Investor Day

December 13, 2022

Remarks by Timothy O'Shaughnessy

Chief Executive Officer

and

Jake Maas

Executive Vice President

Graham Holdings Company

GRAHAM HOLDINGS COMPANY – INVESTOR DAY

December 13, 2022

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These presentations at this meeting contain certain forward-looking statements that are based largely on the Company's current expectations. All public statements made by the Company and its representatives that are not statements of historical fact, including certain statements in this presentation, the Company's Annual Report on Form 10-K, its Current Reports on Forms 8-K, the Company's 2021 Annual Report to Stockholders, and the Forms 10-Q for the first, second and third quarter are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995.

Forward-looking statements are subject to certain risks and uncertainties that could cause actual results and achievements to differ materially from those expressed in the forward-looking statements. Actual results may differ materially from those projected as a result of certain risks and uncertainties, including but not limited to the duration and severity of the COVID-19 pandemic and its effects on the Company's operations, financial results, liquidity and cash flows. Other forward-looking statements include comments about expectations related to acquisitions or dispositions or related business activities, including the TOSA, the Company's business strategies and objectives, anticipated results of license renewal applications, the prospects for growth in the Company's various business operations and the Company's future financial performance. As with any projection or forecast, forward-looking statements are subject to various risks and uncertainties that could cause actual results or events to differ materially from those anticipated in such statements. Accordingly, undue reliance should not be placed on any forward-looking statement made by or on behalf of the Company. The Company assumes no obligation to update any forward-looking statement after the date on which such statement is made, even if new information subsequently becomes available.

For more information about these forward-looking statements and related risks, please refer to the section titled "Forward-Looking Statements" in Part 1 of the Company's Annual Report on Form 10-K, the Company's Current Reports on Forms 8-K, and its Forms 10-Q for the first, second and third quarter and the section titled "Corporate Governance/Risk Factors" under "Investor Relations" on the Company's website, www.ghco.com.

In addition to the results reported in accordance with accounting principles generally accepted in the United States (GAAP) included in this presentation, the Company is providing certain non-GAAP financial measures. The most directly comparable GAAP financial measure and a reconciliation of such non-GAAP financial measures to the most directly comparable GAAP financial measures can be found in the appendix of this presentation.

Welcome to our 2022 investor day. Our schedule of events brings you two speakers: I will start with an update on financial results and operations, and then walk you through our other businesses segment in a bit more detail, with a particular focus on Framebridge. Jake Maas, our Executive Vice President who leads Planning and Development, will then provide an update on our automotive business. After the presentation, we will have a Q&A session for as long as time permits. For those that sent questions in advance, thank you. We will also be answering questions submitted in real time through the chat in the presentation portal.

FINANCIAL RESULTS

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Education	$1,452	$1,306	$1,361	$1,005	$1,066	*6%*
Television broadcasting	463	525	494	360	381	*6%*
Manufacturing	449	416	458	357	366	*3%*
Healthcare	162	198	223	160	231	*44%*
Automotive	236	258	327	243	510	*NA*
Other Businesses	170	187	324	199	308	*54%*
Eliminations	(1)	(2)	(2)	(2)	(1)	*NA*
Total Revenues	**$2,932**	**$2,889**	**$3,186**	**$2,323**	**$2,860**	***23%***

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Education	$64	$41	$70	$57	$70	*22%*
Television broadcasting	166	200	155	113	136	*20%*
Manufacturing	47	40	37	28	40	*41%*
Healthcare	14	30	30	23	21	*(8%)*
Automotive	1	1	12	9	25	*NA*
Other Businesses	(33)	(73)	(76)	(58)	(68)	*(19%)*
Corporate	(51)	(52)	(59)	(43)	(41)	*5%*
Adjusted Operating Income (Loss)*	**$207**	**$187**	**$168**	**$130**	**$183**	***41%***

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** Non-GAAP measure – see reconciliation in appendix*
Note: the sum of certain amounts may not equal the total due to rounding

As 2022 has progressed, the COVID induced fog on earnings at the Company has begun to lift. Results have improved both compared to 2021 and as the year has progressed, although the lingering effects of lower COVID related enrollments at Kaplan International will be with us until the enrollment cycle next fall. Nonetheless, we feel closer to “normalized” earnings power than we have since 2019.

2022 revenue is up 23% year to date over 2021. Many factors are causing this growth: continued COVID recovery at Kaplan International and Clyde’s, underlying growth at several other business units, political spend at Graham Media Group, and acquisition activity. Adjusted operating income is up 41% for similar reasons.

OPERATING AND FREE CASH FLOW

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Operating Income	$145	$100	$77	$55	$139	*NA*
Add: Depreciation	59	74	71	52	59	*13%*
Add: Amortization	53	57	58	44	44	*1%*
Add: Impairment	9	30	33	32	–	*NA*
Add: Pension Expense [1]	20	23	23	17	17	*(4%)*
Operating Cash Flow [2]	**$287**	**$284**	**$263**	**$199**	**$258**	***30%***
Less: Capital Expenditures	(94)	(66)	(163)	(141)	(57)	*60%*
Free Cash Flow [2]	**$193**	**$218**	**$100**	**$59**	**$202**	***NA***

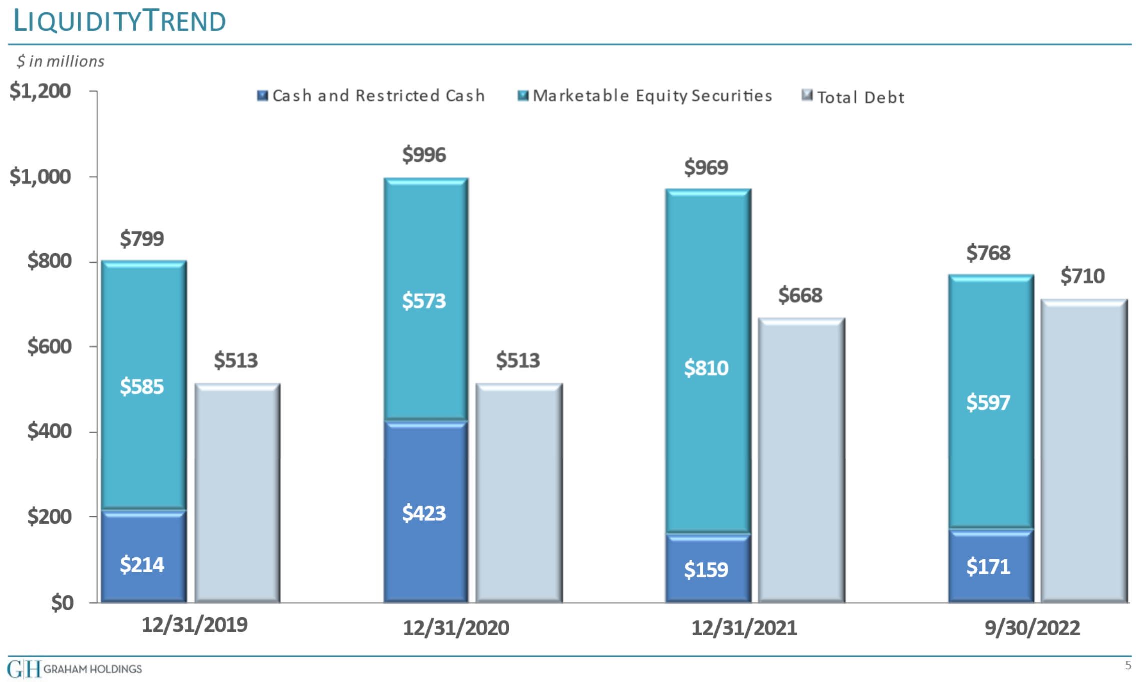
GH GRAHAM HOLDINGS [1] *Operating portion of pension expense* [2] *Non-GAAP measure Note: the sum of certain amounts may not equal the total due to rounding*

