. At December 31, 2018, the related balance consisted of \$4.3 million and \$1.9 million, included in deferred revenue and other current liabilities, and other liabilities, respectively. Of this \$6.2 million that was recorded as deferred revenue, we expect to recognize approximately 96% over the next one to three years.

Accounting Policies Elected. The Company has elected to exclude all taxes assessed by a governmental authority from the measurement of the transaction price.

Practical Expedients Utilized. The Company has elected to apply the new revenue guidance only to those contracts that were not completed contracts as of December 31, 2017 and considered contract modifications that occurred prior to January 1, 2018 as combined with the original contract. Subsequent to January 1, 2018, the Company will consider each modification separately in accordance with the new guidance.

Significant Judgments. The Company estimates variable consideration at the most likely amount to which we expect to be entitled. The estimate of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all historical, current and forecast information that is reasonably available to us.

Research and Development Costs

Research and development costs are expensed as incurred.

Stock-Based Compensation

As more fully described in note 9, Liberty Broadband has granted to its directors, employees and employees of certain of its subsidiaries, restricted stock and stock options to purchase shares of Liberty Broadband common stock (collectively, "Awards"). Liberty Broadband measures the cost of employee services received in exchange for an equity classified Award (such as stock options and restricted stock) based on the grant-date fair value of the Award, and recognizes that cost over the period during which the employee is required to provide service (usually the vesting period of the Award). Liberty Broadband measures the cost of employee services received in exchange for a liability classified Award based on the current fair value of the Award, and remeasures the fair value of the Award at each reporting date. Certain outstanding awards of Liberty were assumed by Liberty Broadband at the time of the Broadband Spin-Off.

Additionally, Skyhook sponsors long-term incentive plans ("LTIPs") which provide for the granting of phantom stock units ("PSUs"), and phantom stock appreciation rights ("PARs") to employees, directors, and consultants of Skyhook. Skyhook measures the cost of employee services received in exchange for awards of equity instruments based on the grant-date fair value of the award and recognizes that cost ratably over the period during which the employee is required to provide service (usually the vesting period of the award). Skyhook measures the cost of employee services received in exchange for awards of liability instruments (such as PSUs and PARs that will be settled in cash) based on the current fair value of the award, and remeasures the fair value of the award at each reporting date. The consolidated statements of operations includes stock-based compensation related to Skyhook awards.

In March 2016, the FASB issued new guidance which simplifies several aspects of the accounting for share-based payment award transactions, including the income tax consequences, forfeitures, classification of awards as either equity or

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liabilities, and classification on the statement of cash flows. The new standard is effective for the Company for fiscal years and interim periods beginning after December 15, 2016, with early application permitted. The Company adopted this guidance in the third quarter of 2016. In accordance with the new guidance, excess tax benefits and tax deficiencies are recognized as income tax benefit or expense rather than as additional paid-in capital. The Company has elected to recognize forfeitures as they occur rather than continue to estimate expected forfeitures. In addition, pursuant to the new guidance, excess tax benefits are classified as an operating activity on the consolidated statements of cash flows. The recognition of excess tax benefits and deficiencies are applied prospectively from January 1, 2016. Based on the Company's analysis, no cumulative effect adjustment to retained earnings was necessary for tax benefits that were not previously recognized and for adjustments to compensation cost based on actual forfeitures. There were no excess tax benefits reclassified for the year ended December 31, 2016.

Income Taxes

The Company accounts for income taxes using the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying value amounts and income tax bases of assets and liabilities and the expected benefits of utilizing net operating loss and tax credit carryforwards. The deferred tax assets and liabilities are calculated using enacted tax rates in effect for each taxing jurisdiction in which the Company operates for the year in which those temporary differences are expected to be recovered or settled. Net deferred tax assets are then reduced by a valuation allowance if the Company believes it more likely than not that such net deferred tax assets will not be realized. We consider all relevant factors when assessing the likelihood of future realization of our deferred tax assets, including our recent earnings experience by jurisdiction, expectations of future taxable income, and the carryforward periods available to us for tax reporting purposes, as well as assessing available tax planning strategies. The effect on deferred tax assets and liabilities of an enacted change in tax rates is recognized in income in the period that includes the enactment date. Due to inherent complexities arising from the nature of our businesses, future changes in income tax law, tax sharing agreements or variances between our actual and anticipated operating results, we make certain judgments and estimates. Therefore, actual income taxes could materially vary from these estimates.

When the tax law requires interest to be paid on an underpayment of income taxes, the Company recognizes interest expense from the first period the interest would begin accruing according to the relevant tax law. Such interest expense is included in interest expense in the accompanying consolidated statements of operations. Any accrual of penalties related to underpayment of income taxes on uncertain tax positions is included in other income (expense) in the accompanying consolidated statements of operations.

We recognize in our consolidated financial statements the impact of a tax position, if that position is more likely than not to be sustained upon an examination, based on the technical merits of the position.

Certain Risks and Concentrations

The Skyhook business is subject to certain risks and concentrations including dependence on relationships with its customers. The Company's largest customers, that accounted for greater than 10% of revenue, aggregated 66% of total revenue for the year ended December 31, 2018, and 57% of total revenue for both of the years ended December 31, 2017 and 2016.

Contingent Liabilities

Periodically, we review the status of all significant outstanding matters to assess any potential financial exposure. When (i) it is probable that an asset has been impaired or a liability has been incurred and (ii) the amount of the loss can be reasonably estimated, we record the estimated loss in our consolidated statements of operations. We provide disclosure in the notes to the consolidated financial statements for loss contingencies that do not meet both these conditions if there is a reasonable possibility that a loss may have been incurred that would be material to the financial statements. Significant judgment is required to determine the probability that a liability has been incurred and whether such liability is reasonably estimable. We base accruals made on the best information available at the time which can be highly subjective. The final outcome of these matters could vary significantly from the amounts included in the accompanying consolidated financial statements.

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Comprehensive Earnings (Loss)

Comprehensive earnings (loss) consists of net earnings (loss), cumulative foreign currency translation adjustments, unrealized gains and losses on available-for-sale securities, net of tax and the Company's share of the comprehensive earnings (loss) of our equity method affiliate.

Earnings per Share (EPS)

Basic earnings (loss) per common share ("EPS") is computed by dividing net earnings (loss) by the weighted average number of common shares outstanding for the period. Diluted EPS presents the dilutive effect on a per share basis of potential common shares as if they had been converted at the beginning of the periods presented.

	<u>Years ended December 31,</u>		
	<u>2018</u>	<u>2017</u>	<u>2016</u>
	number of shares in thousands		
Basic WASO	181,325	181,772	152,103
Potentially dilutive shares	1,264	1,374	749
Diluted WASO	182,589	183,146	152,852

Potential common shares excluded from diluted EPS because their inclusion would be antidilutive for the years ended December 31, 2018, 2017 and 2016 are approximately 10 thousand, zero, and 17 thousand, respectively.

Reclasses and adjustments

Certain prior period amounts have been reclassified for comparability with the current year presentation.

Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates. The Company considers the application of the equity method of accounting for its affiliates and accounting for income taxes to be its most significant estimates.

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(4) Assets and Liabilities Measured at Fair Value

For assets and liabilities required to be reported at fair value, GAAP provides a hierarchy that prioritizes inputs to valuation techniques used to measure fair value into three broad levels. Level 1 inputs are quoted market prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. Level 2 inputs are inputs, other than quoted market prices included within Level 1, that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability. The Company does not have any recurring assets or liabilities measured at fair value that would be considered Level 3.

