National Bus Trader

The Magazine of Bus Equipment for the United States and Canada

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Features

Cover Photo

This photo was taken at the 2014 MCI Customer Appreciation Event in California when John Madden was presented with a bus model. Graphics on the bus mention the Raiders win over the Minnesota Vikings at Super Bowl XI. See page 14 for more information on John Madden and his buses. MCI.

Departments

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Equipment News

Universal Coach Line Orders First Battery-Electric J4500 CHARGE™ from Motor Coach Industries

NFI Group (NFI) a leading independent bus and coach manufacturer and a leader in electric mass mobility solutions, recently announced that its subsidiary Motor Coach Industries (MCI) has received a new order from Universal Coach Line (Universal) for one battery-electric, 45-foot MCI J4500 CHARGE™ coach.

The order, supported by provincial grants and sales tax rebates, marks the first purchase of a long-distance, battery-electric MCI J4500 CHARGE in Canada. The J4500 CHARGE – a zero-emission version of the industry's best-selling J series tour and charter luxury coaches – leverages EV technology from NFI subsidiary New Flyer and delivers up to 370 kilometers of range, while also delivering enhanced safety features.

Serving more than 500,000 passengers annually, Universal is one of Canada's largest privately-held providers of over-the-road bus and motorcoach tour and charter transport, including commuter express and employee shuttle service to Vancouver and surrounding areas. Based in Richmond, British Columbia, Universal currently operates MCI J4500 clean diesel coaches and made the shift to zero-emission following a J4500 CHARGE demonstration earlier this year.

"Universal is a veteran operator and longtime partner of MCI, and together we are creating a zero-emission future for coach travel across Canada," said Paul Soubry, president and chief executive officer, NFI. "We look forward to supporting the expansion of commuter express service and remobilization of charter service with our J4500 CHARGE – which was made for high performance through unmatched design and exceptional passenger experience."

Universal's transition to battery-electric mobility fulfils its pledge as a member of West coach Electric Fleets, a peer network of public and private EV operators from California to British Columbia pursuing a mandate to accelerate a low-carbon economy on the West Coast. Universal also supports and has leveraged British Columbia's CleanBC Go Electric program, which accelerates the adoption of zero-emission vehicles in B.C.

We are proud to pursue this zero-emission milestone alongside Universal Coach Line, while delivering the same uncompromising design and quality from MCI," Said Brent Maitland, vice president, private sector sales and marketing, MCI. "With plug-in depot charging in under four hours and an expected range of 370 kilometers, our electric coach is a proven performer in tough road and weather conditions. We look forward to building our zero-emission fleet with Universal in the future through continued support, service and training."

Unveiled in 2021, MCI's J4500 CHARGE incorporates advanced technology to power its high performance, including optimized battery placement for weight distribution and handling; enhanced regeneration for energy recovery and greater efficiency; exceptional torque and gradeability for smoother, more powerful operation and next generation high-energy batteries. To learn more, visit mcicoach.com/electric.

Universal will use its new electric coach in employee shuttle service and on local tour and charter trips. Earlier in 2021, Universal Coach Line completed a demonstration with the MCI J4500 CHARGE – including a firsthand cleaner, quieter passenger experience.

"Passengers could easily be heard in conversation, which will make it easier to work and relax onboard," said Lindsay Moir, vice president, Universal Coach Line. "We are thrilled to be the first in Canada to offer passengers an improved, quiet ride and to offer game-changing, zero-emission technology in a tour coach."

The MCI J4500 CHARGE continues to deliver on the MCI bestselling model's best-in-class legroom, dramatic lighting and passenger comfort features throughout the cabin. The 56-seat model also features Advanced Driver Assistance Systems technology.

NFI is a leader in zero-emission mobility, with electric vehicles operating (or on order) in more than 80 cities in five countries. NFI offers the widest range of zero-emission battery and fuel cell-electric buses and coaches, and its vehicles have completed more than 50 million EV service miles.

NFI supports growing North American cities with scalable, clean and sustainable mobility solutions through a four-pillar approach that includes buses and coaches, technology, infrastructure and workforce development. NFI also operates the Vehicle Innovation Center (VIC), the first and only innovation lab of its kind dedicated to advancing bus and coach technology and providing workforce development. Since opening late 2017, the VIC has hosted more than 300 interactive events, welcoming 4,000 industry professionals for EV and infrastructure training.

Universal Coach Line recently ordered the first MCI J4500 CHARGE™ electric coach sold in Canada. It has a range of up to 370 kilometers and offers the traditional MCI coach features with a battery-electric propulsion system. Based in Richmond, British Columbia, Universal Coach Line currently operates MCI J4500 clean diesel coaches and serves 500,000 passengers annually.

Leveraging 450 years of combined experience, NFI is leading the electrification of mass mobility around the world. With zero-emission buses and coaches, infrastructure and technology, NFI meets today's urban demands for scalable smart mobility solutions. Together, NFI is enabling more livable cities through connected, clean and sustainable transportation.

With 8,000 team members in nine countries, NFI is a leading global bus manufacturer of mass mobility solutions under the brands New Flyer® (heavy-duty transit buses), MCI® (motorcoaches), Alexander Dennis Limited (single- and double-deck buses), Plaxton (motorcoaches), ARBOC ® (low-floor cutaway and medium-duty buses) and NFI Parts™. NFI currently offers the widest range of sustainable drive systems available, including zero-emission electric (trolley, battery and fuel cell), natural gas, electric hybrid and clean diesel. In total, NFI supports its installed base of more than 105,000 buses and coaches around the world.

MCI is North America's public and private market motorcoach leader. Products include the luxury J-Series (an industry best-seller for more than a decade), the workhorse D-Series and the brand new zero-emission luxury and commuter coaches: the battery-electric J4500 CHARGE and MCI D45 CRT LE CHARGE™. MCI also provides maintenance, repair, 24-hour roadside assistance, parts and technician training through the industry's only Automotive Service Excellence (ASE) accredited MCI Academy.

Nation's First 60-Foot Bus Rehabilitation to Battery-Electric

Complete Coach Works (CCW) breaks new ground in zero-emissions mass transit with the nation's first conversion of a 60-foot articulated diesel-powered bus to battery-electric for TriMet in Oregon.

CCW, the leading North American bus remanufacturer, combined with Voith Electrical Drive System (VEDS) with CCW's own Zero-Emission Propulsion System (ZEPS) battery technology to solve the electric conversion challenge in a 60-foot articulated workhorse transit bus.

Since 2012, CCW has converted more than 70, 30-, 35- and 40-foot fossil fueled transit buses to battery-electric. The company offers 403 kWh and 504 kWh lithium ion NMC battery packs.

CCW is thrilled to now offer customers a 605 kWh lithium ion NMC battery and powertrain solution to support larger and heavier vehicles that will easily haul their significantly higher passenger loads.

CCW converted the nation's first-ever 2007 60-foot New Flyer diesel-powered articulated transit bus to battery-electric. The project included a complete restoration of TriMet's bus, also known as the Desert Rose, to like-new condition with the ZEPS 605 kWh lithium ion NMC battery pack and the VEDS powertrain.

"We've worked with TriMet in the past converting three 40-foot, low-floor transit buses to battery-electric, but this was the first time facing a 60-foot articulated bus, which requires more energy storage than any previous conversion," said Jim Paul, CCW's regional sales manager. "We've proven ourselves again in this accomplishment and thank our partners on the project. The advanced CCW batteries combined with VEDS provides the bus with a significantly longer operating range while maintaining its battery life."

Articulated buses not only carry more passengers, but generally provide a lower-floor design that offers greater passenger accessibility. TriMet's 14-year-old refurbished bus not only features new passenger lightweight seating, flooring, fresh branding and LED exterior and interior lighting, it also provides a new ADA-compliance wheelchair ramp for faster passenger onboarding.

"Our process significantly extends the bus's service life while providing a much quieter and zero-emission ride for Portland commuters," said Paul. "The teamwork between CCW, TriMet and Voith not only moves TriMet's bar higher on achieving its green initiatives, but paves the way for more agencies to adopt rehabbed electric buses as part of their fleets."

TriMet is the 16th largest public transit agency in the United States and ninth in the nation in ridership per capita. In 2019, it committed to a clean energy fleet by the year 2040 and became the first U.S. transit agency to acquire battery-electric buses with charging stations completely powered by wind energy.

TriMet has begun extensive testing and evaluation of this inaugural 60-foot model on a Portland metro express route where the bus is already proving its reliability according to TriMet.

"TriMet is proud to partner with CCW in our quest to be the leading transit agency that leads the renewable energy drive, and Desert Rose has been a shining star – a Giant of a Rose. The performance numbers from this 60-foot articulated bus are unbelievable and we look forward to a continued partnership with CCW," said Samuel Rumhizha, director bus maintenance.

CCW's ZEPS battery division, operated with sister company Transit Sales International, has developed the remanufactured all-electric us by taking existing low-floor transit buses and remanufacturing them into like-new vehicles with their own proprietary all-electric drivetrain systems. Currently, ZEPS buses have logged four million passenger miles across the nation.

Learn more at ZEPSDrive.com.

CCW recently rehabilitated a 60-foot articulated diesel bus and converted it to battery-electric power for TriMet in Oregon. The refurbished bus combines the Voith Electrical Drive System with CCW's own Zero Emission Propulsion System. While CCW has previously converted numerous shorter buses to their electrical drive system, this breaks new ground since it is the first 60-foot articulated to be converted to electric power by CCW.

Complete Coach Works, headquartered in Riverside, California, is the largest bus remanufacturing and rehabilitation company in the United States, with more than 34 years in the transportation industry. A pioneer in the field of alternative fuel and hybrid vehicle technology, CCW has always worked to provide clean vehicles through innovative design and engineering, and it unveiled the world's first remanufactured all-electric, battery-powered bus in 2012. For jobs of any size, CCW's team of more than 350 experts provide cutting-edge products and exceptional customer service.

In 2021, Complete Coach Works, along with Shuttle Bus Leasing, Transit Sales International and D/T Carson Enterprises, wholly-owned subsidiaries of Carson Capital Corp., transitioned to an employee stock ownership corporation (ESOP).

TriMet provides bus, light rail and commuter rail transit services in the Portland, Oregon metro area. TriMet connects people with their community, while easing traffic congestion and reducing air pollution – making the Portland area a better place to live.

Gillig and RR.AI to Partner on Next Generation Automated Vehicle Technology

Gillig Inc., a leading manufacturer of heavy-duty transit buses, and RR.AI, a global leader in autonomous mobility solutions, announced on January 10 that they have entered into a development agreement for next-generation advanced driver assistance systems (ADAS) and SAE Level 4 autonomous vehicle (AV) technology for Gillig transit buses in North America. This partnership will combine RR.AI's vehicle automation experience and Gillig's transit operations expertise to produce state-of-the-art safety and performance capabilities.

"We see this partnership as a great fit for both our companies," said Gillig President and CEO Derek Maunus. "The Gillig team is passionate about delivering transformative products and solutions that make transportation safe, efficient and help eliminate roadway congestion. RR.AI is equally committed to those important goals. We're excited to work with such a technology leader to bring advanced vehicle automation technologies to cities across America."

The companies will develop and test safety features such as automatic emergency braking, precision docking and bus yard automation in addition to blind spot detection and pedestrian avoidance. While commonly used in passenger vehicles, many of these feature have not been widely deployed thus far on heavy-duty commercial vehicles. Additionally, the companies will develop automated driving capabilities which can be deployed for select in-service operations or in the transit depot to help manage electric vehicle charging and reduce vehicle damage.