Operating cash flow and free cash flow each increased in 2022 over 2021. After several purchases of property in support of business operations in 2021, free cash flow was impacted by nothing similar year to date.

As for the rest of the year, with the continued recovery at Kaplan International and the influx of political advertising, we expect Q4 operating cash flow to be meaningfully improved over 2021.

You'll notice on our free cash flow chart, we add back our pension expense. Many of you may recall the unique position of our pension trust. Our substantial overfunding means the likelihood of near-term company contributions to the trust is very small. While real benefits are being accrued by active pensioners, the existing assets of the trust have historically supported those liabilities, and we anticipate that being true for the foreseeable future.

Importantly, these pension expenses flow through our income statement, but do not require cash from the Company to fulfill our obligations to pensioners. As such, when we evaluate cash flow generation at Graham Holdings, we tend to exclude our pension expense. This is notable as we continue to find ways to use pension benefits within company operations. We expect our pension expenses to increase over time, but the lack of need to draw on the corporate treasury to remain constant.



We remain very comfortable with our balance sheet, although it has changed somewhat over the course of the year. Marketable securities are down meaningfully year to date, primarily due to a decrease in the mark-to-market value of our holdings. Debt has also increased, largely due to new debt that Graham-Ourisman Automotive used to help fund the purchase of two auto dealerships this past summer. Despite these changes, as of Q3, cash and marketable securities continue to outstrip total debt.

Our approach to capital allocation remains unchanged in terms of philosophy. In the near-term, it will likely be similar to 2022. What I'm about to say should sound familiar; it's nearly word for word from my commentary on capital allocation at last year's event.

In addition to maintaining our dividend, our primary near-term capital allocation priorities are:

- Continuing to fund promising internal initiatives such as Framebridge.
- Repurchasing shares. We continue to believe there is a substantial delta between share price and our view of intrinsic value. If that gap persists, we are likely to be a buyer. If the gap widens, the pace could increase.
- Evaluating bolt-on opportunities, primarily at Kaplan and Graham Healthcare Group, as well as on a case-by-case basis in our other operations.

Management's primary focus for 2023 will be continuing to work with our existing operations to grow our earnings power. Our belief is the next $100 million in operating income at the Company is more likely to come from our existing operations than from acquisitions.

Let's now move to the operations updates.

EDUCATION SEGMENT

KAPLAN

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Kaplan international	$750	$654	$727	$521	$598	*15%*
Higher education	306	316	318	240	229	*(4%)*
Supplemental education	389	327	309	238	233	*(2%)*
Kaplan corporate and other	7	9	7	6	5	*(21%)*
Total Revenues	**$1,452**	**$1,306**	**$1,361**	**$1,005**	**$1,066**	***6%***

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Kaplan international	$42	$15	$33	$23	$48	*NA*
Higher education	14	24	24	18	17	*(8%)*
Supplemental education	34	20	37	33	18	*(47%)*
Kaplan corporate and other	(27)	(18)	(25)	(17)	(13)	*27%*
Adjusted Operating Income (Loss)*	**$64**	**$41**	**$70**	**$57**	**$70**	***22%***

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** Non-GAAP measure – see reconciliation in appendix*
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Kaplan has begun to emerge from COVID and is on a very good trajectory. As a reminder, Kaplan is comprised of two primary business units: Kaplan International and Kaplan North America (KNA). At KNA, there are two segments: Higher Education and Supplemental Education.

The resilience of Kaplan International throughout COVID and the subsequent stop-start recovery has been nothing short of amazing. While the U.S. has been largely “open” in 2022, this has not been the case worldwide.

- Australia opened its borders for “normal” travel only in late February of this year.
- China has and continues to severely limit travel in and out of the country.
- New Zealand opened its borders in late July of this year.
- Russia and the Ukraine were largely shutdown as of February 2022.

As a global education company, we have no choice but to navigate these challenges directly. Students cannot put a pause on their life goals and dreams, and we need to adapt with them.

The team has managed to deliver for students throughout 2022, which has been good for shareholders. Financially, the first nine months of the year have shown continued progress. Revenue is up 6% YTD and adjusted operating income is up 22% to $70 million.

The operations at Kaplan International are largely headed in the right direction, some with quite a bit of wind in their sails. While enrollments will not see full recovery in some programs until the fall of 2023, we are optimistic that many of the reductions in the cost base implemented during COVID will allow us to achieve higher levels of profitability due to expanded margins, even before reaching that full recovery. Year to date, Kaplan International's operating income is at near record levels.

Our languages business accrued substantial losses from 2020 through Q1 of 2022. While travel restrictions have continued to limit language students from many Asian countries, I'm pleased to report that Kaplan's languages group achieved profitability in Q3 for the first time since 2019. While the current profits are modest, we believe 2023 should represent another step forward for languages.

Kaplan North America has seen mixed results in 2022.

On the higher education side of the business, progress continues. As a reminder, our higher education segment provides services to universities to help them create, manage, and grow educational programs.

In addition to Purdue Global, in recent years Kaplan has added programs with Wake Forest University, Lynn University and several other colleges and universities. These additional partners and programs allow us to continue to increase the breadth of offerings we can provide to each institution. A program we build for one university has a reasonable chance of also solving the needs of another partner. Each new partner tends to have a period of operating losses as we build the programs, but within a few years of launch we expect them to be profitable.

Our work at Purdue Global continues to be the largest driver of financial results in the higher education segment. Purdue Global has continued to improve student outcomes, increase the quality of the student cohorts, and grow the student census slightly above 2021 to 35,400 despite a low unemployment economy in which working adults tend to defer their higher education goals. These efforts should increase the likelihood of collecting our full fee under the agreement that governs our relationship with Purdue.