The Company's assets and liabilities measured at fair value are as follows:

Description	December 31, 2018			December 31, 2017		
	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)
Cash equivalents	\$ 67,329	67,329	—	76,304	76,304	—

Other Financial Instruments

Other financial instruments not measured at fair value on a recurring basis include trade receivables, trade payables, accrued and other current liabilities, current portion of debt and long-term debt. With the exception of long-term debt, the carrying amount approximates fair value due to the short maturity of these instruments as reported on our consolidated balance sheets. The carrying value of our long-term debt bears interest at a variable rate and therefore is also considered to approximate fair value.

Realized and Unrealized Gains (Losses) on Financial Instruments

Realized and unrealized gains (losses) on financial instruments are comprised of changes in the fair value of the following:

	Years ended December 31,		
	2018	2017	2016
	(amounts in thousands)		
Time Warner Cable investment (1)	\$ —	—	92,990
Derivative instruments (2)	3,659	3,098	1,132
	\$ 3,659	3,098	94,122

- (1) As discussed in note 5, Time Warner Cable merged with Charter on May 18, 2016. Therefore the Company no longer has an investment in Time Warner Cable as of May 18, 2016, and the unrealized gain (loss) related to our investment in Time Warner Cable is recorded through this date. In connection with the merger, the Company exchanged, in a tax-free transaction, its shares of Time Warner Cable for shares of Charter Class A common stock.
- (2) During the year ended December 31, 2016, the Company entered into a zero-strike call option on Liberty Broadband Series C common stock and prepaid a premium of \$47.9 million. During the year ended December 31, 2017, the Company entered into and settled additional zero-strike call options and paid an aggregate of \$149.4 million and received an aggregate of \$155.7 million from the counterparty. Additionally, in 2017, the Company physically settled one of the contracts (see note 8 in the accompanying notes to the consolidated financial statements for additional discussion). During the year ended December 31, 2018, the Company continued to enter into and settle zero-strike call options and

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paid an aggregate of \$142.8 million and received an aggregate of \$146.5 million from the counterparty. The Company had no outstanding zero-strike call options as of December 31, 2018 and 2017.

(5) Investment in Charter Accounted for Using the Equity Method

Through a number of prior years' transactions, Liberty Broadband has acquired an interest in Charter. The investment in Charter is accounted for as an equity method affiliate based on our ownership interest and the board seats held by individuals appointed by Liberty Broadband. As of December 31, 2018, the carrying value of Liberty Broadband's ownership in Charter was approximately \$12,004 million. The market value of Liberty Broadband's ownership in Charter as of December 31, 2018 was approximately \$15,409 million, which represented an approximate economic ownership of 24% of the outstanding equity of Charter as of that date.

Pursuant to the proxy agreements with GCI Liberty, Inc. and A/N, Liberty Broadband has an irrevocable proxy to vote certain shares of Charter common stock owned beneficially or of record by GCI Liberty, Inc. and A/N following the closing of the Time Warner Cable Merger, for a five year term subject to extension upon the mutual agreement of both parties, subject to certain limitations.

As a result of the A/N Proxy and the GCI Liberty, Inc. Agreement, Liberty Broadband controls 25.01% of the aggregate voting power of Charter following the completion of the Time Warner Cable Merger and the Bright House Transaction and is Charter's largest stockholder.

Additionally, so long as the A/N Proxy is in effect, if A/N proposes to transfer common units of Charter Communications Holdings, LLC (which units are exchangeable into Charter shares and which will, under certain circumstances, result in the conversion of certain shares of Class B Common Stock into Charter shares) or Charter shares, in each case, constituting either (i) shares representing the first 7.0% of the outstanding voting power of Charter held by A/N or (ii) shares representing the last 7.0% of the outstanding voting power of New Charter held by A/N, Liberty Broadband will have a right of first refusal ("ROFR") to purchase all or a portion of any such securities A/N proposes to transfer. The purchase price per share for any securities sold to Liberty Broadband pursuant to the ROFR will be the volume-weighted average price of Charter shares for the two trading day period before the notice of a proposed sale by A/N, payable in cash. Certain transfers are permitted to affiliates of A/N, subject to the transferee entity entering into an agreement assuming the transferor's obligations under the A/N Proxy.

During the years ended December 31, 2018, 2017 and 2016, there was a dilution loss of \$44 million and \$18 million, and a dilution gain of \$771 million, respectively, in the Company's investment in Charter. The gain during 2016 is primarily due to the Time Warner Cable Merger. Even after considering the exchange of Time Warner Cable shares held by Liberty Broadband to shares of Charter, Liberty Broadband's interest in Charter was diluted as a result of the conversion of outstanding Time Warner Cable shares held by third parties into shares of Charter. However, Liberty Broadband recognized a gain during the period as Liberty Broadband's investment basis in Charter was at a price per share below the new equity issued in the Time Warner Cable Merger. This gain was partially offset by losses due to the issuance of Charter common stock from the exercise of warrants and stock options, held by outside investors (employees and other third parties), at prices below Liberty Broadband's investment basis per share during the year. The dilution losses during the other periods presented are attributable to stock option exercises by employees and other third parties at prices below Liberty Broadband's book basis per share.

During the years ended December 31, 2018, 2017 and 2016, the Company recorded \$172 thousand, \$768 thousand and \$811 thousand, respectively, of its share of Charter's other comprehensive earnings, net of income taxes. Charter records gains and losses related to the fair value of its interest rate swap agreements which qualify as hedging activities in other comprehensive income. The pre-tax portion of Liberty Broadband's share of Charter's other comprehensive earnings was \$0.2 million, \$1.2 million and \$1.3 million for the years ended December 31, 2018, 2017 and 2016, respectively.

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The excess basis has increased to \$3,298 million as of December 31, 2018. Such amount has been allocated within memo accounts used for equity method accounting purposes as follows (amounts in millions):

	Years ended December 31,	
	2018	2017
Property and equipment	\$ 328	361
Customer relationships	721	689
Franchise fees	1,821	1,670
Trademarks	29	29
Goodwill	1,202	986
Debt	(105)	(98)
Deferred income tax liability	(698)	(662)
	<u>\$ 3,298</u>	<u>2,975</u>

Upon acquisition, the Company ascribed remaining useful lives of 7 years and 13 years to property and equipment and customer relationships, respectively, and indefinite lives to franchise fees, trademarks and goodwill. The excess basis of outstanding debt is amortized over the contractual period using the straight-line method. The increase in excess basis for the year ended December 31, 2018, was primarily due to Charter's share buyback program. Included in our share of earnings from Charter of \$166 million, \$2,509 million and of \$642 million for the years ended December 31, 2018, 2017 and 2016, respectively, are \$119 million, \$277 million and \$42 million, respectively, of losses, net of taxes, due to the amortization of the excess basis of our investment in Charter related to property and equipment, debt and intangible assets with identifiable useful lives.