Henry Crown and Company, which owns Gillig as well as other transportation businesses, made a strategic investment in Robotic Research, RR.AI's parent company, as part of the company's $228 Series-A funding announced last month.

Gillig and RR.AI have entered into an agreement for next-generation driver assistance systems and autonomous vehicle technology. Anticipated features will include docking and bus yard automation as well as blind spot detection and pedestrial avoidance. In addition, the companies plan to develop automated driving capabilities.

"We believe the partnership with Gillig (and Henry Crown and Company) will improve the safety and well-being of drivers, pedestrians and roadway users all while increasing efficiency for transit authorities and lowering costs," said Alberto Lacaze, CEO, RR.AI. "This partnership brings together leading innovators in the market today, a best-in-class OEM and best-in-class autonomy technology company."

While Gillig expects to implement AV and ADAS features across its product lines, the company says its zero-emission battery-electric bus will be one of the first to benefit from the advanced technology and capability enhancements. Gillig's electric bus features industry-leading battery capacity, a Cummins powertrain backed by an unmatched service and support network, telematics and flexible inductive and overhead charging options.

Proterra Battery Technology to Power Vicinity Motor Corp. Electric Transit Buses

Vicinity Motor Corp., a North American supplier of commercial electric vehicles, and Proterra Inc., a leading innovator in commercial vehicle electrification technology, on January 13 announced a new collaboration to power Vicinity's electric transit buses and work trucks with Proterra's industry-leading battery technology.

Under a new, multi-year supply agreement, Proterra battery systems will power the Vicinity Lightning 28-foot electric transit bus and Vicinity's strip chassis platform to support several commercial vehicle configurations such as utility trucks, shuttle buses and box trucks. The agreement is also expected to support Vicinity's next-generation, heavy-duty electric transit bus as well as the VMC 1200 Class 3 work truck and VMC 1500 Class 5 work truck with Proterra battery systems.

Proterra contracted to supply Vicinity with battery systems to power a minimum of 600 Vicinity commercial electric vehicles through 2024. The Proterra Powered Vicinity Lightning vehicle is expected to begin production in the third quarter of 2022.

"We are pleased to announce this new commercial relationship with Proterra, a true battery technology leader," said William Trainer, founder and CEO of Vicinity. "I look forward to working closely with the Proterra team to make your vehicles, equipped with their advanced battery systems, a staple in North American public transportation and industrial spaces."

Proterra batteries will be used in the production of Vicinity Lightning electric transit vehicles at Vicinity's Ferndale, Washington

manufacturing facility. Designed for the U.S. and Canadian markets, the Vicinity Lightning will comply with Buy America requirements for Federal Transit Administration-funded programs in the United States.

"Cities and towns across North America are driving towards a future with clean air and a healthier environment for our kids and future generations. The question now is no longer if communities will transition to zero-emission, battery-electric transportation, but how fast we can get there. Together with Vicinity, we are excited to build on this innovative spirit as we bring more clean transportation solutions to the communities we live in and serve," said Gareth Joyce, CEO of Proterra.

Designed and manufactured in the United States, Proterra battery packs leverage industry-leading energy density and a customizable design to fit within a variety of vehicles. Proterra's best-in-class battery systems have been proven through more than 20 million service miles driven by Proterra transit vehicles across North America and selected by world-class commercial vehicle manufacturers to power school buses, work trucks, construction equipment and more.

Proterra and Vicinity have announced a new collaboration to power Vicinity's electric transit buses with Proterra's battery technology. Involved are a minimum of 600 Vicinity commercial electric vehicles through 2024. The Proterra batteries will be used in the production of Vicinity electric transit vehicles at Vicinity's facility in Ferndale, Washington.

NFI a Founding Member of Newly-Formed Hydrogen Fuel Cell Bus Council

NFI Group (NFI), a leading independent bus and coach manufacturer and a leader in electric mass mobility solutions, announced on January 18 that the Hydrogen Fuel Cell Bus Council (HFC Bus Council) has formally launched, of which NFI is a founding member.

The HFC Bus Council is a first-of-its-kind national coalition of public transit agencies, manufacturers and suppliers working together to advance the U.S. hydrogen fuel cell-electric bus economy and its applications in public transit. The council's mission is to educate policymakers, regulators and transportation stakeholders on the benefits of hydrogen fuel cell-electric buses and related infrastructure.

"Fuel cell technology is a proven path to extended-range zero-emissio mobility, and

we are on the cusp accelerating its deployment and delivering immediate greenhouse gas reduction, cleaner air and quiet transportation," said Paul Soubry president and chief executive officer, NFI. "Through leveraging a public-private approach, the HFC Bus Council brings the best of all worlds together in educating stakeholders on fuel cell technology, advocating for funding and sharing key learnings from deployments across America. NFI has been a fuel cell leader for over a decade, and the more momentum we build together, the healthier our communities are."

The HFC Bus Council's formation comes during historic levels of investment in public transit, alongside nationwide commitments to transition fleets to zero-emission propulsion. Through education and advocacy, it will expand development, deployment and utilization of safe, clean and efficient hydrogen fuel-cell electric buses, and create additional market opportunities to advance hydrogen fuel cell technology in the delivery of public transit services.

"I'm proud to be serving on the founding board of this organization, working to educate government officials and my colleagues in the transit industry on the viable and salable zero emission solution that is hydrogen fuel cell technology," said Karl Gnadt, HFC Bus Council Board president and managing director/CEO, Champaign-Urbana Mass Transit District (MTD).

In addition to NFI, founding members include MTD, SunLine Transit Agency, Foothill Transit, Regional Transportation Commission of Southern Nevada, Stark Area Regional Transit Authority, Utah Transit Authority, Indianapolis Public Transportation Corporation , Interurban Transit Partnership, Intercity Transit, Sangamon Mass Transit District, Regional Transportation Commission of Washoe County, ENC, Hexagon Purus, Trillium Energy Solutions, Ivys Energy Solutions, Ballard and Nel Hydrogen. To learn more or become a member, visit hfcbuscouncil.com

NFI currently offers the Xcelsior CHARGE H2™ fuel cell-electric bus in North America, a battery-electric vehicle using compressed hydrogen as an energy source and range extender, requiring only six to 20 minutes to refuel. Built on New Flyer's proven Xcelsior® platform, the Xcelsior CHARGE H2™ can save 85 to 135 tons of greenhouse gas per year from tailpipe emissions compared to a diesel bus. To learn more, visit newflyer.com/chargeh2.

In the United Kingdom and Ireland, NFI also offers the Alexander Dennis (ADL) Enviro400FCEV, ADL's next generation double-deck hydrogen bus delivering zero-emission range of up to 300 miles. Powered with Ballard fuel cells, the Enviro400FCEV minimizes fuel consumption and maximizes performance for lowest total cost of ownership and features integral vehicle design that perfectly balances weight and maximizes interior passenger space. To learn more, visit alexanderdennis.com.

NFI is a leader in zero-emission mobility, with electric vehicles operating (or on order) in more than 80 cities in five countries. NFI offers the widest range of zero-emission battery and fuel cell-electric buses and coaches, and its vehicles have completed more than 50 million EV service miles. Today, NFI supports growing North American cities with scalable, clean and sustainable mobility solutions through a four-pillar approach, including buses and coaches, technology, infrastructure and workforce development. NFI also operates the Vehicle Innovation Center (VIC), the first and only innovation lab of its kind dedicated to advancing bus and coach technology and providing workforce development. Since opening in late 2017, the VIC has hosted more than 300 interactive events, welcoming 4,000 industry professionals for EV and infrastructure training.

Atlanta's ATL Unveiled MCI's Zero-Emission D45CRT LE CHARGE™ Coach

In December 2021, the Atlanta-Region Transit Link Authority (ATL) announced its electric vehicle partnership and unveiled MCI's zero-emission, low-floor D45 CRT LE CHARGE™ commuter coach, marking an historic moment in Georgia's transportation.

During the event, ATL presented its vision for Xpress Transit to connect Atlanta through more efficient and environmentally-friendly Xpress bus service, to reduce carbon footprint and improve air quality. Ultimately, ATL aims to strengthen Georgia as a national leader in the electric mobility industry.

ATL's purchase of 10 battery-electric coaches and 11 chargers was supported by the FTA Low or No Emissions Program funding.

BYD Partners with Nuro to Manufacture All-Electric Autonomous Delivery Vehicle

BYD Co. Ltd. announced its partnership with leading autonomous vehicle company Nuro to begin producing the company's third-generation electric autonomous delivery vehicle. The partnership is expected to scale Nuro's more affordable, eco-friendly and convenient services to millions of people across the country.

"BYD will leverage the manufacturing capacity of our Lancaster plant by finishing assembly of globally sourced hardware components to support Nuro and bring more jobs to the community," said Stella Li, executive vice president of BYD Co. Ltd and president of BYD North America. "Together we will build this autonomous delivery vehicle, with the mutual goal of creating a safer

The Atlanta-Regional Transit Link Authority has purchased 10 battery-electric MCI J4500 CHARGE™ coaches and 11 chargers. This presentation in December of 2021 announced the electric vehicle partnership. ATL presented its vision for Xpress Transit to connect Atlanta with environmentally-friendly Xpress bus service.

environment on streets across the United States."

The recent announcement follows Nuro's $600 million Series D funding round which closed in 2021 and was led by Tiger Global Management with participation from other investors.

Combining both partners' advanced technology, Nuro's third-generation autonomous delivery vehicle will feature greater payload and new safety technologies. With twice the cargo volume of Nuro's current R2 model, the automotive production grade vehicle will also feature modular inserts to customize storage and new temperature-controlled compartments to keep goods warm or cool. Safety enhancements include an external airbag to further improve safety for pedestrians outside the vehicle, as well as a multi-modal sensing suite including cameras, radars, lidar and thermal cameras, creating a redundant 360-degree view.

Nuro was founded in 2016 by Jiajun Zhu and Dave Ferguson, former principal engineers of Google's self-driving car team. Specializing in developing zero-occupant vehicles designed specifically for transporting goods and not passengers, Nuro has launched two generations of autonomous vehicles, introduced delivery service with industry leaders including Domino's, Kroger and 7-Eleven, and announced a multi-year partnership with FedEx.

"BYD is one of the largest OEM networks of electric vehicles in the world, and we are thrilled to partner with them to help us move one step closer to scaled commercial operations," said Zhu, Nuro co-founder and CEO. "We look forward to transforming the hardware components of BYD's globally sourced electric vehicle platform into innovative autonomous vehicles capable of operating on public roads at our new facility here in America. Through our partnership with BYD, we plan to produce autonomous vehicles at scale that can improve road safety, air quality and overall access to goods."

As a leader in the NEV industry, BYD was innovated rich technologies in the field of electrification. In this project, BYD is jointly working with Nuro on vehicle development, and is responsible for vehicle manufacturing and initial vehicle testing, and provides hardware like the Blade Battery, electric motors, electronic controls and displays for human-machine interaction. Nuro integrates technologies such as autonomous driving, control modules and sensors. BYD will finish assembly of the hardware platform at its Lancaster plant in the United States using globally sourced components. Nuro will then complete the vehicle manufacturing process by installing and testing the autonomy systems that will make the platform capable of operation at the company's new facilities in southern Nevada.

BYD has partnered with Nuro to begin production of the company's third-generation electric autonomous delivery vehicle. The vehicle will feature modular inserts to customize storage and new temperature-controlled compartments to keep things warm or cool. Safety enhancements include an exterior airbag as well as cameras, radars, lidar and thermal cameras.