We continue to support Purdue's long-term approach to growth at Purdue Global, helping them build new student support and advising capabilities, additional programs, and improved academic outreach. Purdue continues to set the course for Purdue Global and we are pleased to help them continue to improve both academic and financial outcomes.

At supplemental education, the results are more mixed. You've likely seen in the news that requirements for tests, such as the SAT and ACT, have become optional by many colleges. We are not immune to the reduction in test takers and our traditional "Test prep" business has suffered meaningful declines.

On the other end of the spectrum, our graduate and professional certification programs remain leaders in their sectors. However, student interest in these areas is below average, albeit stable. Like the Purdue Global business, when the unemployment rate is low, students defer the need for additional credentials. With the rate hovering below 4% for much of 2022, enrollments are subdued.

While we've seen this cyclicality before, it is never fun to live in the downside of the cycle. But as in the past, we are confident of our ability to preserve earnings power in lower demand periods, while growing it when the sun shines a bit brighter.

BROADCASTING SEGMENT

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Revenue	$463	$525	$494	$360	$381	*6%*
Adjusted Operating Income*	166	200	155	113	136	*20%*

Houston, TX DMA: 8 NBC	**San Antonio, TX** DMA: 31 *ABC*	**Roanoke, VA** DMA: 71 *NBC*
Detroit, MI DMA: 15 *NBC*	**Jacksonville, FL** DMA: 43 *Independent*	**Detroit, MI**
Orlando, FL DMA: 17 *CBS*	**Jacksonville, FL** DMA: 43	**Atlanta, GA**

Source: 2022/2023 Local Television Market Universe Estimates, the Nielsen Company, based on television homes in DMA

** Non-GAAP measure – see reconciliation in appendix*

Our second major engine, Graham Media Group – a collection of local television and digital businesses, continues to show solid results. Aided by increased political advertising spend, year to date revenue has increased 6% while adjusted operating income has grown 20%.

Income at Graham Media will certainly be down in 2023. With an off year in our election cycle, it is unrealistic to expect to make up for declines in political advertising spend. In 2022, increased spending in Michigan offset lower levels of spending in Florida, as compared to previous election cycles.

Earlier this year, Emily Barr retired and Catherine Badalamente took over as CEO. Catherine has picked up where Emily left off. She not only understands our company and our culture; but, she also understands the trends of the business and where opportunities for new revenue lie.

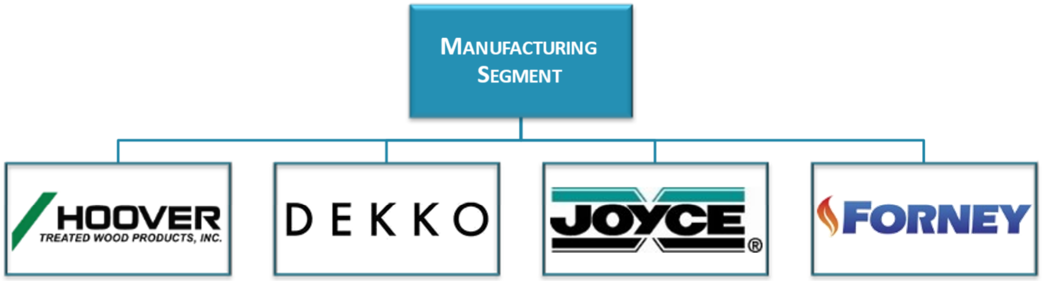
Catherine and her team are eagerly chasing after new opportunities and have made it a strategic priority to create direct relationships with our viewers, readers, and listeners. Examples include our "Insiders" program, which has surpassed 485,000 members, streaming via our YouTube channels and NextGen apps, and creating the leading websites for local news in the vast majority of our markets.

The value of local news and content to communities remains high. The public gives local news some of the highest trust scores when compared to other news sources. Catherine and her team are doing a nice job of balancing the heritage of local TV news with the evolving needs of today's audiences. The world of local broadcast will look different ten years from now. Graham Media Group is on the forefront of figuring out this change.

Manufacturing Segment

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Revenue	$449	$416	$458	$357	$366	*3%*
Adjusted Operating Income*	47	40	37	28	40	*41%*



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** Non-GAAP measure – see reconciliation in appendix*

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The manufacturing segment has bounced back from the pandemic related challenges of prior years. While revenue is up 3% year to date, operating income is up 41%. Among the four businesses, all but Dekko have returned to a pre-COVID operating cadence. At Dekko, one of its largest end markets is commercial office space. Last year, we deemed Dekko as impaired due to the substantially reduced demand for capital expenditures in the office market. 2022 confirmed this belief. While Dekko remains profitable, it is at a reduced level and will be until supply and demand equilibrium is reached in the commercial office space market.

A quick note on revenue for this segment. Wood prices have historically had modest volatility; in recent years, the price charts compare well with roller coaster drawings. Hoover Treated Wood Products is our largest business within the manufacturing segment and a large portion of its revenue fluctuates with this volatility. However, as the price of the wood is largely a passthrough cost, our expenses fluctuate in line, meaning operating income in general has been minimally impacted by revenue declines or increases tied to wood prices. This largely explains how revenue for the segment can be up 3% while operating income can rise 41%.

We're pleased with our manufacturing operations. They have proven to be steady providers of cash for Graham Holdings with strong market positions in their respective sectors.

Healthcare Segment

GRAHAM HEALTHCARE GROUP

$ in millions

Consolidated Units

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Revenue	$162	$198	$223	$160	$231	*44%*
Adjusted Operating Income*	14	30	30	23	21	*(8%)*

Joint Ventures

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Equity in Earnings of Affiliates	$4	$10	$10	$8	$5	*(36%)*

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** Non-GAAP measure – see reconciliation in appendix*