Accounting Changes

Charter adopted several new accounting standards as of January 1, 2018, including the new revenue guidance. Charter adopted the new revenue guidance, as described in note 3, on January 1, 2018 using the modified retrospective transition method with a cumulative-effect adjustment to equity. The January 1, 2018 adoption cumulative-effect adjustment consisted of an increase to other noncurrent assets of \$120 million, an increase to accounts payable and accrued liabilities of \$71 million, an increase to deferred income tax liabilities of \$11 million and an increase to total shareholders' equity of \$38 million. Charter applied the cumulative-effect method to all contracts as of January 1, 2018. Operating results for the year ended December 31, 2018 are not materially different than results that would have been reported under previous guidance.

Also on January 1, 2018, Charter adopted guidance which requires both the selling entity and the buying entity in an intra-entity asset transfer (other than the transfer of inventory) to immediately recognize the current and deferred income tax consequences of the transaction. Income tax effects of intra-entity transfers of inventory will continue to be deferred until the inventory has been sold to a third party. Charter adopted this guidance using a modified retrospective approach, with the cumulative-effect adjustment recognized directly to shareholders equity for the income tax effects of intra-entity asset transfers (other than transfers of inventory) that happened before the adoption date. Charter identified a \$31 million increase to total shareholders' equity and corresponding increase to deferred tax assets related to the adoption, which was recorded during the year ended December 31, 2018.

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Summarized financial information for Charter is as follows:

Consolidated Balance Sheets

	December 31, 2018	December 31, 2017
	amounts in millions	
Current assets	\$ 2,944	2,555
Property and equipment, net	35,126	33,888
Goodwill	29,554	29,554
Intangible assets	76,884	79,270
Other assets	1,622	1,356
Total assets	<u>\$ 146,130</u>	<u>146,623</u>
Current liabilities	\$ 12,095	11,090
Deferred income taxes	17,389	17,314
Long-term debt	69,537	68,186
Other liabilities	2,837	2,502
Equity	44,272	47,531
Total liabilities and equity	<u>\$ 146,130</u>	<u>146,623</u>

Consolidated Statements of Operations

	Years ended December 31,		
	2018	2017	2016
	amounts in millions		
Revenue	\$ 43,634	41,581	29,003
Cost and expenses:			
Operating costs and expenses (excluding depreciation and amortization)	27,860	26,541	18,655
Depreciation and amortization	10,318	10,588	6,907
Other operating expenses, net	235	346	985
	<u>38,413</u>	<u>37,475</u>	<u>26,547</u>
Operating income	5,221	4,106	2,456
Interest expense	(3,540)	(3,090)	(2,499)
Loss on extinguishment of debt	—	(40)	(111)
Other income (expense), net	5	52	974
Income tax (expense) benefit	(180)	9,087	2,925
Net earnings (loss)	1,506	10,115	3,745
Less: Net income attributable to noncontrolling interests	(276)	(220)	(223)
Net Income (loss) attributable to Charter shareholders	<u>\$ 1,230</u>	<u>9,895</u>	<u>3,522</u>

(6) Debt

2014 and 2016 Margin Loans

On October 30, 2014, in connection with and prior to the effectiveness of the Broadband Spin-Off, a wholly-owned special purpose subsidiary of the Company ("BroadbandSPV") entered into two margin loan agreements (the "2014 Margin Loan Agreements") with each of the lenders party thereto. On March 21, 2016, a wholly-owned special purpose subsidiary of the Company ("Cheetah 5"), entered into two margin loan agreements (the "2016 Margin Loan Agreements" and together with the

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2014 Margin Loan Agreements, the “Margin Loan Agreements”) with each of the lenders thereto. Borrowings under the 2014 Margin Loan Agreements bore interest at the three-month LIBOR rate plus 1.55% and had an unused commitment fee of 0.25% per annum based on the average daily unused portion of the 2014 Margin Loans and borrowings under the 2016 Margin Loan Agreements bore interest at the applicable LIBOR rate plus 2.10% per annum and had an unused commitment fee of 0.5% per annum based on the average daily unused portion of the delayed draw loans. On August 31, 2017, the outstanding borrowings on both margin loans of \$400 million and \$200 million were repaid, as discussed below.

2017 Margin Loan Facility

On August 24, 2018, a bankruptcy remote wholly owned subsidiary of the Company (“SPV”), entered into Amendment No. 1 to its multi-draw margin loan credit facility (the “Amended 2017 Margin Loan Facility” and, the credit agreement governing such facility, the “Amended 2017 Margin Loan Agreement”) with Wilmington Trust, National Association as the successor administrative agent, BNP Paribas, Dublin Branch, as the successor calculation agent, and the lenders thereunder. SPV is permitted, subject to certain funding conditions, to borrow term loans up to an aggregate principal amount equal to \$1.0 billion. SPV will also have the ability from time to time to request additional loans in an aggregate principal amount of up to \$1.0 billion on an uncommitted basis subject to certain conditions. On April 4, 2018, SPV borrowed \$25 million against the Amended 2017 Margin Loan Facility. SPV had borrowed \$525 million and \$500 million as of December 31, 2018 and 2017, respectively. SPV had \$475 million available to be drawn until August 27, 2019. The maturity date of the loans under the Amended 2017 Margin Loan Agreement is August 24, 2020 (except for any incremental loans incurred thereunder to the extent SPV and the incremental lenders agree to a later maturity date). Accordingly, the debt is classified as noncurrent as of December 31, 2018. Borrowings under the Amended 2017 Margin Loan Agreement bear interest at the three-month LIBOR rate plus a per annum spread of 1.5%, unless it is unlawful for the applicable lender to fund or maintain loans based on LIBOR or there are material restrictions on the applicable lender to do so, in which case borrowings under the Amended 2017 Margin Loan Agreement will either (a) bear interest at 0.5% plus the higher of (i) the federal funds rate plus ½ of 1%, (ii) the prime rate and (iii) LIBOR plus 1% for each day during such period or (b) be prepaid. Borrowings outstanding under this margin loan bore interest at a rate of 3.89% per annum at December 31, 2018. Interest is payable quarterly in arrears beginning on September 29, 2017. SPV used available cash and a portion of the proceeds of the loans under the Amended 2017 Margin Loan Facility to repay the Margin Loan Agreements. Borrowings may also be used for distribution as a dividend or a return of capital, for the purchase of margin stock and for general corporate purposes.

The Amended 2017 Margin Loan Agreement contains various affirmative and negative covenants that restrict the activities of SPV (and, in some cases, the Company and its subsidiaries with respect to shares of Charter owned by the Company and its subsidiaries). The 2017 Margin Loan Agreement does not include any financial covenants. The Amended 2017 Margin Loan Agreement also contains restrictions related to additional indebtedness and events of default customary for margin loans of this type.

SPV’s obligations under the Amended 2017 Margin Loan Agreement are secured by first priority liens on a portion of the Company’s ownership interest in Charter, sufficient for SPV to meet the loan to value requirements under the Amended 2017 Margin Loan Agreement. The Amended 2017 Margin Loan Agreement indicates that no lender party shall have any voting rights with respect to the shares transferred, except to the extent that a lender party buys any shares in a sale or other disposition made pursuant to the terms of the loan agreements. As of December 31, 2018, 6.8 million shares of Charter with a value of \$1.9 billion were pledged as collateral pursuant to the Amended 2017 Margin Loan Agreement.