Walsh-Stantec Aids King County in Transition to Zero-Emission Bus Fleet

King County Metro Transit, serving the Seattle area, recently selected The Walsh-Stantec design-build team to help the county with their first large scale project to transition to a zero-emission bus (ZEB) fleet. As part of Metro's goal for a 100 percent ZEB fleet by 2035, The Walsh Group and Stantec will provide progressive design-build services for the Interim Base Electrification (IBE) project.

The $67 million IBE project will provide parking and charging stations for 120 ZEB buses at the existing King County Interim South Base in Tukwila. The IBE project, which is the continuation of fleet electrification for Metro, will be the county's first progressive design-build, which provides an integrated approach, greater resources and shared expertise between the design-build team and King County.

King County Metro, which serves a population of more than 2.1 million people, is leading the transit industry as an early adopter of battery-electric buses that produce no exhaust fumes, are quieter and have the potential for lower operating costs. Metro's goal is to maintain its current fleet of approximately 1,400 coaches as it transitions to a ZEB fleet by 2035 to align with the county's equity and social justice goals. The project is scheduled to be complete by the end of 2024.

"We're excited to work with The Walsh Group to help King County Metro with this large deployment of zero-emission buses in the Pacific Northwest," Mark Peckover, Stantec principal and project design manager. "The transition to ZEBs is the future of transit, and Metro is moving forward with a large and important first step. The progressive design-build method allows our team to take a holistic view of the base and how best to continue the transition."

"The Walsh Group is proud to lead the construction of this design-build project that will deliver an impactful mode of clean, sustainable transportation for our fellow King County residents," said Doug Benjamin, program manager at The Walsh Group. "We have a steadfast commitment to sustainability across our job sites, and we are excited to join Stantec and King County Metro, two great partners that share the same commitment as well."

"We are excited at the opportunity to work with Walsh-Stantec team, to innovate, build trust and manage change that's the only constant, as we further the transition to ZEBs. In so doing, adding our weight to the arch of justice," said Kevin Kibet,

King County Metro Transit capital project manager.

Walsh is managing all construction activities on the project, while Stantec is providing electrical engineering, transportation planning, information and communications technology design, acoustic design, charging system design and historical archaeology. The Walsh-Stantec team includes several small business enterprises as subconsultants, including Rolluda Architects, Lund Opsahl for structural engineering, LPD Engineering for civil engineering and Evenergi for predictive power modeling.

The Metro IBE project is the latest of several projects where Stantec is assisting transit agencies plan their ZEB fleet needs. In California, Stantec is working with Santa Monica's Big Blue Bus, Riverside Transit Agency, Antelope Valley Transit Authority, Napa Valley Transit, San Luis Obispo RTA, Fresno Area Express, Anaheim Transportation Network and Orange County Transit Authority to assist with electric bus charging infrastructure and smart power technology planning and design. Additionally, Stantec is assisting TriMet in Portland, Oregon; Minneapolis Metro; the Toronto Transit Commission and private companies with similar plans.

King County Metro Transit in Seattle recently selected Walsh-Stantec to assist with their transition to a zero-emission bus fleet. The project includes parking and charging stations for 120 ZEB buses at King County's Interim South Base in Tukwila. King County operates a fleet of 1,400 buses and serves a population of more than 2.1 million people.

Icomera Signs Deal with VIA Rail for Wi-Fi and Digital Platform on New Corridor Fleet

On January 20, EQUANS, through its subsidiary Icomera, signed a 10-year managed services agreement with VIA Rail Canada (VIA Rail), Canada's national passenger rail service, for the deployment of Wi-Fi and the participation in the creation of a digital platform aboard its new Corridor fleet.

Icomera will lead the development of the onboard passenger Wi-Fi, hence allowing VIA Rail to provide its passengers with a high-speed reliable Internet connection on its new Quebec City-Windsor Corridor fleet. In addition, Icomera will participate in the creation of an onboard digital platform which will include, amongst others, content from VIA Rail's Web site and tracking of the train's journey.

In close collaboration with VIA Rail's teams, the project will be spearheaded by the Icomera Canada office, led by the project management and technical services team out of Mississauga and supported by the U.S. team.

Delivery, installation and testing will take place in Sacramento, California and in Montreal, Canada, ensuring peak performance and above adequate uptime, prior to the commissioning of the first train set in the fourth quarter of 2022.

"The future of travel is becoming a reality in Canada – together, as industry partners, we have a shared mission for green mobility in today's digitally transformed world," says Magnus Friberg, chief executive officer of Icomera.

"Keeping VIA Rail's passengers informed and productive throughout the journey is one of the easiest ways to improve the onboard experience," says Gabriel Lopez-Bernal, vice president of sales and marketing for Icomera in North America. "Canada's passengers will soon enjoy an upgraded passenger experience."

Icomera signed a 10-year managed services agreement with VIA Rail Canada for Wi-Fi and a digital platform on its new Corridor fleet. Delivery, installation and testing will take place in Sacramento, California and Montreal, Canada. The onboard digital platform will include content from VIA Rail's Web site and tracking the train's journey.

First Transit Orders Eight Vicinity Classic Buses

Vicinity Motor Corp. (Vicinity or the company), a North American supplier of commercial electric vehicles, announced on January 6 the receipt of a new CAD $3.5 million purchase order from North American Private Transit Operator First Transit for eight Vicinity™ Classic buses.

Per the terms of the supply agreement, First Transit has ordered eight of the company's 35-foot clean-Diesel Vicinity Classic buses for delivery in 2022. The Vicinity buses will service the city of Yellowknife, Canada.

"Our Vicinity Classic buses continue to prove their popularity within the North American transit market as we continue to attract exciting orders from our continent-wide base of satisfied customers," said William Trainer, founder and chief executive officer of Vicinity Motor Corp. "Our ability to grow alongside our customers and fulfil many of their transit needs as a one-stop-shop is invaluable, particularly as many transit authorities begin to evaluate electric vehicles to supplement or replace their conventional diesel fleets in service today.

"I look forward to working closely with the team at First Transit to deliver these vehicles by end-of-year. Our goal is to improve the quality of public transit to the citizens of Yellowknife while concurrently reducing operating costs for transit operators – thereby creating sustainable value not only for our shareholders, but for all stakeholders," concluded Trainer.

Nobina in Copenhagen has ordered 13 Ebusco 2.2 low-floor, 12-meter buses with three future orders making a total of 79 electric buses. In addition, Nobina has ordered a number of Ebusco chargers that can adjust charging times.

Ebusco electric buses delivered to Transdev in Frankfort have already driven close to one million kilometers with a corresponding reduction in emissions. Frankfort plans to achieve 100 percent emission-free buses by 2030.

Ebusco Provides 100 Percent Electric Buses to Two Major Cities in Europe

In the space of a week, Ebusco is delivering multiple buses to Transdev in Frankfurt as well as to Nobina in Copenhagen, meaning a great week for Ebusco as well as a giant step towards sustainable transport in Europe.

Nobina is due to receive the first of four orders. This order is for 13 Ebusco 2.2 low-floor, 12-meter buses. In the coming year, Ebusco will work on the next three orders, making a total of 79 zero-emission buses. With these orders, Nobina is playing a major part in Denmark's ambitious plans to cut 7.2 million tons of CO_2 by 2030.

In addition, Nobina has ordered a number of Ebusco chargers. These are 150 kW chargers that give the operator the ultimate flexibility of being able to adjust the charging speed. For example, one plug can charge 150 kW or two plugs can charge 75kW. This gives Nobina the freedom to adjust charging times to ensure ultimate route planning and, at the same time, best manage the life of the battery pack. Therefore, Ebusco is providing emission-free buses as well as supporting Nobina in setting up its EV infrastructure in Denmark.

Ebusco has been a proud partner of Germany's largest private mobility provider, Transdev, for some time. Last year, Ebusco delivered its first batch to Frankfurt. As of the end of 2021, these buses have driven close to 1 one million kilometers, with a corresponding reduction of CO_2 emissions. Like the first batch, the second batch is for 12 Ebusco 2.2 low-floor, 12-meter buses. The buses will help Frankfurt achiveve its goal of having 100 percent emission-free buses by 2030.

Transdev chose Ebusco because of its long range of buses that do not need to be charged in between. This reduces overall operating costs due to the charging infrastructure and the reduction in the number of times buses need to be charged. ❑

Bus Equipment People

The Bus Network

The Bus Network (TBN) was born out of a desire to make charter booking more accessible to the masses, provide the tools and technology to take business back from brokers and help drive up the prices consumers pay directly to operators.

In 18 months, with more than 50,000 quotes representing more than $57,000,000, they have seen that vision take meaningful shape in the industry.

Christian Riddell

TBN is excited to announce the next chapter in that journey with the addition of industry insider **Christian Riddell** as the company's CEO.

Riddell brings a broad background of industry experience, including starting as a driver, charter salesman and dispatcher at an operation in the Pacific Northwest. Later he founded a creative agency that has served the industry for more than 15 years; he was the executive director of the Motorcoach Marketing Council, and most recently, the president of United Bus Technology (UBT).

"We are thrilled to have **Chris** join the team. His experience in the industry is helping us shape the future of TBN and ensuring that what we build will work for operators of any size, in any market and with any fleet makeup. He has been a long-time thought leader in the industry, and to put that power to work to make TBN all it can be is something we are all excited about. This move will also allow me to spend the majority of my time focused on the product and working with the developer team to bring new features and products to market, something that will be a win for our current and future customers," said Kyle DeVivo, co-founder and chief product officer.

"To say I am excited would be an understatement," **Riddell** said about the new role. "For many years, I have written articles and taught classes about the need to increase prices, innovate how we follow up, change the sales process and increase efficiencies through technology. But, unfortunately, I have seen people nod their heads in the right direction, leave excited, ready for change, only to run into technology barriers that simply wouldn't let them do much of what they wanted. TBN gives operators what they need to turn these hopes into realities and the opportunity to help shape that future and deliver solutions that will slingshot the industry foward is something that I am very excited about," he added.

Along with the addition of **Riddell**, TBN has also launched a new Web site, TBNDrives.com, that more fully showcases their current product, SalesDriver, and provides some exciting updates on their upcoming OpsDriver products. It also highlights the growing TBN team and showcases the vision of what they see as possible for the industry. The site also features a new resource, DriveTime, which has a wealth of educational resources and houses their new DriveTime podcast, slated to launch later this month.

TBN has brought the industry tools that allow operators to rethink their sales processes, including adding truly automated follow-up to charter quotes and offering customers real-time charter prices. Their tools also put customers in the driver's seat by allowing them to self-manage charter details, including changes and additions. Their upcoming OpsDriver product will add the operational side of the business to the mix in a cloud-based, open API format that will, for the first time, allow operators to fully be in control of their data and how they use it. ❑

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Coaches for the Coach

A Tribute to John Madden

by Larry Plachno

We were saddened to hear of the passing of John Madden on December 28, 2021. Those who knew him and worked with him remember him fondly as being a good guy who often helped others. While most people connect John with football, he really had four careers. These included playing football, coaching football, announcing football and as an unofficial spokesman for the bus industry. It is this fourth vocation of his that interests us bus people. As a tribute to John, we can cover some of his football background and then relate his years involved with the bus industry.

College, Coaching and Commentator

John Madden was born in Austin, Minnesota, a community of about 20,000 population just a few miles east of Albert Lea and southwest of Rochester, not far from the Iowa state line. Later, his family moved to Daly City, California on the south edge of San Francisco. His parents were not involved with football or any other professional sports. John's father, Earl, was an auto mechanic while his mother Mary was a homemaker. John's education included both a B.S. and an M.S. from California Polytechnic College in San Luis Obispo, California.