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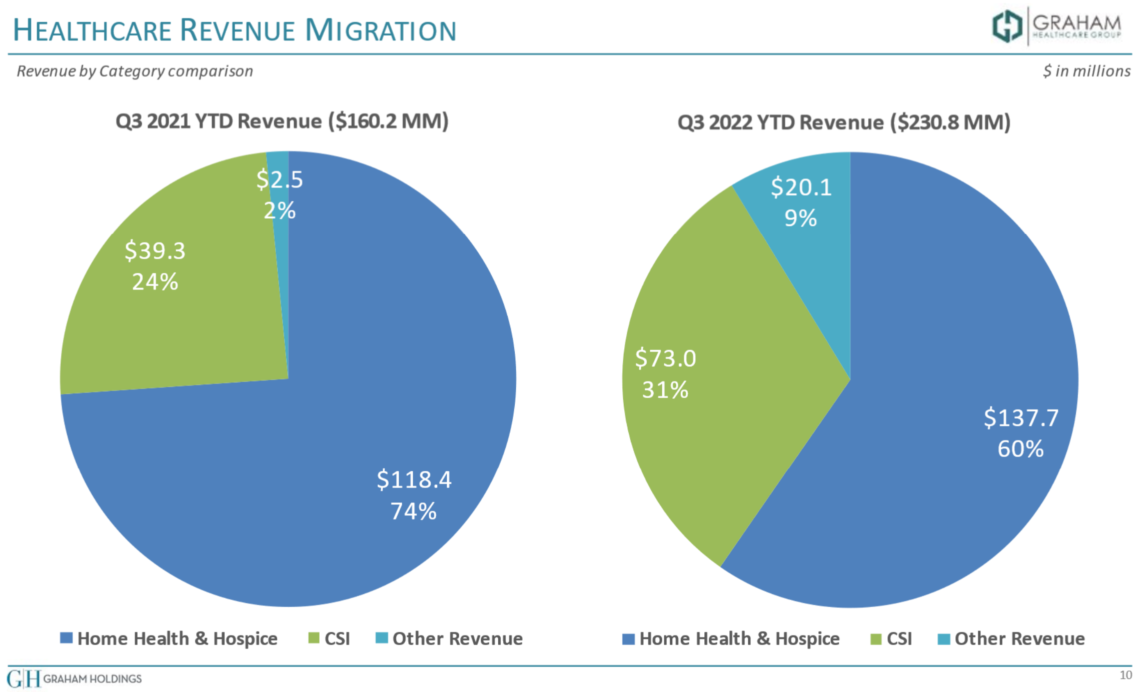
Graham Healthcare Group (GHG) has become a very important business at Graham Holdings. The co-CEOs, David Curtis and Justin DeWitte have grown the business organically, via acquisition and with joint ventures.

Through Q3, revenue at the healthcare business has grown 44% over 2021 with operating income down modestly and is on pace to earn a somewhat reduced amount of joint venture income in 2022 compared to 2021. So where is that revenue growth coming from and why isn't income following along?

Over the past few years, GHG has entered adjacent service lines that focus primarily on in-home or outpatient care. While the home health and hospice business continues to grow, services such as CSI Pharmacy, our in-home specialty pharmacy infusion service; Skin Clique, which provides in-home dermatology treatments such as Botox; and, Surpass, our outpatient autism therapy service, have begun to meaningfully generate additional revenue to Graham Healthcare Group.

We are very good at training, managing, and providing operational support for clinical field staff. That, combined with an ever-present focus on our quality of care can lead to better patient outcomes and above-average business outcomes. We think these go hand in hand and you cannot have one without the other.

Our expanded view of our business, from one with a core competency of Home Health and Hospice to one with a broader core competency of in-home and outpatient care, has, unsurprisingly, led to changes in our revenue profile. Most notably, CSI Pharmacy has grown beyond our expectations. At its core, CSI pharmacy provides IVIG therapies to patients who can benefit from the administration of treatment through in-home infusions. The skills and capabilities of specialty pharmacists, when combined with our expertise with field clinicians, has led to a market offering that meets the needs of patients and doctors. CSI has expanded its geographic footprint in 2022 and plans additional expansion in 2023.



Through Q3 of 2022, Home Health and Hospice was 60% of revenue, CSI Pharmacy was 31%, and other healthcare services were 9%. We expect all three of these categories to continue to grow, but both the pace and how the slices are divided are future opportunity dependent.

While revenue growth is usually a better sign than not, if income does not follow, a reasonable question can be asked about whether we've just filled-up on empty calories. I can assure you the senior leadership at the Company does not believe this is the case and we will likely prove that in the next few years. Year to date results have been in-line with our internal expectations.

Three things occurred in 2022 that tamped operating income growth, none of which should meaningfully repeat in 2023.

- Investment in senior leadership capabilities at Graham Healthcare Group: Heading into the year, management believed it could and should bolster its capabilities to position the business to become a larger operation. We “built ahead” of anticipated growth.
- Transaction related costs: The first 9 months of 2022 were unusually active, with 5 transactions occurring at the organization.
- Integration costs: Various platform, severance, and other restructuring costs at acquired businesses impacted initial earnings at acquired operations.

With these items largely behind us, Graham Healthcare Group’s operating results should continue to improve into 2023.

We feel great about Graham Healthcare Group and think you should too. In-home and outpatient care reduces costs to the system and can provide better outcomes and better patient satisfaction. Macro demographic trends are positive for our service lines and show that we’re operating where future growth is possible.

Other Businesses

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Media Revenue	$113	$109	$111	$72	$96	*34%*
Retail Revenue	0	25	131	75	122	*64%*
Specialty Revenue	57	53	83	53	90	*69%*
Total Revenue	$170	$187	$324	$199	$308	*54%*
Adjusted Operating Loss*	(33)	(73)	(76)	(58)	(68)	*(19%)*

GH GRAHAM HOLDINGS ** Non-GAAP measure – see reconciliation in appendix* *** CyberVista was a consolidated subsidiary until 10/26/22*

Note: the sum of certain amounts may not equal the total due to rounding *= Leaf Retail brands* 11

While not by master plan, many of our "other businesses" have naturally fallen into one of three categories: media, retail, or specialty. As such, we are going to begin breaking out revenue within our "other businesses" category to better inform and track progress.

Let's start with the financial specifics. Year to date, segment revenue has increased 54%, while the adjusted operating loss has increased by 19%. Media revenue has grown 34%, retail revenue by 64%, and specialty revenue by 69%. The reasons for this growth include ownership of Leaf Group for the entire 2022 period, pandemic recovery, and organic growth.

Investments in the category have been substantial and are expected to be reduced in 2023. As referenced previously, we view 2022 as the "peak" investment level for this group of businesses. Losses have primarily come from Leaf Group and Framebridge. Both should improve meaningfully in 2023. Leaf's losses were largely unplanned. Substantial degradation in the business occurred due to both a reduction in purchasing behavior post-pandemic and reduced advertising spend at Leaf Media as advertiser concern about macroeconomic conditions surfaced.

FRAMEBRIDGE

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I’d like to spend a bit more time discussing Framebridge.

We receive investor questions around Framebridge at a rate that surpasses its size. I suspect that speaks to the potential that others see in the business. We agree, which is what led to the purchase of the company in 2020. We continue to believe in that potential today. This seems like an appropriate time to give a progress report on Framebridge and share a little more about how we think about that potential, and how we plan to achieve it.

So, what is Framebridge today?

Framebridge is disrupting the custom framing industry by replacing a cumbersome experience with a delightful one. We are building a beloved brand associated with celebrating the best moments in life. We operate online and in our seventeen retail stores (currently in DC, New York, Boston, Atlanta, Philadelphia, and Chicago). We operate two onshore manufacturing facilities that allow us to deliver a high-quality custom product at an affordable price with a quick turnaround. Because we offer an easier, faster, and more inspiring experience at a better value, we believe we are well positioned to be the clear category leader.

What does the market for custom framing look like?