(7) Income Taxes

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act made broad and complex changes to the U.S. tax code, including, but not limited to, (1) reducing the U.S. federal corporate tax rate from 35 percent to 21 percent; (2) bonus depreciation that will allow for full expensing of qualified property; (3) creating a new limitation on deductible interest expense; (4) eliminating the corporate alternative minimum tax (“AMT”) and changing how existing AMT credits can be realized; (5) changing rules related to uses and limitations of net operating loss carryforwards created in tax years beginning after December 31, 2018; and (6) limitations

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on the deductibility of certain executive compensation. The SEC issued guidance on accounting for the tax effects of the Tax Act. The Company reflected the income tax effects of those aspects of the Tax Act for which the accounting was known as of December 31, 2017. As of December 31, 2018, the Company has completed its analysis of the Tax Act with no changes to the income tax effects presented at December 31, 2017.

Income tax benefit (expense) consists of:

	Years ended December 31,		
	2018	2017	2016
	amounts in thousands		
Current:			
Federal	\$ —	(11)	1,556
State and local	(355)	(84)	853
	<u>(355)</u>	<u>(95)</u>	<u>2,409</u>
Deferred:			
Federal	(17,501)	(301,837)	(493,890)
State and local	(4,068)	(115,001)	(66,888)
	<u>(21,569)</u>	<u>(416,838)</u>	<u>(560,778)</u>
Income tax benefit (expense)	\$ (21,924)	(416,933)	(558,369)

Income tax benefit (expense) differs from the amounts computed by applying the applicable U.S. federal income tax rate of 21% in 2018 and 35% in 2017 and 2016 as a result of the following:

	Years ended December 31,		
	2018	2017	2016
	amounts in thousands		
Computed expected tax benefit (expense)	\$ (19,294)	(857,710)	(516,485)
State and local taxes, net of federal income taxes	(3,831)	(74,805)	(42,995)
Foreign taxes, net of foreign tax credit	—	—	(1,180)
Change in valuation allowance	380	(1,208)	683
Dividends received deduction	—	—	931
Change in tax rate - other	(27)	—	45
Change in tax rate - U.S. tax reform	—	515,773	—
Derivative instrument	768	1,084	396
Other	80	(67)	236
Income tax (expense) benefit	\$ (21,924)	(416,933)	(558,369)

For the year ended December 31, 2018, the significant reconciling items, as noted in the table above, are the result of state income taxes, partially offset by unrealized gains attributable to the Company's own stock which is not recognized for tax purposes.

For the year ended December 31, 2017, the significant reconciling items, as noted in the table above, are the result of the effect of the change in the U.S. federal corporate tax rate from 35% to 21% on deferred taxes and the effect of state income taxes. The Company recorded a discrete net tax benefit of \$516 million in the period ending December 31, 2017. This net benefit primarily consisted of a net benefit for the corporate rate reduction.

For the year ended December 31, 2016, the significant reconciling items, as noted in the table above, are the result of the effect of state income taxes.

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The tax effects of temporary differences and tax attributes that give rise to significant portions of the deferred income tax assets and deferred income tax liabilities are presented below:

	December 31,	
	2018	2017
amounts in thousands		
Deferred tax assets:		
Tax loss and tax credit carryforwards	\$ 56,056	49,555
Accrued stock-based compensation	5,571	4,275
Deferred revenue	1,430	1,805
Other	44	64
Total deferred tax assets	63,101	55,699
Less: valuation allowance	(7,773)	(8,153)
Net deferred tax assets	55,328	47,546
Deferred tax liabilities:		
Investments	(1,020,869)	(979,522)
Intangible assets	(261)	(617)
Other	(27)	—
Total deferred tax liabilities	(1,021,157)	(980,139)
Net deferred tax asset (liability)	\$ (965,829)	(932,593)

The Company's valuation allowance decreased \$0.4 million in 2018, which affected tax expense during the year ended December 31, 2018.

At December 31, 2018, the Company had a deferred tax liability on investments of \$1,020.9 million due to its share of earnings in its equity investment in Charter.

At December 31, 2018, Liberty Broadband had federal and state net operating losses, capital loss carryforwards, interest expense carryforwards and tax credit carryforwards for income tax purposes aggregating \$56.1 million (on a tax effected basis). Of the \$56.1 million, \$6.7 million are carryforwards with no expiration. The remaining carryforwards expire at certain future dates. These carryforwards are expected to be utilized prior to expiration, except for \$7.8 million which based on current projections, may expire unused and accordingly are subject to a valuation allowance. The carryforwards that are expected to be utilized will begin to expire in 2021.

As of December 31, 2018, the Company had not recorded tax reserves related to unrecognized tax benefits for uncertain tax positions.

As of December 31, 2018, the IRS has completed its examination of Liberty Broadband's 2016 and 2017 tax years. Liberty Broadband's 2018 tax year is being examined as part of the IRS's Compliance Assurance Process "CAP" program. Because Liberty Broadband's ownership of Charter is less than the required 80%, Charter is not consolidated with Liberty Broadband for federal income tax purposes.

(8) Stockholders' Equity

In the Broadband Spin-Off, record holders of Liberty Series A, Series B and Series C common stock received one-fourth of a share of the corresponding series of Liberty Broadband common stock for each share of Liberty common stock held by them, with cash paid in lieu of fractional shares. This resulted in the issuance of an aggregate 85,761,332 shares of Series A, Series B and Series C common stock.

In addition, following the completion of the Broadband Spin-Off, on December 10, 2014, stockholders received a subscription right to acquire one share of Liberty Broadband Series C common stock for every five shares of Liberty Broadband

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common stock they held as of the rights record date at a per share subscription price of \$40.36, which was a 20% discount to the 20-trading day volume weighted average trading price of the Series C Liberty Broadband common stock following the completion of the Broadband Spin-Off. The rights offering was fully subscribed on January 9, 2015, with 17,277,224 shares of Series C common stock issued to those rightsholders exercising basic and, as applicable, oversubscription privileges. The subscription rights were issued to raise capital for general corporate purposes of Liberty Broadband.

In connection with the Time Warner Cable Merger in May 2016, Liberty Broadband funded its purchase of shares of Charter Class A common stock using proceeds of \$4.4 billion related to subscriptions for approximately 78.3 million newly issued shares of Liberty Broadband Series C common stock, par value \$0.01 per share (the "Series C Shares"), at a price per share of \$56.23, which was determined based upon the fair value of Liberty Broadband's net assets on a sum-of-the parts basis at the time certain Amended and Restated Investment Agreements were executed. The purchasers of the Series C Shares were Liberty Interactive through its Liberty Ventures Group (approximately 42.7 million shares) and certain other third party investors, which all invested on substantially similar terms. One of the third party investors also held a position in Time Warner Cable and agreed to vote its Time Warner Cable shares in favor of the Time Warner Cable Merger. Each of Legacy Charter and Liberty Broadband obtained stockholder approval during September 2015 for the issuance of the Charter shares and the Series C Shares, respectively, in accordance with the rules and requirements of the Nasdaq Stock Market. The issuance of the Series C Shares was not registered under the Securities Act of 1933, as amended (the "Securities Act"), in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act and the rules and regulations of the Securities and Exchange Commission promulgated thereunder. As a result of the issuance of the Series C Shares in connection with the Transactions, Liberty Interactive's non-voting economic ownership in Liberty Broadband was 23.5% as of December 31, 2016.