John was involved with football at Cal Poly where he played both offensive and defensive lines in 1957-58 while earning his degrees. He was chosen for the all-conference team and was drafted by the Philadelphia Eagles. His hopes of going on to a pro career in football were frustrated by a knee injury. Hence, he made the decision to turn to football coaching. He started coaching at Hancock Junior College at Santa Maria, California and then moved up to defensive coordinator at San Diego State and remained there for three years until 1967.

Behind the scenes, John was a family man. He married Virginia Fields on December 26, 1959 at St. Mary of the Assumption Church in Santa Maria, California. They made their home in Pleasanton, California and raised two boys, Joseph and Michael. Virginia later became involved in helping to design the Madden coach interiors. She occasionally did ride on the buses, but she often traveled by plane. At the time of John's death, they had been married for 62 years.

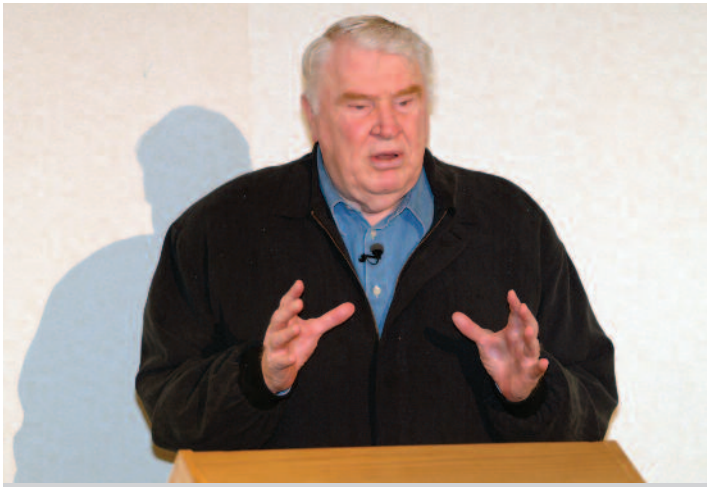
While most people remember John Madden in connection with football, many of us think of him as an unofficial spokesman for the bus industry. His preference for buses over automobiles, planes and trains helped improve the image of the bus industry. Here, reporters are interviewing John in his new third Madden Cruiser, an MCI 102EL3, circa 1998. CUSTOM COACH.

Following San Diego State, John's coaching record was set with the Oakland Raiders. The Raiders came into being when the American Football League's Minneapolis franchise left to join the National Football League. This left the AFL scrambling for a replacement. There was pressure to have a second AFL team on the West Coast and Oakland was selected as the location with the new franchise created in January of 1960. This new team inherited the Minneapolis club's draft picks.

In 1967 the owner of the Raiders, Al Davis, brought John Madden in as a linebacker's coach. Oakland went to the Super Bowl that year. In 1969, John took over as head coach at the age of 32, one of the youngest head coaches in history, and began a outstanding 10-year run. Madden went a remarkable 12-1-1 in his first season but lost the title game to Kansas City. He was named AFL Coach of the Year in 1969.

There were numerous highlights in subsequent years. In 1976, the Raiders won the AFC Western Division following a 31-1 record. Post-season play included wins over New England in a divisional playoff game followed by taking the AFC championship following a 24-7 victory over Pittsburgh. John ended the season with a 32-14 win over the Minnesota Vikings in Super Bowl XI. In the 1976-1977 season, the Raiders won 17 straight games, only one short of the all-time NFL record.

He retired from the Raiders at age 42 after coaching a 9-7 season in 1978. His all-time record was 103-32-7 for the regular season and 9-7 in post-season play. Madden's .759 winning percentage during the regular season ranks as highest ever among coaches with 100 career victories. Only two other football Hall of Fame coaches, George Halas and Curly Lambeau, managed to reach 100 wins at an earlier age. While John was head coach, the Raiders never had a losing season.



John Madden would visit some of the MCI customer appreciation events and share some of his thoughts with the bus operators. He was knowledgeable about buses and could discuss them at length. He was always a great addition to the events. NBT.

Your editor (left) was able to meet with John Madden at some of the MCI events. John could speak knowledgeably about buses and occasionally offered his opinions. It probably helped that both of us owned MCI Custom Coach conversions. NBT.

They did earn seven division titles and eight playoff appearances.

While John retired from coaching the Raiders, he did not retire from football. His expertise in the game prompted a transition from a coach on the sidelines to an announcer up in the press box. He soon became just as successful at announcing as he had been at coaching . One of the reasons why John left coaching was because he was increasingly uncomfortable with flying. In John's situation his lack of interest in flying was due more to confinement and claustrophobia. It did not help that John was a fairly big guy.

The combination of a tight announcer's schedule and his lack of interest in flying began to create some interesting transportation problems for John. For a while he tried riding trains between his various announcer locations. This did work to some extent since he felt less confined and could walk around, although there were two major problems. One of these problems was the lack of point-to-point convenience since the trains frequently did not go to where John wanted to go. A second problem was privacy. Being so well known, he could not walk through the train without people recognizing and stopping him.

Finally, the broadcasting company John worked with began looking for better alternatives. In 1986 they leased Dolly Parton's private coach to see if this alternative worked better. It turned out to be a touchdown for John. The converted coach offered point-to-point transportation, privacy and was roomy enough to eliminate most concerns about confinement. This led to the ongoing series of Madden Cruiser Coaches that would provide transportation for him for more than two decades. All five of his coaches were built by MCI and the first three were converted by Custom Coach Corporation.

The first Madden Cruiser resulted from a three-year contract with Greyhound. The resulting coach was an MCI 102A3 painted in Greyhound colors and carried fleet number 0001. It was photographed while on display at the spring 1987 FMCA event. NBT.

Madden Cruiser One

The first Madden Cruiser came about when the chairman of Greyhound offered John Madden a three-year bus contract. Greyhound would provide a suitable converted coach, professional drivers and fuel for three years in exchange for some internal promotion for Greyhound employees. John accepted. As a result a new 40-foot 1987 MCI 102A3 coach was sent to Custom Coach in Columbus, Ohio for conversion. Initially, the coach had a fairly typical Greyhound red, white and blue paint scheme. Since none of the windows were blocked out, you could pass it on the road and not know it was special.

There were only three external differences from a standard Greyhound coach. Being a conversion, there was no destination sign, something people not involved with buses might not notice. The fleet number on the coach was 0001, which suggested something special or unusual. The most obvious difference was the name MADDENCRUISER painted behind the entrance door. Most likely, most people passed this coach on the road without knowing that it was carrying John Madden.

One of the most noteworthy features of the coach was a dinette on the curb side in front with a couch opposite on the street side. The center aisle then angled to the curb with the galley to the rear and a driver's bunk opposite. As with most converted coaches, there was a bathroom behind the galley fol-

Madden Cruiser #1 was photographed at the Greyhound San Francisco garage while being serviced. Note the lack of destination sign, fleet number 0001 and the "Maddencruiser" name just behind the door. NBT.

Walker Advantage Muffler sponsored the Madden coach when the Greyhound contract ran out. This resulted in a simplified paint scheme with blue stripes on white and the Walker name towards the front. CUSTOM COACH.

lowed by a bedroom in the rear. This initial coach proved that travel by private coach was what John wanted and needed. During this Greyhound contract, the coach was serviced at Greyhound garages and facilities while Greyhound drivers were assigned to the coach (is that a pun?).

When the Greyhound contract ran out, Madden sought another sponsor and went with Walker Advantage Muffler. In exchange for covering some of the operating costs including drivers and fuel, Walker got to use the bus as an advertising billboard. The same MCI 102A3 was retained, but the Greyhound red, white and blue was changed to a basic white with blue stripes and the Walker name in red.

At least two modifications were made to the coach. When delivered, the 102A3 was equipped with what was then state-of-the-art FM radios. John, however, preferred to listen to football games on AM. Hence, an AM radio was installed at the rear of the dinette. This dinette located behind the front door was Madden's favorite sitting place while traveling. An extra CB radio was installed behind the dinette for John who often spent time talking with truckers and others while going down the road.

The loss of the innocuous Greyhound red, white and blue livery made the coach considerably more obvious on the road and when parked. Hence another modification was a sliding device that was installed on the exterior of the coach on both sides to cover the "Madden" in the Madden Cruiser name. This made the coach a little less noticeable and lessened the number of CB calls as well as reducing the number of questions at stops.

This first Madden Cruiser lasted the longest in football commentator service of the following replacements. It was used for seven years: three under Greyhound and four under Walker Advantage Muffler. The following coaches in the Madden Cruiser series were replaced sooner. This particular bus has had an interesting history. After John moved up to his second Madden Cruiser, the late Dick Zimmerman purchased the 102A3. Zimmerman resided in California at that time and later moved to Idaho. He drove it to several bus industry gatherings including Bus Bash events. After Zimmerman passed away, John Madden re-acquired the coach. When the hurricanes of 2005 hit the Gulf States, John graciously allowed this coach to be used as a mobile command post to help the evacuation and disaster effort.

A side note worth mentioning is that John had no control over the location of the football games where he served as announcer and commentator. They could be only a few

John's favorite place in the coach while traveling was the dinette at the front on the curb side. He had a CB mike to talk to the truckers and others on the road and an AM radio to listen to football games. This was a feature on all the Madden coaches. CUSTOM COACH.

When Madden moved on to his second coach, the 102A3 was sold to a California film producer. John eventually purchased it back. In 2005 he graciously allowed this bus to be used as a mobile command post during the Katrina Hurricane disaster. Here, some of the MCI support crew pose with the coach. MCI.

The second Madden coach was sponsored by Outback Steak House and had an additional five feet of length permitting a more elaborate interior including a large bed, an additional half bath and a small office at the rear. CUSTOM COACH.

The second Madden Cruiser was a 1994 102DL3 that again was converted by Custom Coach. This was the first 45-foot coach for Madden. It was also the first Madden coach to carry the Outback Steak House graphics. CUSTOM COACH.

hours apart or entirely across on the other side of the country. Hence, in a worst case scenario, John and his drivers would have less than a week to cross the country to arrive and get ready for the next broadcast. You might bear in mind that the football season does not coincide with pleasant weather. In some cases the Madden Cruiser would take a longer route to avoid some of the worst weather.

Soon after deciding to travel by private coach, John started what might be called his fourth career as an unofficial spokesman for the bus industry. The fact that he decided to travel by motorcoach rather than by automobile, train or plane, helped improve the image of the bus industry. In addition to being seen around the country in his coach, John would frequently show up at MCI customer events to meet with bus operators. Your editor had the opportunity to speak with him on occasion and found John to be not only knowledgeable about buses but also enthusiastic about their use. It possibly helped that both of us were owners of coaches converted by Custom Coach.

Madden Cruiser Two

In 1994, John Madden moved up to his second coach. This was a 1994 MCI 102DL3 again converted by Custom Coach. Information received from Custom Coach suggests that three miles of wires and 4,000 feet of lumber were used to build this coach. While this coach was 45 feet long and hence five feet longer than the initial 102A3, much of the interior was similar because it had worked so well with the first Madden Cruiser. The additional five feet of space was primarily used to add a second bathroom as well as a small office.

This coach again had a dinette behind the buddy seat at the front that continued to be John's favorite traveling location. Opposite was a couch that also served as a sleeping area for the driver. Behind the dinette, on the curbside, were two chairs separated by a small table. The galley area included a stove, microwave, coffee maker and refrigerator. Again, the galley angled towards the curbside and a full bath was located just behind the galley.