Framebridge primarily competes against a fragmented market of local retailers, as well as big box retailers such as Michael's and Hobby Lobby that offer custom framing within their stores.

While it is hard to precisely size the existing market, we believe current domestic annual sales to be in the neighborhood of $5 billion.

Over time, we believe Framebridge can both "take market" and "make market." Our ability to gain share in the existing market is driven by both the value proposition outlined above, as well as the decline in the number of independent local retailers. An industry study estimates that these shops have closed at a -4.3% CAGR from 2017-2022, due to COVID, increased competition, and most significantly, the retirement of local store proprietors.

Framebridge can also "make market" by bringing a new class of client that has previously never custom framed. Providing a 21st century experience, combined with more affordable pricing, expands the potential customer base. Based on an internal survey, 33% of Framebridge customers had never custom framed before.

How much of this market can Framebridge take?

We don't know yet. However, we are investing and operating with a belief that we are very early in our growth curve.

How will Framebridge continue to grow?

We expect both online and retail can become much larger than they are today. Growth will be driven by the following:

1) Continued investment in the brand, which should entrench Framebridge as the default solution for custom framing in the mind of the consumer;
2) Expansion of the types and sizes of items we frame; and,
3) Continued expansion of the retail footprint.

I'd like to focus on the last of these, retail. Retail offers several primary customer benefits that the online business cannot provide, such as giving customers who are uncomfortable packaging and shipping their own art an option to bring their art to a store, or to receive in-person design consultation from one of our associates.

The retail footprint has expanded from two stores in one market in 2020 to seventeen stores in six markets today. If our model is correct, there will be many more. Our existing markets can handle more stores and we believe there are dozens of additional markets for Framebridge to operate retail locations. It's hard to predict how many stores this ultimately implies, but it is certainly many more than exist today.

We open stores in locations where we believe we can achieve a sub-24 month payback on our capital expenditures and pre-opening costs. Over time, we expect to be able to expand with adjacent product offerings in the store, which should further improve the economic profile. However, this is not likely to meaningfully happen until we have a larger store footprint.

With the economic profile as described, why not go faster? Well, let me start by saying we're trying. We will continue to pursue meaningful additional store expansion in the coming years. But there are two main factors that govern the retail expansion of Framebridge. First, we want to be excellent at finding the right location with the correct type of space. It's too important to maintain a consistent model without having to navigate multiple store types or different types of local marketing activation campaigns. We also care an awful lot about our lease terms and will not impair the economic model to chase an additional store.

Second, and more significantly, we need to match our demand with our production capabilities. Because each new store location leverages our existing manufacturing footprint, we must be certain that our framing operations can appropriately absorb additional volume, that staff are properly hired and trained to deliver high quality products at that increased volume, and that our overall internal operations and supply chains can deliver against that growth. In other words, we'd rather grow half as fast "the right way" than twice as fast "the wrong way". Stores and manufacturing plants each require substantial timelines to open, so it is paramount we are thoughtful in our planning in both of these areas to avoid costly mistakes.

2022 is likely to be the peak investment year at Framebridge. Escalations in labor, materials, and shipping costs led to sharp increases in production costs. We will have greater losses in 2022 than initial internal forecasts due to these costs and the corresponding conscious choice to slow growth until we could reset unit economics through price and production efficiency improvements. As we reach year end, unit economics have stabilized and there is a clear line of sight on further improvements. Increased scale and improved production capabilities should lead to increased gross margins in 2023 and beyond.

When does Framebridge generate free cash flow?

Competing forces govern this question. The more heavily we build out new retail locations, the more we may ultimately delay positive free cash flow, as earnings from existing units are reinvested back into the business to build more stores.

In most scenarios, at somewhere around two times its current business size, the business should be in a position to generate free cash flow.

To close out our progress report, we remain both excited and optimistic about the future at Framebridge. Susan Tynan and her team are focused are delivering on the vision and building a great business for shareholders.

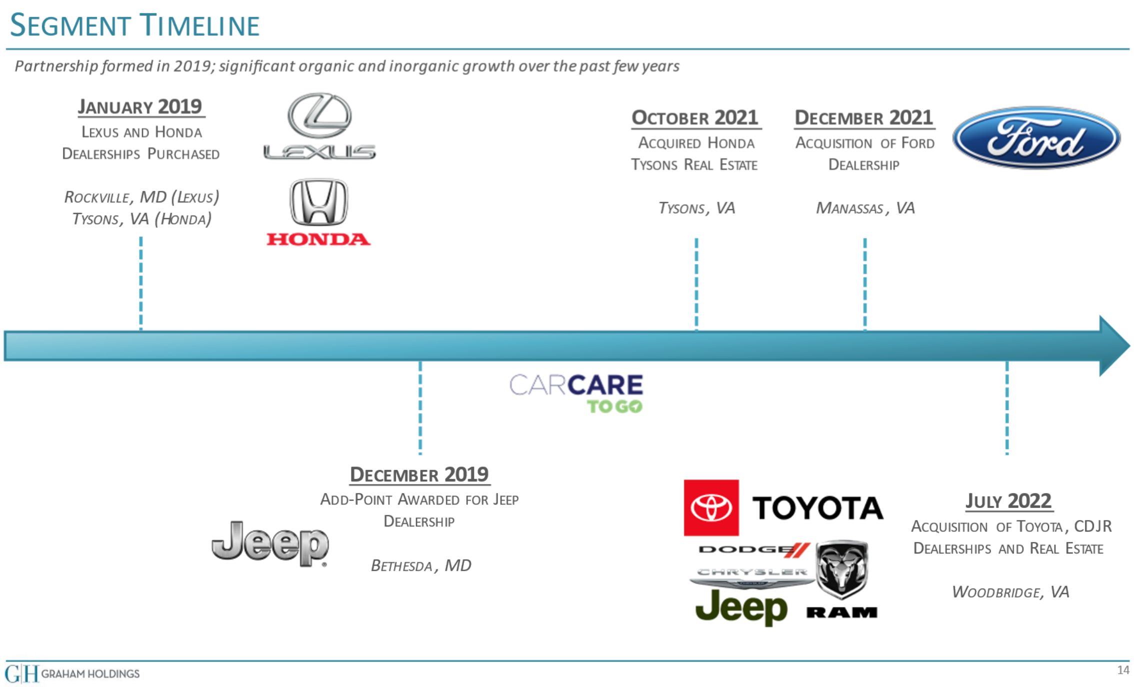
Now, I'll turn it over to Jake for some color on our automotive business.

GRAHAM HOLDINGS

Automotive Segment Update

Jake Maas
Executive Vice President
Graham Holdings Company

Good afternoon. I'm Jake Maas, and I serve as an Executive Vice President at Graham Holdings. Today, I'm pleased to provide an overview of our growing automotive segment, which over the last few years has become an important business within Graham Holdings and a key new income stream for the Company.