As discussed in note 4, the Company had an outstanding zero-strike call option on 704,908 Series C Shares at December 31, 2016, which expired in March 2017. The Company prepaid a premium of \$47.9 million in December 2016. Liberty Broadband exercised its option to settle the contract in cash in March 2017 for cash proceeds of \$50.0 million. The Company entered into another zero-strike call option on 527,156 shares of Liberty Broadband Series C common stock and prepaid a premium of \$47.7 million in October 2017. Upon expiration of the contract in December 2017, the Company physically settled the contract by purchasing 527,156 shares of Liberty Broadband Series C common stock at a price of \$90.54 per share. As of December 31, 2018, the Company had no zero-strike call options outstanding. The Company accounted for the zero-strike call option as a financial instrument asset due to its settlement provisions. Accordingly, changes in the fair value of the asset are included in realized and unrealized gains (losses) on financial instruments in the accompanying statement of operations.

Preferred Stock

Liberty Broadband's preferred stock is issuable, from time to time, with such designations, preferences and relative participating, optional or other rights, qualifications, limitations or restrictions thereof, as shall be stated and expressed in a resolution or resolutions providing for the issue of such preferred stock adopted by Liberty Broadband's board of directors. As of December 31, 2018, no shares of preferred stock were issued.

Common Stock

Liberty Broadband's Series A common stock has one vote per share, Liberty Broadband's Series B common stock has ten votes per share and Liberty Broadband's Series C common stock has no votes per share (except as otherwise required by applicable law). Each share of the Series B common stock is exchangeable at the option of the holder for one share of Series A common stock. All series of our common stock participate on an equal basis with respect to dividends and distributions.

As of December 31, 2018, there were 393 thousand shares of Series A and 2.4 million shares of Series C common stock reserved for issuance under exercise privileges of outstanding stock options.

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(9) Stock-Based Compensation

Included in the accompanying consolidated statements of operations are the following amounts of stock-based compensation for the years ended December 31, 2018, 2017 and 2016 (amounts in thousands).

	December 31,		
	2018	2017	2016
Operating expense	\$ 4	(2)	—
Selling, general and administrative	5,599	5,114	5,555
Research and development	104	180	158
	<u>\$ 5,707</u>	<u>5,292</u>	<u>5,713</u>

Liberty Broadband - Incentive Plans

Pursuant to the Liberty Broadband 2014 Omnibus Incentive Plan, as amended, the Company may grant Awards to be made in respect of a maximum of 8.4 million shares of Liberty Broadband common stock. Awards generally vest over 1-5 years and have a term of 7-10 years. Liberty Broadband issues new shares upon exercise of equity awards.

Liberty Broadband – Grants of Stock Options

During the years ended December 31, 2018, 2017 and 2016, Liberty Broadband granted 10 thousand, 16 thousand and 17 thousand options, respectively, to purchase shares of Series C common stock to its non-employee directors with a weighted average grant-date fair value (“GDFV”) of \$24.04, \$22.68 and \$18.64 per share, respectively, which cliff vest over a one year vesting period. There were no options to purchase shares of Series A common stock granted during the period.

The Company has calculated the GDFV for all of its equity classified awards and any subsequent remeasurement of its liability classified awards using the Black-Scholes Model. The Company estimates the expected term of the Awards based on historical exercise and forfeiture data. For grants made in 2018, 2017 and 2016, the range of expected terms was 4.7 to 5.3 years. The volatility used in the calculation for Awards is based on the historical volatility of Liberty Broadband common stock and the implied volatility of publicly traded Liberty Broadband options. For grants made in 2018, 2017 and 2016, the range of volatilities was 24.4% to 26.2%. The Company uses a zero dividend rate and the risk-free rate for Treasury Bonds with a term similar to that of the subject option.

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Liberty Broadband – Outstanding Awards

The following tables present the number and weighted average exercise price (“WAEP”) of Awards to purchase Liberty Broadband common stock granted to certain officers, employees and directors of the Company, as well as the weighted average remaining life and aggregate intrinsic value of the Awards.

	Series A (in thousands)	WAEP	Weighted average remaining contractual life (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2018	404	\$ 33.16		
Granted	—	\$ —		
Exercised	(11)	\$ 27.75		
Forfeited/Cancelled	—	\$ —		
Outstanding at December 31, 2018	<u>393</u>	\$ 33.31	1.0	\$ 15
Exercisable at December 31, 2018	<u>393</u>	\$ 33.28	1.0	\$ 15

	Series C (in thousands)	WAEP	Weighted average remaining contractual life (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2018	2,388	\$ 43.35		
Granted	10	\$ 82.46		
Exercised	(42)	\$ 29.15		
Forfeited/Cancelled	—	\$ —		
Outstanding at December 31, 2018	<u>2,356</u>	\$ 43.77	4.3	\$ 67
Exercisable at December 31, 2018	<u>1,594</u>	\$ 41.49	3.5	\$ 49

The Company had no outstanding Series B options during 2018.

As of December 31, 2018, the total unrecognized compensation cost related to unvested Liberty Broadband Awards was approximately \$4.8 million. Such amount will be recognized in the Company’s consolidated statements of operations over a weighted average period of approximately 1 year.

As of December 31, 2018, Liberty Broadband reserved 2.7 million shares of Series A and Series C common stock for issuance under exercise privileges of outstanding stock Awards.

Liberty Broadband – Exercises

The aggregate intrinsic value of all options exercised during the years ended December 31, 2018, 2017 and 2016 was \$3.0 million, \$8.1 million and \$14.4 million, respectively.

Liberty Broadband – Restricted Shares

The aggregate fair value of all Series A and Series C restricted shares of Liberty Broadband common stock that vested during the years ended December 31, 2018, 2017 and 2016 was \$112 thousand, \$116 thousand and \$674 thousand, respectively.

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As of December 31, 2018, the Company had approximately 24 thousand unvested restricted shares of Series A and Series C Liberty Broadband common stock held by certain directors, officers and employees of the Company with a weighted average GDFV of \$15.33 per share.

Skyhook equity incentive plans

Long-Term Incentive Plans

Skyhook has a long-term incentive plan which provides for the granting of PARs and PSUs to employees, directors, and consultants of Skyhook that is not significant to Liberty Broadband. As of December 31, 2018 and 2017, \$1.1 million and \$1.2 million, respectively, are included in other liabilities for the fair value (Level 2) of the Company's LTIP obligations.

(10) Employee Benefit Plans

Prior to January 1, 2015, Skyhook participated in Liberty's defined-contribution plan (the "Liberty 401(k) Plan").

Employees of Skyhook participate in a separate defined-contribution plan administered by Skyhook (the "Skyhook 401(k) Plan"). The Skyhook 401(k) Plan provides for employees to make contributions by salary reductions for investment in several mutual funds and/or a self-directed brokerage account pursuant to Section 401(k) of the Internal Revenue Code.

Pursuant to the existing Skyhook 401(k) Plan, Skyhook employees are eligible for 100% matching contributions for each dollar contributed up to 10%, subject to certain limitations. For the years ended December 31, 2018, 2017 and 2016, Skyhook contributed approximately \$0.8 million, \$1.0 million and \$0.8 million respectively.

(11) Commitments and Contingencies

Leases

Skyhook leases various properties under operating leases expiring at various times through 2021. The aggregate minimum annual lease payments under the noncancelable operating leases as of December 31, 2018 are as follows (amounts in thousands):

2019	\$	545
2020		132
	\$	<u>677</u>

Skyhook's two principal facilities are under lease through December 2019 and December 2020, respectively. Total rental expense for the years ended December 31, 2018, 2017 and 2016 was \$1.0 million, \$1.1 million and \$2.4 million, respectively.