John's queen-sized bed faced the rear with the headboard up against the rear of the bathroom. It was mounted on sliders to slide up against the street sidewall when not in use to make a larger aisle on the curbside. Most of the additional five feet of space was used at the rear of the coach for a small office and a second bathroom. The office area contained a phone, fax machine and a video player. The video was there to view game films and the office area could also be used for simple broadcasts. On the street side at the rear of the coach was a half bath with a toilet and sink.

Madden Cruiser Two originally started out painted for Walker Advantage Muffler. The Walker contact expired while the coach was in use and the Outback Steak House elected to sponsor the Madden Cruiser. This resulted in more elaborate exterior graphics featuring the Outback Steak House name.

This coach also had an interesting second life. When John moved on to his third Madden Cruiser this coach ended up back at Custom Coach for resale. It was repainted in a simple deep blue and was on display at the FMCA show in Perry, Georgia in the spring of 1999. It was soon snapped up by a husband and wife team who worked on computers for medical facilities. They found that

After approximately four years of service with John Madden, the 1994 102DL3 was retired and came back to Custom Coach for resale. Painted in a simple deep blue, the coach is shown here at the FMCA show in Perry, Georgia in early 1999. NBT.

Madden Cruiser Four was another MCI "E" model and Outback Steak House continued to sponsor operators. External graphics were again changed. The most obvious changes were the elimination of the jungle grass at the bottom and the addition of a boomerang at the center of the coach. MCI.

having two bathrooms was ideal since they needed to get started at the same time in the morning, presumably while parked in a hospital parking lot.

Madden Cruiser Three

In 1998, John decided on moving to a third coach. MCI had just introduced their new Renaissance® design with sleek styling that impressed him. While he continued using Custom Coach for the interior, John decided on the new Renaissance (102EL3) model for this Madden Cruiser. Outback Steak House remained as the sponsor and a custom jungle exterior with the Outback Steak House name was applied by Vernon and Sons. An official delivery ceremony took place outside of Chicago's Water Tower Place in November of 1998.

With this third Madden Cruiser, John's wife Virginia became involved with the interior design which resulted in some obvious changes from the previous coach. What was noteworthy in this coach was the use of granite, marble and leather. The galley and both bathroom areas had tiled floors.

The overall design of this coach was very similar to the second Madden Cruiser with a dinette behind the buddy seat and a couch opposite on the street side. Behind this was the now-standard angled galley, two chairs separated by a small table and then a bathroom. One of the major changes on this coach was the movement of the shower to the rear bathroom. The bath just aft of the galley became a half bath with a toilet and sink while the bathroom in the street side rear corner now became a full bath.

This coach again had an office in the rear curbside corner. As with the earlier coaches, the overall design of this coach included lighter colors and open windows. John preferred this to avoid a confined or closed in feeling.

With Madden Cruiser Three, John moved up to the new MCI Renaissance® 103EL3 model. On this new coach the Outback Steak House graphics got a little more elaborate with the tall grass at the bottom of the coach. John's wife Virginia became involved with the interior design of this coach which resulted in some modern touches. NBT.

John Madden took delivery of Madden Cruiser number four in New York City in the summer of 2002. Here MCI President and CEO Tom Sorrells (right) presents the keys to John. This was another "E" model and the first Madden Cruiser where John repeated a previous model. MCI.

Madden Cruiser Four

The fourth Madden Cruiser coach came in 2002. It broke with tradition in two areas. It was the first time that a previous coach model was repeated. John had been so pleased with the performance and reliability of Madden Cruiser Three that he wanted another MCI "E" model. The only difference being that with the change in model designation at MCI, this 2002 coach was officially an E4500 model.

This coach represented the first time that a conversion company other than Custom Coach did the interior of a Madden Cruiser. Due to the problems at Custom Coach, Klein Interior Specialists of Nolensville, Tennessee converted this coach. Outback Steak House continued as the sponsor and the exterior graphics once again carried the Outback Steak House name.

While much of the interior remained similar to the previous two coaches, there were some changes. Once again, Virginia was involved in selecting some of the options and this coach also had some state-of-the art electronic equipment. Stained rosewood was used for the interior finish with contemporary soft tones obvious. The traditional dinette had granite tops and accents. Special equipment in the galley area included a three-burner glass top electric stove and an Amana side-by-side refrigerator. Three Sony flat screen televisions were strategically placed to give virtually any seat in the coach a good view.

Once again the bed in the rear bedroom could slide during the daytime to provide a wider aisle. The rear bathroom had an extra large glass steam shower in this coach. John's office area in the rear received some improvements with this coach. It now contained a built-in desk, a computer, a fax machine and a cell phone system with three telephone lines. This coach was also equipped with a Datron mobile satellite system which provided hundreds of stations for the on-board televisions.

John Madden took delivery of this coach in New York City in the summer of 2002. The surrounding ceremony included a presentation of the keys by MCI president and CEO Tom Sorrells. One of the most noteworthy trips of this coach came towards the end of its career. John sent the coach to participate in the AASHTO Convoy out of San Francisco on June 19, 2006.

Madden Cruiser Five

The fifth Madden Cruiser went into service in late 2006. Due to his excellent past experience with the MCI "E" model, John again selected an E4500 for his shell. This coach came with a Caterpillar C-13 engine and a SmartTire™ tire monitoring system. This time the conversion company selected was Super Coach of Lebanon, Tennessee. Outback Steak House continued as sponsor, but the exterior graphics on this coach were a deeper red in color.

Both Virginia and the MCI staff were involved with the interior and the finishes. Once again, many of the usual design features continued but there were several changes. The front lounge had two televisions on this coach. The galley area, which includes a side-by-side stainless steel refrigerator, came with both granite flooring as well as granite countertops.

Once again, many of the changes were in the rear of the coach. The master bathroom at the rear now had a four-foot by four-foot steam shower. John's office and workspace at the rear of the coach had been expanded and enhanced. In addition to hosting a radio show on board, he often used his coach to prepare for his television broadcasts.

John again selected an MCI "E" model for Madden Cruiser number five. Outback Steak House continued to sponsor the Madden Cruiser, but the exterior graphics were again modified to more sophisticated, darker colors. Both the MCI staff and John's wife Virginia were involved with the design of this coach. MCI.

Noteworthy additions on this coach include an in-motion satellite system from KVH Industries, two 32-inch flat screen HD TVs, and three 15-inch flat screen TVs. This coach also had a 24 KW generator and Sirius satellite radio.

This coach was picked up from the conversion company in September of 2006.

In might be noted that John often put as much as 80,000 to 100,000 miles on his coach during the football season. Depending on game locations, John could easily find himself crossing the country between games in weather conditions that might be considerably less than ideal. Typically, there are two drivers on board. The drivers on this coach were Willie Yarborough and Joe Mitchell.

Those people who have worked with and for John Madden indicate that he is very considerate of his staff and co-workers. On one noteworthy occasion, one of his drivers became seriously ill and had to be hospitalized. John allowed his other driver to accompany him, thus leaving the Madden Cruiser driverless in spite of a forthcoming engagement and a long drive to the west coast for the holidays. The staff at Custom Coach scrambled and provided emergency drivers to get the Madden Cruiser to its next port of call, and then cross country to get John home for the holidays. John made sure that the drivers knew he appreciated their efforts.

John finally decided to retire in 2009 following his broadcast on Pittsburgh's impressive 27-23 win over Arizona in the

On occasion, John would send his coaches to participate in various events. On June 19, 2006, Madden Cruiser number four led the AASHTO convoy out of San Francisco commemorating the 50th anniversary of the U.S. Interstate Highway System. Madden Cruiser number five was already under construction when this photo was taken. MCI.

2009 Super Bowl. Dallas Cowboys owner Jerry Jones was quoted as saying, "I am not aware of anyone who has made a more meaningful impact on the National Football League than John Madden, and I know of no one who loved the game more." From our standpoint, the bus industry was also very appreciative of John's efforts as an unofficial spokesman for the industry. He let people know that there was an alternative to the automobile, train and plane that was safe, reliable and got you where you needed to be.

Shown here is the rear of Madden Cruiser number five. This coach featured an expanded work area at the left, the large bed on the right and a four-foot by four-foot steam shower. The bed was mounted on sliders and could be moved when not in use to increase the aisle width. MCI.

MCI says goodbye to Coach Madden

Legendary NFL coach, TV football analyst and video game entrepreneur John Madden, who passed away on December 28, 2021, was also a foremost expert on the flexibility, comfort and people power of motorcoach travel. After Madden retired as head coach of the Super Bowl-winning Oakland (now Las Vegas) in 1979, a well-publicized aversion to flying would put him in the first of five MCI "Madden Cruisers" starting in 1987. He traveled by the luxury-appointed, satellite-connected MCIs 80,000 miles a year to get to broadcast assignments and many memorable appearances for MCI. It was the only coach Madden would ever use. "I like to be in the best, and for me, that's MCI," Madden said in an MCI ad.

"He always made time for us at our customer appreciation events, sharing insights about NFL teams and entertaining stories about life on the road," said Patricia Ziska, MCI vice president of New Coach Sales, who managed the Madden relationship through his retirement in 2009. "He appreciated our drivers and admired our business owners. He was one of us and a friend to our industry." ❑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Reconnecting the Bus Industry in 2022

by Larry Plachno

Indications suggest that 2022 will see the bus industry reconnecting again. Bus tours are coming back nicely, CERTS funding has put coaches back on the road again and the Infrastructure Act will be helping transit operators. This photo of a Prevost H3-45 was taken near Hoover Dam. PREVOST.

Our primary goal for 2022 here at National Bus Trader is to help reconnect the bus industry. Much time and effort has already been put into this by several bus people; we simply need to help move it along. One obvious objective is to get the bus industry back working again. Another aim is to avoid letting the pandemic turn into a recession.

Several of the experts are suggesting that the pandemic is essentially over in many respects. Covid is not going to go away tomorrow, it may take years. Meanwhile, we may well end up getting an annual Covid shot just like an annual flu shot and an occasional pneumonia or tetanus shot. We may have to live with taking extra precautions with masks, washing hands and sanitizers for a while. However, this may also help in reducing the incidence of the common cold, flu and other communicable illnesses. We humans have an impressive record of being able to adapt to new and different things and Covid may well be another item added to our list.

How do we reconnect and try to move back toward normal? What might be one of the best suggestions came from President Franklin D. Roosevelt in his 1933 inaugural address when he said "We have nothing to fear but fear itself." It was on Black Tuesday, October 29, 1929 that the stock market crashed, plunging the United States, and other countries, into a recession. What many people realized was that the fear of taking action and moving ahead was prolonging the recession. What was needed was to set aside the fear and simply move ahead.

We have already seen this in the bus industry. Those who have set aside their fear to move ahead and reconnect have been rewarded with success. Congratulations and a pat on the back goes to the bus tour segment of the industry for leading the way in reconnecting. Many of the tour planners went back to planning tours – actually, a few never stopped. Some of the bus tour stops including convention and visitor bureaus, attractions, tourist railroads and others began inviting the bus tours to come. The riders bought the tour tickets and got on the buses. The result has been success and substantial progress in bringing this part of the industry back to normal.

Perhaps next in reconnecting has been the coach operators. Their own determination to get back in operation was buoyed up by some CERTS funding. As a result many buses are back on the road again. Many, if not most, scheduled routes are back in operation and the charter market is starting to grow again.

I would be remiss if I did not mention progress in the transit segment. The availability of government funding has prompted orders for new transit buses. Many of these new buses have battery-electric or hydrogen fuel cell power. This provides some welcome income for the bus builders.