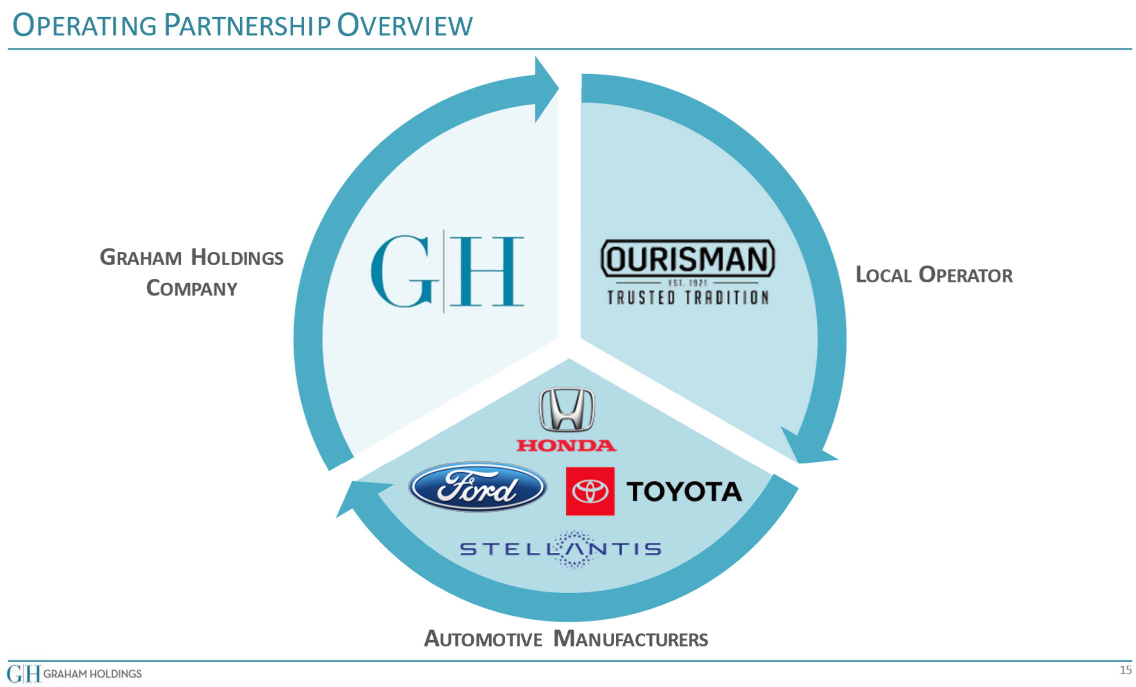


Currently, Graham Holdings' automotive segment consists of six dealerships in the Washington, D.C. metropolitan area. We entered the space in 2019 via our acquisition of two dealerships – a Honda dealership in Tysons, VA and a Lexus dealership in Rockville, MD. In 2020, we were awarded a Jeep add point and launched a de novo dealership in Bethesda, Maryland. In December 2021, we acquired a Ford retail and commercial dealership in Manassas, VA. Most recently, in July 2022, we acquired a Toyota dealership and a Chrysler, Dodge, Jeep, Ram (CDJR) dealership in Woodbridge, VA. In addition to these six dealerships, we also operate CarCare to Go, a valet automotive repair startup that serves the Washington, D.C. area. I would also note that we own the underlying real estate at our Honda location in Tysons, VA and the Toyota and CDJR facilities in Woodbridge, VA.

As illustrated in this timeline, Graham Holdings has grown our automotive segment in two ways. First, by acquiring automotive dealerships via M&A. M&A transactions in the space are typically structured in a similar fashion in which the acquirer purchases the assets of a dealership, which include the new and used car inventory, the parts and inventory of the service department, and what is known as the "blue sky" value of the dealership – which is essentially the value of the franchise. All M&A transactions must be approved by the manufacturer. Some transactions also include the purchase of the underlying real estate of the dealership as well.

In addition to M&A, a dealership can also be established by being awarded a new franchise add-point. Essentially, this occurs when a manufacturer decides to expand their franchise network by adding a new dealership location. The franchise is awarded to a chosen operator, with the operator bearing the start-up costs associated with establishing a new showroom and servicing center. In addition, these add-point dealerships require ramp up time to build up a customer base sufficient to operate the dealership profitably. For the right manufacturers in the right locations, we think this can also be an attractive investment and path to obtaining new dealerships.

Going forward, we are open to adding dealerships to our platform via both M&A and by earnings additional add points from manufacturers.



Graham Holdings' automotive segment is operated in partnership with Chris Ourisman and his team of industry professionals. Chris owns a 10% stake in the collective operations that comprise the automotive segment, providing strong alignment between the partnership and our shareholders. I would like to take a minute to expand upon our operating model within the automotive segment, as we believe it enhances our ability to acquire and successfully operate automotive dealerships within the Washington, D.C. metro area.

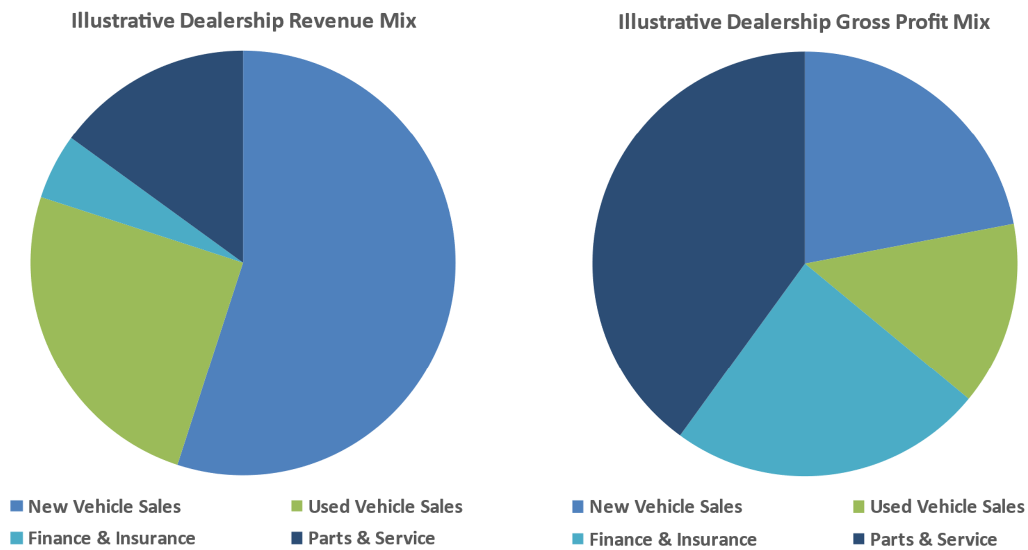
All automotive retail operators must be approved by their manufacturing partners in order to be awarded or own a franchise. For Graham Holdings, our current manufacturing partners that have approved our ownership include Toyota, Ford, Honda and Stellantis. Rightfully, manufacturers have a high bar for who they are willing to approve as franchise owners – they want proven operators that will be good stewards of their brands and are committed to providing high quality, trusted service to customers. Often that means a preference for partnering with established local operators that have a strong track record of quality and success. However, there are a limited number of such operators that both meet this high standard and that also have access to sufficient capital to acquire and invest in the ongoing operations of large auto franchises in major, urban markets. In other words, the universe of potential owners of large franchises is rather limited by the ownership criteria that manufacturers have established.