General Litigation

In the ordinary course of business, the Company and its consolidated subsidiaries are parties to legal proceedings and claims involving alleged infringement of third-party intellectual property rights, defamation, and other claims. Although it is reasonably possible that the Company may incur losses upon conclusion of such matters, an estimate of any loss or range of loss cannot be made. In the opinion of management, it is expected that amounts, if any, which may be required to satisfy such contingencies will not be material in relation to the accompanying consolidated financial statements.

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Off-Balance Sheet Arrangements

Liberty Broadband did not have any off-balance sheet arrangements that have, or are reasonably likely to have, a current or future effect on the Company's financial condition, results of operations, liquidity, capital expenditures or capital resources.

(12) Segment Information

Liberty Broadband identifies its reportable segments as (A) those consolidated companies that represent 10% or more of its consolidated annual revenue, annual Adjusted OIBDA or total assets and (B) those equity method affiliates whose share of earnings or losses represent 10% or more of Liberty Broadband's annual pre-tax earnings (losses).

Liberty Broadband evaluates performance and makes decisions about allocating resources to its operating segments based on financial measures such as revenue and Adjusted OIBDA. In addition, Liberty Broadband reviews nonfinancial measures such as subscriber growth.

Liberty Broadband defines Adjusted OIBDA as revenue less cost of sales, operating expenses, and selling, general and administrative expenses (excluding stock-based compensation). Liberty Broadband believes this measure is an important indicator of the operational strength and performance of its businesses, including each business's ability to service debt and fund capital expenditures. In addition, this measure allows management to view operating results and perform analytical comparisons and benchmarking between businesses and identify strategies to improve performance. This measure of performance excludes depreciation and amortization, stock based compensation, separately reported litigation settlements and restructuring and impairment charges that are included in the measurement of operating income pursuant to GAAP. Accordingly, Adjusted OIBDA should be considered in addition to, but not as a substitute for, operating income, net earnings, cash flow provided by operating activities and other measures of financial performance prepared in accordance with GAAP. Liberty Broadband generally accounts for intersegment sales and transfers as if the sales or transfers were to third parties, that is, at current prices.

For the year ended December 31, 2018, Liberty Broadband has identified the following consolidated company and equity method investment as its reportable segments:

- Skyhook—a wholly owned subsidiary of the Company that provides the Precision Location Solution (a location determination service) and Geospatial Insights product (a location intelligence and data insights service).
- Charter—an equity method investment that is one of the largest providers of cable services in the United States, offering a variety of entertainment, information and communications solutions to residential and commercial customers.

Liberty Broadband's operating segments are strategic business units that offer different products and services. They are managed separately because each segment requires different technologies, distribution channels and marketing strategies. The accounting policies of the segments that are also consolidated companies are the same as those described in the Company's summary of significant accounting policies in the Company's annual financial statements. For periods in which Liberty Broadband owned Charter shares and warrants, we have included amounts attributable to Charter in the tables below. Although Liberty Broadband owns less than 100% of the outstanding shares of Charter, 100% of the Charter amounts are included in the schedule below and subsequently eliminated in order to reconcile the account totals to the Liberty Broadband consolidated financial statements.

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Performance Measures

	Years ended December 31,					
	2018		2017		2016	
	Revenue	Adjusted OIBDA	Revenue	Adjusted OIBDA	Revenue	Adjusted OIBDA
	amounts in thousands					
Skyhook	\$ 22,256	3,161	13,092	(9,496)	30,586	(2,681)
Charter	43,634,000	15,824,000	41,581,000	14,955,000	29,003,000	9,607,000
Corporate and other	—	(6,689)	—	(6,920)	—	(8,761)
	43,656,256	15,820,472	41,594,092	14,938,584	29,033,586	9,595,558
Eliminate equity method affiliate	(43,634,000)	(15,824,000)	(41,581,000)	(14,955,000)	(29,003,000)	(9,607,000)
Consolidated Liberty Broadband	\$ 22,256	(3,528)	13,092	(16,416)	30,586	(11,442)

Other Information

	December 31, 2018			December 31, 2017		
	Total assets	Investments in affiliates	Capital expenditures	Total assets	Investments in affiliates	Capital expenditures
	amounts in thousands					
Skyhook	\$ 21,763	—	41	24,481	—	70
Charter	146,130,000	—	9,125,000	146,623,000	—	8,681,000
Corporate and other	12,076,674	12,004,376	—	11,907,308	11,835,613	—
	158,228,437	12,004,376	9,125,041	158,554,789	11,835,613	8,681,070
Eliminate equity method affiliate	(146,130,000)	—	(9,125,000)	(146,623,000)	—	(8,681,000)
Consolidated Liberty Broadband	\$ 12,098,437	12,004,376	41	11,931,789	11,835,613	70

Revenue by Geographic Area

	Years ended December 31,		
	2018	2017	2016
	amounts in thousands		
United States	\$ 19,946	10,315	27,806
Other countries	2,310	2,777	2,780
	\$ 22,256	13,092	30,586

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The following table provides a reconciliation of segment Adjusted OIBDA to Operating income (loss) and earnings (loss) from continuing operations before income taxes:

	Years ended December 31,		
	2018	2017	2016
		amounts in thousands	
Consolidated segment Adjusted OIBDA	\$ (3,528)	(16,416)	(11,442)
Stock-based compensation	(5,707)	(5,292)	(5,713)
Depreciation and amortization	(2,779)	(3,770)	(4,005)
Operating income (loss)	(12,014)	(25,478)	(21,160)
Interest expense	(23,302)	(19,570)	(14,956)
Dividend and interest income	881	1,449	5,020
Share of earnings (loss) of affiliates, net	166,146	2,508,991	641,544
Realized and unrealized gains (losses) on financial instruments, net	3,659	3,098	94,122
Gain (loss) on dilution of investment in affiliate	(43,575)	(17,872)	770,766
Other, net	82	(18)	336
Earnings (loss) from continuing operations before income taxes	\$ 91,877	2,450,600	1,475,672

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(13) Quarterly Financial Information (Unaudited)

	<u>1st</u> <u>Quarter</u>	<u>2nd</u> <u>Quarter</u>	<u>3rd</u> <u>Quarter</u>	<u>4th</u> <u>Quarter</u>
	amounts in thousands, except per share amounts			
2018:				
Revenue	\$ 11,791	3,371	3,518	3,576
Operating income (loss)	\$ 2,246	(5,071)	(4,096)	(5,093)
Net earnings (loss) attributable to Liberty Broadband Corporation Series A, Series B and Series C stockholders	\$ (15,070)	10,580	59,639	14,804
Basic earnings (loss) attributable to Liberty Broadband Corporation Series A, Series B and Series C stockholders per common share	\$ (0.08)	0.06	0.33	0.08
Diluted earnings (loss) attributable to Liberty Broadband Corporation Series A, Series B and Series C stockholders per common share	\$ (0.08)	0.06	0.33	0.08
	<u>1st</u> <u>Quarter</u>	<u>2nd</u> <u>Quarter</u>	<u>3rd</u> <u>Quarter</u>	<u>4th</u> <u>Quarter</u>
	amounts in thousands, except per share amounts			
2017:				
Revenue	\$ 3,140	3,073	3,430	3,449
Operating income (loss)	\$ (6,362)	(7,333)	(5,787)	(5,996)
Net earnings (loss) attributable to Liberty Broadband Corporation Series A, Series B and Series C stockholders	\$ (14,445)	(2,977)	(9,864)	2,060,953
Basic earnings (loss) attributable to Liberty Broadband Corporation Series A, Series B and Series C stockholders per common share	\$ (0.08)	(0.02)	(0.05)	11.37
Diluted earnings (loss) attributable to Liberty Broadband Corporation Series A, Series B and Series C stockholders per common share	\$ (0.08)	(0.02)	(0.05)	11.28