The recently-passed Infrastructure Act will also be good for the bus industry. Money will be available for converting school bus fleets to battery-electric power. Transit operations will be in line for additional funding that will be positive for the industry. In addi-

tion, there will undoubtedly be opportunities for private companies to participate in some of these operations.

Hopefully, this will encourage the manufacturers and suppliers to set aside their fears and reconnect with the industry by inviting the bus operators to purchase their products and services.

Those people watching what is going on have pointed to some things that are positive for the bus industry. One of the most interesting is that the predicted massive increase in private auto usage to continue social distancing failed to take place. Are people less concerned about social distancing than expected? Or did the lack of computer chips for new cars have something to do with it? Regardless of the reasons, the fact that we did not see a massive movement to private autos is positive for the bus industry.

Another potential positive area for the industry is airline competition. In recent months there have been complaints about aviation service. This presents new opportunities for buses to compete on some of these routes. Even prior to the pandemic, buses were taking business away from some of the shorter airline routes. Combining downtown-to-downtown service, on board Wi-Fi and the time saved in airport security checks, the buses looked very attractive on some routes. We are already hearing about new higher quality bus services starting on airline routes.

The Infrastructure Act will help transit operators. Many are already placing orders for new buses, particularly those powered by battery-electric or hydrogen fuel cell systems. Shown here is a New Flyer Excelsior Charge AV. NEW FLYER.

European bus operators have a big advantage because the people in Europe are more likely to accept and ride on public transportation. In addition, a higher percentage of European operators are bus tours that tend to be more profitable. Shown here is a MAN Lion tour coach loading a tour group. MAN.

Some of the ongoing advantages of buses are in the areas of economy of operation, reduced traffic and going green. Not only is it more economical to move groups by bus, but the buses also reduce the number of autos on the road as well as emissions and pollution. These advantages will remain after Covid is gone. We simply need to make sure that people are aware of these advantages that buses offer.

In the past I have also written about the fact that European bus operations tend to be more profitable than on this side of the Atlantic. It might not hurt to mention them again. Included is that fact that the European bus operators tend not to compete for low-priced charters. They tend to be more inclined to keep prices and quality up. From what I can see, they also tend to have more diverse fleets to accommodate different groups and different uses.

It is also noteworthy that the European operators generally depend less on residual value than the American operators. Part of the reason is that they have more body-on-chassis buses or suburban-type buses that typically do not hold their value well. Another part of it is that they tend to keep prices high enough so that residual value is not as important. This situation could become more important here, at least for the immediate future, since residual value is low right now.

Another thing that helps European bus operator profitability is running more tours. Admittedly, they have an advantage in this area because cities and attractions are close to each other while overall distances are shorter. For example, it is only about 1,000 miles from London to Rome – about one-third of the distance from New York to San Francisco.

What may be the biggest advantage of European bus operators is that the European people accept and are used to riding public transportation. Public transportation in Western Europe is excellent in most cities and between major cities. They also have transportation into rural areas that is impressive. Hence, public attitude is on their side.

In comparison, many Americans do not go anyplace without their cars. This atti-

tude is probably the single biggest problem that American bus operators face. There have been some attempts in this area to make Americans more accepting of public transportation. These include online marketing help as well as banners for buses. We had one of those banners on our bus. This would be an interesting topic for the bus industry to tackle. While the industry is too small to get involved with major campaigns, the advantages of buses in the areas of economy, reduced highway traffic and going green might be a good place to start. ❑

Private bus operators may also benefit from the new Infrastructure Act. It is expected that some public bus routes, particularly commuter routes, will be turned over to private companies for operation. The MCI Commuter Coach has been a popular model in this application for decades. MCI.

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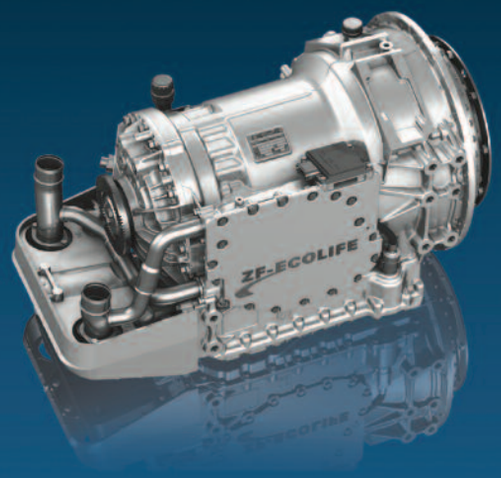

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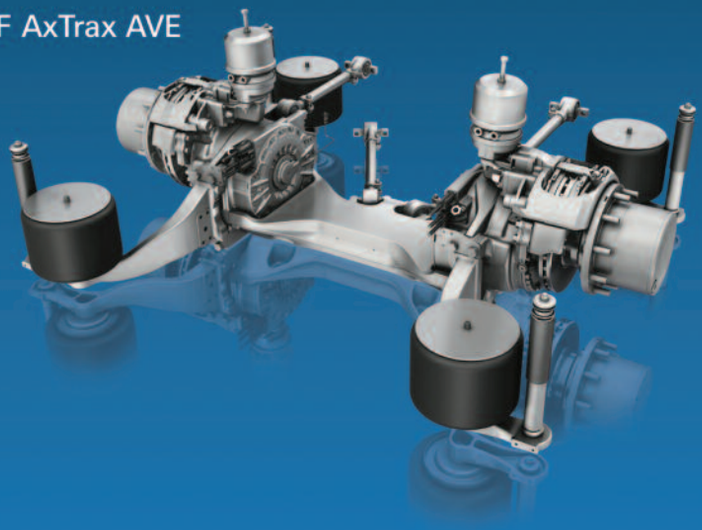

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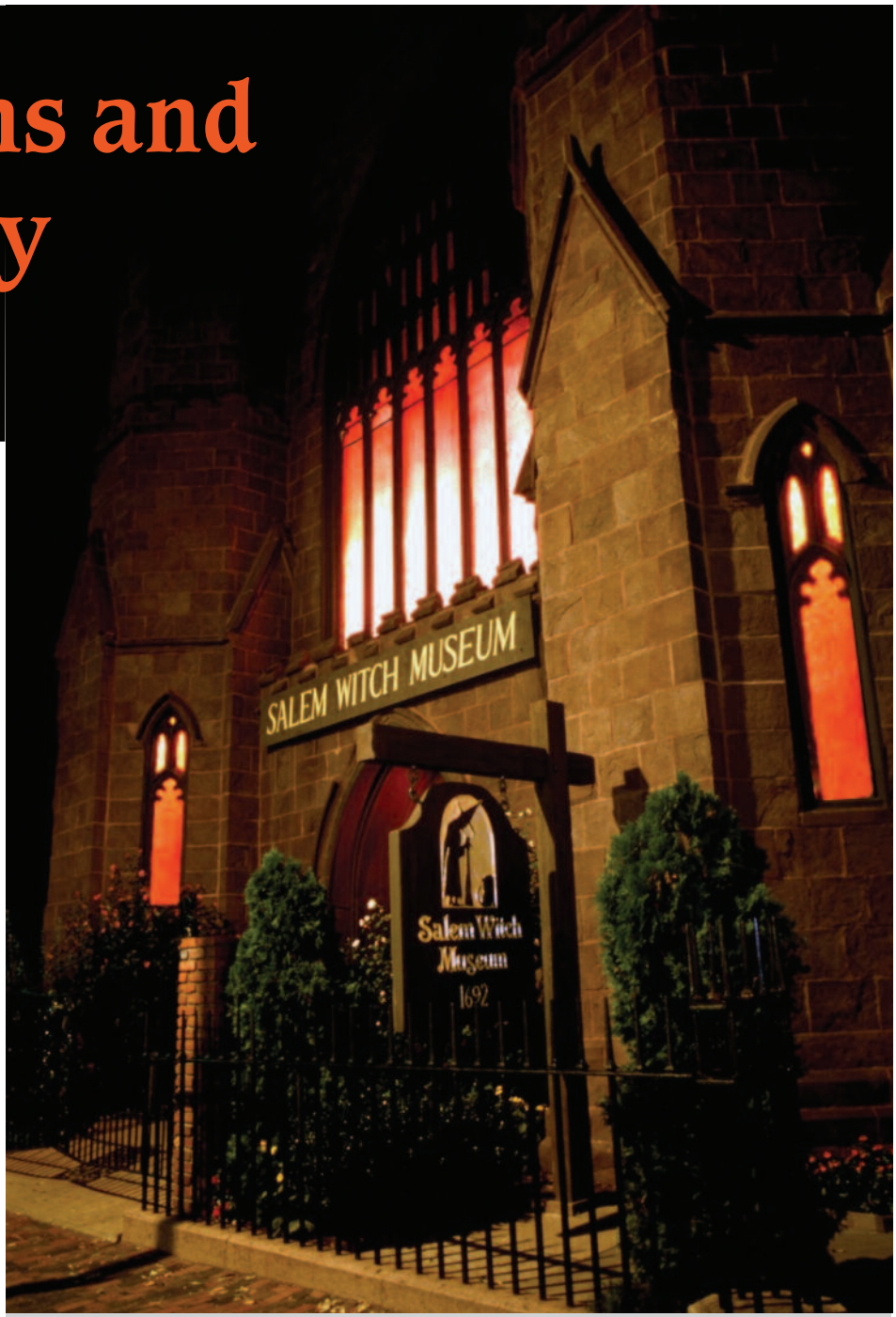
Inspections and Safety

by Dave Millhouser



The Salem Witch Museum is located in the center of Salem, Massachusetts. It provides dioramas explaining the witch hysteria of 1692. The resulting capital punishment apparently worked because the witch problem disappeared in following years. SALEM WITCH MUSEUM.

For years there has been a simmering debate regarding capital punishment – one side claiming it is immoral and unreliable, while the others feel it is useful in quashing crime.

If you look at Salem, Massachusetts' experience, you would have to come to the conclusion that it is 100 percent effective. In 1692 local leaders came to believe they had a serious witch problem. Arrests were made, trials held, and the convicted witches were hung (or in one case, Giles Corey was squished, which better fits where we are going with this). Capital punishment apparently worked, because witchcraft ceased.

Recently www.workerscompensation.com published a "news" article that touted FMCSA's claim that "commercial vehicle roadside safety inspection and traffic enforcement programs saved 472 lives in 2012." Golly – would you not love to know how they got that number? Is there any statistical basis? If they saved 472 lives, who was poor "#473?"

In fact, is there empirical evidence that roadside (or any) inspections significantly reduce accidents? Or are the statistics gathered a tribute to inspectors' ability to identify and write up technical offenses that rarely impact safety? Is there correlation between the number of "violations" found – and accidents? Do inspectors feel pressure to find infractions to justify their existence?

Is this bureaucracy's steroidal response to a non-existent problem? There are at least 10 states that do not require any annual auto safety inspections. Do they have more accidents than Pennsylvania where they used to require two inspections a year? That might not translate directly to commercial vehicle safety, but it sure would offer some insight as to whether we are chasing a real problem.

Here is an interesting statistic based on facts: The National Transportation Safety Board reports that almost half of all interstate accidents in Illinois occur at toll plazas and (sic) three times as many died in them as accidents on the road.*

In Pennsylvania, another state with tolls, one-third of all accidents happened at toll plazas. A University of Central Florida investigation into accident statistics from 1994 to 1997 finds that 31.6 percent of crashes occurred at 10 toll plazas in the state and 46.3 at the 38 toll booth ramps. An E-pass only increased the accident rate.