Another advantage of our current footprint and partnership approach is that it allows us to benefit from regional economies of scale and scope that can be achieved because we operate several, distinct dealerships in the same market. Local knowledge and history are important in the automotive retail business and our operators have decades of experience running dealerships in the Washington D.C. region. But there are also other less obvious advantages to regional scale. For example, the fact that we operate multiple dealerships in the same market gives us a deeper, proven pool of talent to tap into when a mission-critical position like a general manager or service department director turns over. It also, correspondingly, provides talent development and upward mobility opportunities for our employees. Regional scale also enables us to do things like buy and manage parts inventory more efficiently and optimize our used car inventory across dealerships. In addition, investments in marketing and technology have a higher ROI when it can be applied to a larger regional platform.

Given this context, Graham Holdings is well positioned to acquire quality franchises in the Washington market. Our long-term orientation, commitment to operating with high integrity and quality across all of our businesses, in addition to our partnership with a strong local operator is looked upon favorably by manufacturers relative to many other traditional sources of capital like private equity. As a result, when a current owner and local operator of a franchise is looking to sell a business that they have owned and operated, often for decades, they can take comfort in knowing that we are a buyer that understands the local market, has sufficient capital to complete a transaction, and is on the short list of buyers that they can have a high degree of confidence will be approved by the manufacturers. This advantage has enabled Graham Holdings to opportunistically acquire automotive franchises in a rather restricted M&A marketplace at reasonable purchase price multiples that we believe provide good, risk adjusted cash-on-cash returns for our shareholders.

Dealership Model Overview

Significant difference in mix between front end (sales, financing, and insurance) and back end (parts and service)



Before discussing the historical financial results of our automotive operations, I'd like to briefly touch on the business model of a dealership. Automotive dealerships have a diverse set of revenue and income streams. The result of this diversification has been that well-run auto dealerships have historically been steady cash flow producers, resilient in recessions, and have several moats that insulate incumbent operators. Automotive dealerships have diversified income streams that are commonly classified into two categories – front end operations; and, back end or fixed operations. Front end operations consist of new and used vehicle sales, finance and insurance products, and the leasing department. As the name implies, these departments are usually found on the front side of the dealership. The back end, or fixed operations of a dealership include the parts and service departments typically at the "back end" of a dealership. The front end operations drive most of the revenue of a dealership, but historically had lower gross margins – with very slim margins on car sales buttressed by higher margins from finance and insurance product offerings. The back end operations, however, typically have higher margins and are a more stable source of earnings for dealerships year in and year out. Even when people are buying fewer cars, they still need to service their cars to keep them on the road, thus providing resiliency in the business through up and down cycles.

As you will see in our financial results since the pandemic, supply constraints by manufacturers due largely to chip shortages have led to increased front end gross margins relative to historic levels. Coupled with the stable earnings generated from the service departments, this has led to stellar results through the pandemic and our last reported quarter. We know this won’t last forever and that profit margins will eventually normalize down again as the supply chain constraints positively impacting the channel ultimately work through the auto ecosystem.

We also recognize that the automotive dealership model will need to evolve and innovate going forward to meet the needs and preferences of customers and broader stakeholders. Similar to most of our other businesses, our operators will need to adapt to stay relevant in a changing world. That said, we also believe the automotive franchise model in the United States is here to stay. Successful dealerships will need to improve customer service, enhance their digital offerings, and lean into new technologies and ways of doing business. We view this as an opportunity to embrace innovation in ways that will enable our dealerships to thrive alongside our manufacturing partners for many years to come.

FINANCIAL RESULTS

$ in millions

	2019	2020	2021	Q3 '21 YTD	Q3 '22 YTD	*% Change*
Revenue	$236	$258	$327	$243	$510	*110%*
Adjusted Operating Income*	1	1	12	9	25	*189%*

ROCKVILLE, MD

TYSONS, VA

BETHESDA, MD

MANASSAS, VA

WOODBRIDGE, VA

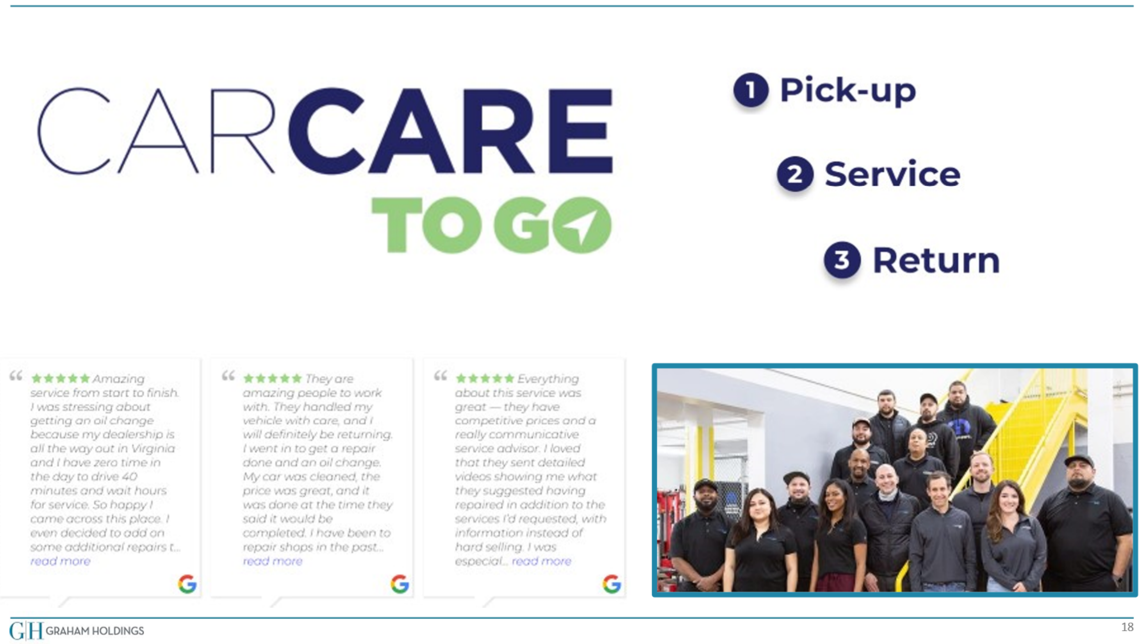
WOODBRIDGE, VA

CARCARE TO GO

VALET SERVICE

** Non-GAAP measure – see reconciliation in appendix*

Now let's turn to the financial results. Our automotive segment's revenue grew from $236 million in 2019 to $327 million in 2021. Over that same time period, operating income before amortization grew from $500 thousand to $11.8 million. Year to date in 2022, the segment generated $510 million in revenue, a 110% increase over the same period in 2021 and $25.5 million in operating income before amortization, an increase of 189%. Growth in 2022 was attributable to the addition of the Ford dealership in December 2021 and the Toyota and CDJR dealerships in July of 2022, along with growth at the other dealerships, except for declines at Honda due to inventory shortages.