PART III

The following required information is incorporated by reference to our definitive proxy statement for our 2019 Annual Meeting of Stockholders presently scheduled to be held in the second quarter of 2019:

<u>Item 10.</u>	Directors, Executive Officers and Corporate Governance
<u>Item 11.</u>	Executive Compensation
<u>Item 12.</u>	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters
<u>Item 13.</u>	Certain Relationships and Related Transactions, and Director Independence
<u>Item 14.</u>	Principal Accountant Fees and Services

We expect to file our definitive proxy statement for our 2019 Annual Meeting of Shareholders with the Securities and Exchange Commission on or before April 30, 2019.

PART IV.

Item 15. Exhibits and Financial Statement Schedules.

(a)(1) *Financial Statements*

Included in Part II of this report:

	<u>Page No.</u>
Liberty Broadband Corporation:	
Reports of Independent Registered Public Accounting Firm	II-16 - 17
Consolidated Balance Sheets, December 31, 2018 and 2017	II-18
Consolidated Statements of Operations, Years ended December 31, 2018, 2017 and 2016	II-19
Consolidated Statements of Comprehensive Earnings (loss), Years ended December 31, 2018, 2017 and 2016	II-20
Consolidated Statements of Cash Flows, Years ended December 31, 2018, 2017 and 2016	II-21
Consolidated Statements of Equity, Years ended December 31, 2018, 2017 and 2016	II-22
Notes to Consolidated Financial Statements, December 31, 2018, 2017 and 2016	II-23

(a)(2) *Financial Statement Schedules*

- (i) All schedules have been omitted because they are not applicable, not material or the required information is set forth in the financial statements or notes thereto.
- (ii) The audited consolidated financial statements of Charter Communications, Inc. as of December 31, 2018 and 2017, and for each of the years ended December 31, 2018, 2017 and 2016, as well as the accompanying notes thereto and the related Report of Independent Registered Public Accounting Firm, are contained in Charter Communications, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on January 31, 2019 and are incorporated herein by reference as Exhibit 99.1.

(a)(3) Exhibits

Listed below are the exhibits which are filed as a part of this Report (according to the number assigned to them in Item 601 of Regulation S-K):

3 - Articles of Incorporation and Bylaws:

- 3.1 [Restated Certificate of Incorporation of Liberty Broadband Corporation \(incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K Filed on November 10, 2014\) \(File No. 001-36713\) \(the "November 10, 2014 8-K"\)](#).
- 3.2 [Amended and Restated Bylaws of Liberty Broadband Corporation \(incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on August 13, 2015 \(File No. 001-3671\)\)](#).

4 - Instruments Defining the Rights to Securities Holders, including Indentures:

- 4.1 [Specimen Certificate for shares of Series A Common Stock of the Registrant \(incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 filed on July 25, 2014 \(File No. 333-197619\) \(the "S-1"\)\)](#).
- 4.2 [Specimen Certificate for shares of Series B Common Stock of the Registrant \(incorporated by reference to Exhibit 4.2 to the S-1\)](#).
- 4.3 [Specimen Certificate for shares of Series C Common Stock of the Registrant \(incorporated by reference to Exhibit 4.3 to the S-1\)](#).
- 4.4 [Form of Margin Loan Agreements \(incorporated by reference to Exhibit 4.4 to Post-Effective Amendment No. 1 to the Registrant's Registration Statement on Form S-1 filed on November 4, 2014 \(File No. 333-197619\)\)](#).

- 4.5 [Form of Amendment No. 1 to Margin Loan Agreements, dated as of March 21, 2016 \(incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 filed on May 9, 2016 \(File No. 001-36713\) \(the "First Quarter 2016 10-Q"\)\)](#).
- 4.6 [Form of Margin Loan Agreements, dated as of March 21, 2016 \(incorporated by reference to Exhibit 4.2 to the First Quarter 2016 10-Q\)](#).
- 4.7 [Margin Loan Agreement, dated as of August 31, 2017, among LBC Cheetah 6, LLC, as Borrower, various lenders and Bank of America, N.A., as Calculation Agent and Bank of America, N.A., as Administrative Agent \(incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017 filed on November 1, 2017 \(File No. 001-36713\)\)](#).
- 4.8 [Form of Amendment No. 1 to Margin Loan Agreement, dated as of August 24, 2018 \(incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2018 filed on November 1, 2018 \(File No. 001-36713\)\)](#).

10 - Material Contracts:

- 10.1+ [Liberty Broadband Corporation 2014 Omnibus Incentive Plan \(Amended and Restated as of March 11, 2015\) \(incorporated by reference to Annex A to the Registrant's Proxy Statement on Schedule 14A filed on April 22, 2015 \(File No. 001-36713\)\)](#).
- 10.2+ [Liberty Broadband Corporation Transitional Stock Adjustment Plan \(incorporated by reference to Exhibit 99.1 to the Registrant's Registration Statement on Form S-8 filed on November 21, 2014 \(File No. 333-200436\)\)](#).
- 10.3+ [Non-Qualified Stock Option Agreement under the Liberty Broadband Corporation 2014 Omnibus Incentive Plan for Gregory B. Maffei, effective December 17, 2014 \(incorporated by reference to Exhibit 10.11 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015 filed on August 13, 2015 \(File No. 001-36713\)\)](#).
- 10.4 [Stockholders Agreement, dated as of March 19, 2013, by and among Charter Communications, Inc. and Liberty Media Corporation \(incorporated by reference to Exhibit 10.1 to Liberty Media Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013 filed on May 9, 2013 \(File No. 001-35707\)\)](#).
- 10.5 [Amendment to Stockholders Agreement, dated as of September 29, 2014, by and among Charter Communications, Inc., Liberty Media Corporation and Liberty Broadband Corporation \(incorporated by reference to Exhibit 7\(d\) to Liberty Media Corporation's Schedule 13D in respect of common stock of Charter Communications, Inc., filed on October 10, 2014 \(File No. 005-57191\)\)](#).
- 10.6 [Second Amended and Restated Stockholders Agreement, dated May 23, 2015, by and among Charter Communications, Inc., CCH I, LLC, Liberty Broadband Corporation, and Advance/Newhouse Partnership \(incorporated by reference to Annex C to CCH I, LLC's Registration Statement on Form S-4 filed on June 26, 2015 \(File No. 333-205240\)\)](#).
- 10.7 [Letter Agreement to the Second Amended and Restated Stockholders Agreement, dated May 18, 2016, by and among Liberty Broadband Corporation, Advance/Newhouse Partnership, CCH I, LLC and Charter Communications, Inc. \(incorporated by reference to Exhibit 7\(p\) to Amendment No. 3 to Liberty Broadband Corporation's Schedule 13D in respect of common stock of Charter Communications, Inc., filed on May 26, 2016 \(File No. 005-57191\) \(the "May 26, 2016 13D/A"\)\)](#).
- 10.8 [Proxy and Right of First Refusal Agreement, dated as of May 18, 2016, by and among Liberty Broadband Corporation, Advance/Newhouse Partnership, Charter Communications, Inc. and CCH I, LLC \(incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on May 20, 2016 \(File No. 001-36713\) \(the "May 20, 2016 8-K"\)\)](#).
- 10.9 [Proxy and Right of First Refusal Agreement, dated as of May 23, 2015, by and between Liberty Broadband Corporation and Liberty Interactive Corporation \(incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed on May 29, 2015 \(File No. 001-36713\)\)](#).