Holy Cow, has the NTSB told FMCSA about this? I betcha if we eliminate toll booths, we could save good ole "#473" and probably many more. Gee whiz, without tolls we can not pay for road improvements that save lives.

This is so confusing – maybe if they actually used tolls and fuel tax the way they said they would?

The implication here is not that there should be no regulation or enforcement. The point is that government types (being human) tend to do what is expedient, without being sure it works. When they are confronted, they produce reams of self-fulfilling statistics supporting their cherished pro-

grams. For centuries common wisdom told us that the earth was flat, and "scientists" produced convoluted astronomical calculations supporting that view.

One wizened executive told me that mechanical problems were only factors in about two percent of commercial motor vehicle accidents. How do we get at the more serious 98 percent?

Maybe it is anecdotal, but my view is that most accidents are caused by speeding, tailgating and abrupt lane changes. No amount of inspection will influence that behavior. If we are serious about safety, we would be patrolling more and inspecting less. That is harder work, and when a police officer stops a bus, in addition to disciplining the driver, they have to deal with passengers.

I am not sure how to prod local and state authorities into shifting resources to more actual policing. One possible consequence is a commercial vehicle version of the old speed traps, and that would not be good. Currently there are incentives to inspect and create all sorts of statistics that are pumped into a database that even Congress has decided is flawed.

Absent some real data (like the names of the 472 folks who were saved, or more likely the methodology used to determine that number), the FMCSA claim has the feel of either fiction or wishful thinking.

Until we do a better job of patrolling and ticketing drivers who do the things that cause most accidents, we are spinning our wheels, and perhaps imposing capital punishment for misdemeanors.

Is there any evidence that roadside inspections significantly reduce accidents? There is a case for patrolling more and inspecting less. This Setra was photographed outside of Las Vegas, Nevada. SETRA/DAIMLER.

The current regulatory environment imposes a crushing burden of compliance on operators – both in terms of preparing for audits and inspections of unproven worth, and worrying about regulators possible hidden agendas – the need to find something wrong.

Giles Corey was "pressed" to death in Salem. More and more rocks were piled on him, in an effort to get him to confess to witchcraft, a crime that did not exist. Many operators I know seem to feel a bit like Giles.

But, there has not been another conviction for witchcraft in Salem since 1693. ❑

*http://www.floridatruckaccidents.com/blog/tag/design-safety-standards

The National Safety Board reported that almost half of all interstate accidents in Illinois occur at toll plazas and that three times as many people died on them as accidents on the road. This particular toll plaza is located northwest of Chicago on the tollway to Rockford. NBT.

Demography and the Bus Industry

Population Shifts, Cities and Numbers

by Larry Plachno

Some of the researchers and demographers are talking about "The Great Sorting of America." In 2021, more than one million people left New York, California, Illinois and Michigan for Texas, Florida and other states with smaller cities. There may be several reasons for this, but the numbers are noteworthy and impressive. This photo was taken in Manhattan adjacent to Central Park. NBT.

Many if not most industry experts have said that the bus industry will not come back the same after the pandemic. Now it also appears that our country will also not come back the same way it was. Some people say that the pandemic is over while others feel that it may never be over and we may need regular shots for Covid like we have for the flu and pneumonia. There are also suggestions that Omicron should not be counted in the same numbers as the regular Covid reports since it is so much milder.

Meanwhile, much has been going on in our world. At least two major predictions seem to have fallen apart. One was the forecast that huge numbers of people would take to private cars to maintain social distancing while the other was that more people would flock to the cities. Both of these have failed to materialize, at least for now. Here are a list of important trends we see that may be of use. Knowing what is going on may help bus company managers in planning for the future.

Population Shifts

While some of this was obvious in the past, there appears to have been a major escalation in 2021 that some are calling "The Great Sorting of America." As one writer put it, " . . . the blue states are hemorrhaging people at an alarming rate." Most are coming from major cities in New York, California and Illinois. If you add in Michigan, those keeping track say that about a million Americans have left these states in 2021. They are generally going to smaller cities and rural areas in mostly red states with Texas and Florida at the top of the list plus Arizona, North Carolina, Georgia, South Carolina, Utah, Tennessee, Idaho and Nevada.

There is no one single reason for this. The move could be as innocuous as a retired couple moving to be closer to their children. Others are leaving because of high taxes and anti-business attitudes. There are also people escaping from government mandates including Covid shots and masks. Some are unhappy with crime, transportation, congestion and the high cost of living in the big cities. As more than one commentator has noted, people are "voting with their feet."

While this seems to be mainly impacting the big cities in blue states, it does reflect in part some general attitudes across the nation. Many Americans seem to be unhappy with government as well as its mandates and directions. The approval rating for government is at the lowest level it has been for a long time.

How will this population movement impact the bus industry? The obvious concern is that this will reduce the number of workers as well as the number of people paying taxes in these areas in the future.

Of the states mentioned, I am most familiar with Illinois. A recent report suggests that 10 percent of the state's population is depen-

dant on the pension program for state workers. The pensions are not only underfunded but also an ongoing reason for reducing expenditures elsewhere and raising taxes. This creates a vicious circle where increasing taxes drives away the jobs and people who pay those taxes.

Cities

For years it was predicted that people would increasingly be moving into larger cities. Why is the opposite happening? The answer is that there is no one answer. As mentioned earlier, there are various reasons why people are becoming disenchanted with big cities. Included are high taxes, the high cost of living, anti-business attitudes, crime and congestion. Some people have suggested that bigger cities have more difficulty dealing with transmitting germs while rural areas do better because of "natural social distancing."

Transportation is high on the list of concerns. Several reports have noted that bus and subway ridership has declined with reports suggesting that riders have been lost to Uber and Lyft. In addition, there are people no longer commuting because they want to continue working at home while others have simply given up and retired or left the work force. There are transit operations that have declined so badly that it costs more to collect fares than what it brings in. A few have simply given up collecting fares from passengers.

Some have said that it may be time to change our public transportation system. Among other things, streets have become so crowded in major cities that traffic is badly congested and city officials talk of restricting access to certain areas. There have been suggestions of taking to the air in helicopters or some type of hovercraft to zoom over the congestion. However, commercial aviation is already heavy above major cities and putting more people overhead could lead to disaster. This kind of thing would be more practical in rural areas where the skies are more open.

How could transportation change to make big cities more viable? There are suggestions of using people movers on elevated or underground routes to avoid problems on the surface. A system that would allow the passenger or passengers to push a button and select their destination would be ideal. More than one person has noted that Chicago has old underground freight tunnels in the downtown area that might be used for this.

An interesting side note to all of this is that the handicapped are complaining that autonomous automobiles are too slow to arrive. Arguably, the biggest beneficiaries of autonomous automobiles would be the people who are unable to drive themselves.

This recent major movement of people concentrated on relocating to Texas and Florida as well as Arizona, North Carolina, Georgia, South Carolina, Utah, Tennessee, Idaho and Nevada. Included in this group are a number of red states as well as states with moderate climates. It was noted that there might be different reasons for this major movement of people. PAUL BRENDAN.

However, in spite of a great deal of research and experimentation, true autonomous vehicles are still somewhat elusive on a general basis.

Perhaps the good news is that transportation seems to do better outside of the cities. At least part of this is because the distances involved tend to limit potential competition. Moreover, Ned Einstein has suggested that coaches could compete with commercial aviation on shorter routes. On the other hand, the longer distance service will have difficulty converting to electrical power since long distance passengers would be unhappy about stopping to recharge.

Numbers

The last item on our list is the demographic numbers, increasingly known as the Demographic Crisis. Essentially all developed countries have or are starting to have problems because of reduced birth rates. It is interesting that some of the demographers trace this back to the 1930s and the introduction of Social Security. Prior to then, families tended to have more

Columnist Ned Einstein suggests that bus operators might want to look at competing with airlines on shorter routes. Buses have several advantages including on board Wi-Fi and no waiting in lines for security checks. In addition, buses can operate from downtown to downtown, reducing the need for rental cars and travel to and from the airport. LARS NISSEN.

children who could take care of mom and dad in their old age. Although people began to depend on Social Security, they forgot that we still need children to grow up and pay into Social Security.

Some people are calling Social Security a Ponzi Scheme that failed. When originally created, there were considerably more working people than retired folks. The demographics of our population at that time was shaped much like a pyramid with a big base of newborns at the bottom and fewer retired people at the top. However, as our birthrate declined, the base of the pyramid got smaller and smaller. Today, it would be shaped more like a diamond on a playing card. We have a lot of retired folks taking money out of Social Security and fewer younger folks paying in. This will cause major problems in the future.

There may be pros and cons on this for the bus industry. An increasing number of retired folks will help the bus tour business, a trend that appears to be happening. Hence, bus operations may want to consider running more tours. However, fewer babies also means fewer children and fewer workers. We are already seeing the start of this in some places which has not been helped by people leaving the work force or early retirements because of the pandemic. In transportation, we are looking for truck and bus drivers, but we are also seeing a shortage of people in restaurants, postal workers and elsewhere. Unless we increase our birthrate, this problem will only get worse in the years ahead.

An interesting concern voiced by some is borrowing from the future. The recent Infrastructure Act may help transportation in many ways, but some question borrowing from the future at a time when it appears that our future involves fewer people paying taxes. One would think that it would make more sense to build up a reserve for those future times when less money is available.

Now you have a list of trends that could be useful in making future decisions as the bus industry moves back closer to where we were. Hopefully, some of these items will prompt some thought on future planning options. ❑

There are increasing concerns about city transit bus operations. In some cities, Uber and Lyft have reduced transit ridership. There are even cities giving up collecting fares because the cost of collecting exceeds the revenue. BRUCE EMMERLING.

Finding bus drivers has become an increasing problem with both transit and coach operations. Several people either retired or left the work force during the pandemic while others moved to different industries. It also does not help that our low birthrate contributes to lack of driver applicants. MAN.

Bus of the Month

Ebusco 3.0 Electric Bus

Ebusco 3.0

Ebusco leads the electrification of public transport with their ground-breaking, zero-emission, battery-electric buses. They have done this by overcoming the obstacles to electrification through innovation and design. Since 2012, Ebusco has been producing 100 percent zero-emission, fully battery-electric buses and is the first European company to receive a European WVTA certificate for a fully electric bus. With the introduction of the Ebusco 3.0 Carbon Fibre and Composite bus, it is the first company in the world to deliver fully electric buses with a total cost of ownership (TCO) lower than diesel and CNG buses. In 2021, Ebusco made its first appearance in North America at APTA's transform conference and expo. Great interest was received by industry operators when Ebusco showed their brand new Ebusco 3.0.

Ebusco develops its most important hardware and software innovations in-house, with an extensive team of engineers, product developers and dedicated R&D professionals with considerable expertise in aerospace and automotive production. Ebusco has redefined production processes for capital-efficient, scalable production, which ensures flexibility and speed for following market developments and quickly seizing opportunities. With the help of strong, long-term partnerships with various parties in the supply chain, Ebusco can boost manufacturing flexibility and reduce risks. The management team has expertise in design, development and production, combined with a very strong knowledge of customers. The team has successfully introduced ground-breaking aerospace technology to the public transport market.

The Ebusco 3.0, designed to be a gamechanger in the electric bus industry

A multifunctional team of key experts in the fields of aerospace, automotive and electronics, has developed an innovative, fully electric bus that goes beyond all existing boundaries and redefines the world of public transportation: Ebusco 3.0.