I would like to conclude my remarks on our automotive segment by highlighting a business that we created and launched within the segment in 2020 – CarCare to Go. If you live in the Washington, D.C. area we encourage you to try the service. CarCare to Go is a new concept in car repair that introduces transparency, trust and convenience into the sector. The valet service will pick up your car directly from your home and deliver it to our automotive repair center where our technicians will inspect the vehicle, inform you of the service needed, inclusive of pictures and video explanations from the technician, and provide an estimate of the cost and timing of the repairs for your itemized approval. If you choose, this whole experience can all happen completely digitally via our technology platform, or for you extroverts, you can also speak directly with one of our professionals at any point in the process. Upon completion of your service, the car will be returned to your home.

CarCare to Go is an example of Graham Holdings' willingness to invest in technology and innovation to improve upon a legacy service. Whether it is within our healthcare division, at Kaplan, or within our restaurant operations, we are always looking for opportunities to apply technology and digital expertise to our products and services to better serve customers. CarCare to Go is still very small, but we are optimistic about the potential for the business based on traction we are seeing and the fact that new customers that utilize the service absolutely love the experience.

GRAHAM HOLDINGS

AUTOMOTIVE SEGMENT UPDATE

JAKE MAAS
EXECUTIVE VICE PRESIDENT
GRAHAM HOLDINGS COMPANY

Since our acquisition of the Honda and Lexus dealerships in 2019, our automotive segment has grown to become an important part of the Company. We've been pleased to find attractive bolt-on opportunities within the segment over the last couple of years and are hopeful we will be able to find additional attractive M&A opportunities from time to time going forward as well. The more recent results of the segment have been stellar as the business benefited from favorable macroeconomic trends. We know those trends will not last forever and thus you should expect the results of the segment to normalize down at some point. That said, we think the automotive segment will continue to be a meaningful part of the earnings power of Graham Holdings for many years to come.

Back to you Tim.

GRAHAM HOLDINGS COMPANY – INVESTOR DAY

December 13, 2022

Thank you, Jake.

We have been busy working to improve the business and are optimistic about the future. Management believes we now have multiple businesses through which we can deploy capital attractively to augment organic growth. As we end the year, we have a reduced share count, strong operating cash flow, a healthy balance sheet, and promising growth prospects at several units. While cognizant that the unexpected can happen, we are optimistic about the future of Graham Holdings.

With that, we'll begin the Q & A portion of the session.

GRAHAM HOLDINGS

APPENDIX

NON-GAAP ADJUSTMENTS

GRAHAM MEDIA GROUP · KAPLAN · HOOVER TREATED WOOD PRODUCTS, INC. · DEKKO · JOYCE · FORNEY · GRAHAM HEALTHCARE GROUP · leaf GROUP · AUTOMOTIVE GROUP · CLYDE'S RESTAURANT GROUP · FRAMEBRIDGE · CODE3 · decile · Pinna · FP · Slate · CITY CAST

NON-GAAP ADJUSTMENTS

Graham Holdings Company — *$ in millions*

2021	Education	Broadcasting	Manufacturing	Healthcare	Automotive	Other Businesses	Corporate Office	Total
Operating Income (Loss)	$51	$149	($16)	$27	$12	($86)	($59)	$77
Add: Amortization / Impairment	19	5	53	3	–	10	–	91
Operating Income (Loss) before Amortization / Impairment	**$70**	**$155**	**$37**	**$30**	**$12**	**($76)**	**($59)**	**$168**

2020	Education	Broadcasting	Manufacturing	Healthcare	Automotive	Other Businesses	Corporate Office	Total
Operating Income (Loss)	$12	$194	$12	$26	($6)	($86)	($52)	$100
Add: Amortization / Impairment	29	5	28	4	7	13	–	87
Operating Income (Loss) before Amortization / Impairment	**$41**	**$200**	**$40**	**$30**	**$1**	**($73)**	**($52)**	**$187**

2019	Education	Broadcasting	Manufacturing	Healthcare	Automotive	Other Businesses	Corporate Office	Total
Operating Income (Loss)	$48	$153	$20	$8	$1	($34)	($51)	$145
Add: Amortization / Impairment	16	13	26	6	–	1	–	62
Operating Income (Loss) before Amortization / Impairment	**$64**	**$166**	**$47**	**$14**	**$1**	**($33)**	**($51)**	**$207**

Q3 2022 YTD	Education	Broadcasting	Manufacturing	Healthcare	Automotive	Other Businesses	Corporate Office	Total
Operating Income (Loss)	$58	$132	$24	$19	$25	($78)	($41)	$139
Add: Amortization	12	4	15	3	–	10	–	44
Operating Income (Loss) before Amortization	**$70**	**$136**	**$40**	**$21**	**$25**	**($68)**	**($41)**	**$183**

Q3 2021 YTD	Education	Broadcasting	Manufacturing	Healthcare	Automotive	Other Businesses	Corporate Office	Total
Operating Income (Loss)	$42	$109	($18)	$21	$9	($65)	($43)	$55
Add: Amortization / Impairment	15	4	46	2	–	8	–	75
Operating Income (Loss) before Amortization / Impairment	**$57**	**$113**	**$28**	**$23**	**$9**	**($58)**	**($43)**	**$130**

Note: the sum of certain amounts may not equal the total due to rounding

Non-GAAP Adjustments

Education Segment *$ in millions*

Kaplan Corporate and Other	2019	2020	2021	Q3 2021 YTD	Q3 2022 YTD
Operating Loss	($43)	($48)	($44)	($33)	($25)
Add: Amortization / Impairment	16	29	19	15	12
Operating Loss before Amortization / Impairment	**($27)**	**($18)**	**($25)**	**($17)**	**($13)**

Note: the sum of certain amounts may not equal the total due to rounding

Graham Holdings Company – Investor Day

December 13, 2022

GRAHAM MEDIA GROUP KAPLAN HOOVER TREATED WOOD PRODUCTS, INC. DEKKO JOYCE FORNEY GRAHAM HEALTHCARE GROUP leaf GROUP AUTOMOTIVE GROUP CLYDE'S RESTAURANT GROUP FRAMEBRIDGE CODE3 decile Pinna FP Slate CITY CAST