10.10	Amendment No. 1 to the Proxy and Right of First Refusal Agreement, dated May 13, 2016, by and among Liberty Broadband Corporation, Liberty Interactive Corporation and LV Bridge, LLC (incorporated by reference to Exhibit 7(n) to the May 26, 2016 13D/A).
10.11	Form of Indemnification Agreement by and between the Registrant and its executive officers/directors (incorporated by reference to Exhibit 10.11 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 filed on October 15, 2014 (File No. 333-197619)).
10.12	Aircraft Time Sharing Agreements, dated as of November 6, 2015, by and between Liberty Broadband Corporation and Liberty Media Corporation (incorporated by reference to Exhibit 10.19 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2015 filed on February 12, 2016 (File No. 001-36713) (the "2015 10-K").
10.13+	Form of Non-Qualified Stock Option Agreement under the Liberty Broadband Corporation 2014 Omnibus Incentive Plan (Amended and Restated as of March 11, 2015) (incorporated by reference to Exhibit 10.21 to the 2015 10-K).
10.14+	Form of Restricted Stock Award Agreement under the Liberty Broadband Corporation 2014 Omnibus Incentive Plan (Amended and Restated as of March 11, 2015) (incorporated by reference to Exhibit 10.22 to the 2015 10-K).
10.15	Registration Rights Agreement, dated as of May 18, 2016, by and among Liberty Broadband Corporation, Advance/Newhouse Partnership and Charter Communications, Inc. (incorporated by reference to Exhibit 10.3 to Charter Communications, Inc.'s Current Report on Form 8-K (File No. 001-33664), filed on May 20, 2016).
10.16+	Amendment, dated March 12, 2018, of certain Liberty Broadband Corporation incentive plans (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed on May 2, 2018 (File No. 001-36713)).
21	Subsidiaries of Liberty Broadband Corporation.*
23.1	Consent of KPMG LLP.*
23.2	Consent of KPMG LLP.*
31.1	Rule 13a-14(a)/15d - 14(a) Certification.*
31.2	Rule 13a-14(a)/15d - 14(a) Certification.*
32	Section 1350 Certification.**
99.1	Audited consolidated financial statements of Charter Communications, Inc. as of December 31, 2018 and 2017, and for each of the years ended December 31, 2018, 2017 and 2016 (incorporated by reference to Charter Communications, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-33664), filed on January 31, 2019).
101.INS	XBRL Instance Document.*
101.SCH	XBRL Taxonomy Extension Schema Document.*
101.CAL	XBRL Taxonomy Calculation Linkbase Document.*
101.LAB	XBRL Taxonomy Label Linkbase Document.*
101.PRE	XBRL Taxonomy Presentation Linkbase Document.*
101.DEF	XBRL Taxonomy Definition Document.*

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- * Filed herewith.
 - ** Furnished herewith.
 - + This document has been identified as a management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary.

Not applicable.

As of December 31, 2018

A table of subsidiaries of Liberty Broadband Corporation is set forth below, indicating as to each the state or jurisdiction of organization and the names under which such subsidiaries do business. Subsidiaries not included in the table are inactive or, considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary.

Entity Name	Domicile
Communication Capital, LLC (fka Communication Capital Corp.)	DE
JJCK, LLC (dba EmFinders)	TX
LBC Cheetah 1, LLC	DE
LBC Cheetah 5, LLC	DE
LBC Cheetah 6, LLC	DE
LMC Cheetah 1, LLC	DE
LMC Cheetah 4, LLC	DE
Skyhook Holding, Inc. (fka True Position, Inc.)	DE
Skyhook Software Services Ltd.	China
Skyhook Wireless, Inc.	DE
TP Israel, LLC	DE
TP Nigeria, LLC	DE
TP UK, LLC	DE

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Liberty Broadband Corporation:

We consent to the incorporation by reference in the following registration statements of Liberty Broadband Corporation of our reports dated February 8, 2019, with respect to the consolidated balance sheets of Liberty Broadband Corporation as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive earnings (loss), cash flows and equity for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements), and the effectiveness of internal control over financial reporting as of December 31, 2018, which reports appear in the December 31, 2018 annual report on Form 10-K of Liberty Broadband Corporation.

Description	Registration Statement No.	Description
S-8	333-200436	Liberty Broadband Corporation Transitional Stock Adjustment Plan
S-8	333-200438	Liberty Broadband Corporation 2014 Omnibus Incentive Plan
S-3ASR	333-211518	Liberty Broadband Series C Common Stock Offered by the Selling Stockholders

/s/ KPMG LLP

Denver, Colorado
February 8, 2019

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Charter Communications, Inc.:

We consent to the incorporation by reference in the registration statement Nos. 333-200436 and 333-200438 on Form S-8 and No. 333-211518 on Form S-3 of Liberty Broadband Corporation of our report dated January 30, 2019, with respect to the consolidated balance sheets of Charter Communications, Inc. and subsidiaries as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive income, changes in shareholders' equity (deficit), and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements), and the effectiveness of internal control over financial reporting as of December 31, 2018, which report is incorporated by reference in the December 31, 2018 annual report on Form 10-K of Liberty Broadband Corporation.

/s/ KPMG LLP

St. Louis, Missouri
February 7, 2019

CERTIFICATION

I, Gregory B. Maffei, certify that:

1. I have reviewed this annual report on Form 10-K of Liberty Broadband Corporation, Inc.;
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
3. Based on my knowledge, the financial statements and other financial information included in this annual report fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this annual report based on such evaluation; and
 - d) disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 8, 2019

/s/ GREGORY B. MAFFEI

Gregory B. Maffei

President and Chief Executive Officer

CERTIFICATION

I, Mark D. Carleton, certify that:

1. I have reviewed this annual report on Form 10-K of Liberty Broadband Corporation, Inc.;
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
3. Based on my knowledge, the financial statements and other financial information included in this annual report fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this annual report based on such evaluation; and
 - d) disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 8, 2019

/s/ MARK D. CARLETON

Mark D. Carleton
Chief Financial Officer

Certification

**Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)**

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Liberty Broadband Corporation, a Delaware corporation (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report on Form 10-K for the period ended December 31, 2018 (the "Form 10-K") of the Company fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 8, 2019

/s/ GREGORY B. MAFFEI

Gregory B. Maffei
President and Chief Executive Officer

Dated: February 8, 2019

/s/ MARK D. CARLETON

Mark D. Carleton
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

The foregoing certification is being furnished solely pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code) and is not being filed as part of the Form 10-K or as a separate disclosure document.