Ebusco's new bus smashes the barriers of current bus design in the drive for sustainable public transport. Not only by using composite materials in the main structure of the body, but also in its approach to focus the design on passenger comfort, operator support and total cost of ownership. Ebusco has been able to take the low-floor design to the highest level. By opting for two smaller electric motors close to the wheels, there is plenty of room for the drive train. This also allows for more room for passengers around the rear axle, but better yet, a completely flat floor from the driver to the rear seat. The lightweight body allows for the rear axle to have single wheels instead of the usual double wheels. Next to lower rolling resistance, this provides more room for passengers. Furthermore, the freedom of form of composite has made it possible to make the bus slightly rounded, giving it its spacious design.

Why Ebusco 3.0?

Peter Bijvelds, Ebusco's founder and CEO, once said: "We started Ebusco nearly a decade ago on the strong belief that electric transport is the future. With a sole focus on electric buses and charging systems, we have developed the Ebusco 3.0, a revolutionary and unique bus that is a genuine game changer in our industry worldwide designed using aerospace technology".

The Ebusco 3.0 is approximately 27 percent lighter than the next lightest electric bus of Ebusco's key competitors, enabling a single-charge range of up to 357 miles (about the length of New York State), which is approximately 55 percent longer than the next best competitor, and an estimated average life span of 25 years, which is 67 percent higher than the next best competitor. Together with its cobalt-free battery technology, the Ebusco 3.0 is a very cost-efficient electric bus. ❑

EBUSCO 3.0

Not constrained by a past reliant on fossil fuel, Ebusco has a ground-breaking and unique approach to developing electric buses. A multifunctional team of key experts, who have earned their spurs in the field of aerospace, automotive and electronics, has developed an innovative fully electric bus which goes beyond all existing boundaries to redefine the world of public transportation: Ebusco 3.0.

Ebusco's new bus breaks the barriers of current bus design in our drive for sustainable public transport. Not only by using **composite materials** in the main structure of the body, but also in its approach to focus the design around passenger comfort, driver support and Total Cost of Ownership. Last but not least, it contributes to make the world we live in a safer and healthier place.

UP TO **575 KM**

WEIGHT REDUCTION **27%**

LOWEST **TCO**

EXTENDED LIFESPAN **UP TO 25 YEARS**

PASSENGER COMFORT & SAFETY

Revolutionary design: more comfort due to the spacious and luxurious interior;

Considerable noise reduction

Fully flat floor throughout the bus, allowing for maximum window size;

Panoramic window in roof as batteries are all mounted in the floor;

Increased freedom of movement, flexibility, passenger flow and timely operation of the bus due to an increased interior width, of up to 90 cm, between the wheel arches;

Excellent visibility throughout the bus due to the spacious design and increased natural incidence of light.

DRIVER SUPPORT

Outside mirrors are replaced by cameras, increasing the safety and aerodynamics of the bus;

Automatically adjustable driver seat, dashboard and camera mirror systems 'fit' the driver's workplace around the driver;

Low centre of gravity as batteries are hidden in the floor, ensuring excellent straight line stability and exceptional steerability.

REDUCED TOTAL COST OF OWNERSHIP

The Ebusco 3.0 is designed for overnight charging due to its light weight and high efficiency, offering a maximum flexibility in daytime route adjustments and allowing for charging during lower night-time energy rates;

A full composite body reduces maintenance costs considerably and extends the operational life span of the bus up to 25 years;

The light weight design increases its range substantially (up to 575 km).

SPECIFICATIONS

Ebusco 3.0	12M	18M
Body type	Low entry / Low floor	Low floor
Door configuration	2 doors / 3 doors	3 doors / 4 doors
Passenger capacity	Up to 95 persons	Up to 160 persons
Kerb Vehicle weight	8530 kg	14500 kg
Length	12000 mm	18000 mm
Width	2550 mm	2550 mm
Height	3200 mm	3200 mm
Floor to ceiling height	2350 mm	2350 mm
Step-in height	340 mm	340 mm

Electric drive		
Maximum range	Up to 575 km	Up to 575 km
Rated voltage	AC 3-phase 400V	AC 3-phase 400V
Maximum power	2x 125 kW	2x 125 kW
Maximum Torque	22.000 Nm	22.000 Nm

Batteries		
Cell chemistry	LFP	LFP
Cell capacity and voltage	105 Ah, 3,2V	105 Ah, 3,2V
Pack capacity	>250 or >350 kWh	>350 or >500 kWh

Axles		
1st Axle Capacity	8200 kg	8200 kg
2nd Axle Capacity	10350 kg	10350 kg
3rd Axle Capacity		10350 kg

Survival and Prosperity

by Ned Einstein

Survival and Prosperity
Part 1: Magic Corridors

Yes, there are still some opportunities for the motorcoach industry to get back on its feet. This series of installments will provide some new ideas – beyond those discussed briefly in a few previous NATIONAL BUS TRADER articles (see Parts 1, 2 and 3 of Motorcoach Survival in the Age of COVID-19 in the May, June and August 2021 issues: https://transalt.com/article/motorcoach-survival-in-the-age-of-covid-19-part-1-roles-and-opportunities/; https://transalt.com/article/motorcoach-survival-in-the-age-of-covid-19-part-2-on-the-road-again/, and https://transalt.com/article/motorcoach-survival-in-the-age-of-covid-19-part-3-the-end-of-charter-and-tour-service-for-now/.

Competing with airlines in corridors not serviced by AMTRAK.

Frankly, the opportunity outlined below was here all along: Competing with airlines in corridors not serviced by AMTRAK. It was just never optimized. Not that AMTRAK is exactly competitive either: At far higher prices, AMTRAK is rarely faster than motorcoaches. Confined to selected freight rail track alignments, it is too inflexible to compete with motorcoach services in terms of coverage and too costly to compete in terms of frequency.

A trip from Chicago to St. Louis takes about six hours by AMTRAK. A trip from Chicago to Austin, Texas takes 28 hours. While AMTRAK has been spreading COVID-19 like our West Coast wildfires (see "COVID-19, Shenanigans and Liability, Part 2: Making Money by Compromising Health" in the January, 2021 issue of NATIONAL BUS TRADER – https://transalt.com/article/covid-19-shenanigans-and-liability-part-2-making-money-by-compromising-health/), this is nothing compared to what the airline industry has been doing lately (see https://transalt.com/article/expanding-the-mode-split-dividing-line-part-1-exponential-airline-industry-corruption/).

Now that AMTRAK has been granted a king's ransom by the passage of the recent infrastructure bill – $68 billion, when only years ago the railroad received annual subsidies of about $1.5 billion – it may expand to further reduce opportunities for motorcoach services to compete with it. This is true even while I suspect much of this money will be used simply to upgrade freight rail tracks. This dynamic will help AMTRAK spread more COVID variants. At least for now, the opportunities for motorcoach growth lie in competing with commercial airlines in those corridors in which AMTRAK does not operate. This opportunity is vast. Beyond some justifiable alignments like the Northeast corridor, most AMTRAK routes simply connect a hodgepodge of major and minor cities. The balance of the nation's cities lie unserved, on a large scale, by anything but commercial airlines.

Politics and Policies

While free enterprise can accomplish much without help, it can accomplish far more with it. Among the most important transportation concepts to emerge during the 1970s was the "500 Mile Rule." This concept would have prohibited commercial flights between cities closer together than this distance. Of course, rather than refine the concept (e.g., perhaps 500 miles were too much), it was abandoned altogether. This abandonment left us with aberrations like flights between Washington, D.C. and Philadelphia, Los Angeles and San Diego and Seattle and Portland. It gets worse – Denver and Cheyenne, Albany and Rochester, Chicago and Milwaukee and on and on. Of course, some of these flights are connecting flights. Otherwise, the travel time is triple or quadruple that of motorcoach travel, or worse, as one factors in the time wasted getting to and from the airport compared to the nearest motorcoach stop. (Forget about making reservations, arriving 90 minutes early, going through security, flight delays and waiting in lines to purchase grossly-overpriced fast food in the concourse – just to name the most obvious aberrations.)

With all these gross imbalances, such flights are allowable. We are free to take them – to the detriment of services that could provide them far more cost-effectively (in some cases exponentially so), far more quickly, far more efficiently, consume a tiny fraction of the energy per passenger, and produce a minimal amount of pollution by comparison. Freedom is not endless. We cannot litter. In most urban areas, we must walk our dogs with plastic bags and pick up their feces. (Urine jars are not yet required.) Yet, we condone extraordinary waste that dwarfs such efforts.

The motorcoach industry will have to tackle this challenge without help.

Freedom is not a right. Nor is it free. It is a policy decision. Such travel options reflect a clear, irrefutable policy failure. Unfortunately, in our political system, the clout of the airline and energy industries smother gnats like the motorcoach industry. In the bigger picture, these distortions of time and space – with their exorbitant waste and other dysfunctional consequences – also undermine our ability to develop a rational hierarchy of public transportation modes (what the transit industry calls a "seamless transportation system"). Without any coherent or responsible thinking at the policy-making levels, the motorcoach industry will have to tackle this challenge without help. Fortunately, we can.

Magic Corridors

All Americans are not stupid. Plus, we have this thing called marketing. Occasionally, we get press and media coverage – particularly when the subject matter reflects dramatically-skewed reality. One finds a long article a week about such things in *The New Yorker*, but readers of NATIONAL BUS TRADER will get one right here.

The lack of AMTRAK service in most corridors means that motorcoaches need compete merely with airlines.

Forgetting about the often obsessively-subsidized AMTRAK corridors (subsidies per one-way passenger trip were as high as $422.39 according to a 2013 study of 20 lines), most somewhat-direct paths between pairs of major cities do not "enjoy" AMTRAK service – at least not yet. At least the airlines

keep the passengers in their seat belts until the plane has come to a complete stop. (Passengers riding on the upper deck of AMTRAK cars are encouraged to descend the steps while the trains are braking as they approach the stations.) Regardless, the lack of AMTRAK service in most corridors means that motorcoaches need compete merely with airlines. In the Land of Reason, this competition is child's play.

Even forgetting about the stupid airline trips one can take cited above – between pairs of cities not served directly by AMTRAK – it is easy to identify a considerable number of trips between cities slightly further apart than those cited above for which travel by motorcoach makes infinitely more sense from any and every perspective. (The single exception might be that rare passenger residing, or staying in a hotel, on or near the airport grounds, and traveling to and from a visit or meeting in a similar facility at the other end of the trip.). As an illustration for folks who like round numbers, here are ten examples:

1. Dallas to San Antonio (279 miles, 4½ hours of highway travel time)
2. Nashville to Memphis (212 miles, 3¼ hours of highway travel time)
3. Miami to Tampa (282 miles, four hours of highway travel time)
4. Buffalo to Detroit (256 miles, 4¼ hours highway travel time)
5. Atlanta to Savannah (248 miles, 3¾ hours highway travel time)
6. Kansas City to Omaha (187 miles, 2¾ hours highway travel time)
7. Detroit to Columbus (203 miles, 3¼ hours highway travel time)
8. Albuquerque to El Paso (266 miles, four hours highway travel time)
9. Richmond to Raleigh (170 miles, 2½ hours highway travel time)
10. Montgomery to Tallahassee (211 miles, 3½ hours highway travel time)

With minimal coordination, one rest stop at a nice restaurant would elongate the trip by perhaps 30 minutes. Keep in mind that one no longer gets any meals on even coast-to-coast flights any more. (There may be some exceptions for first-class passengers on some airlines.)

Many corridors are begging for alternatives to airline travel.

Otherwise, most of these trips lie in the same states. For those readers with a limited grasp of U.S. geography, these are major cities, between which 10 million people likely travel every year. Regarding the list below, planners have, for decades, been considering a high-speed rail line between Los Angeles and Las Vegas costing $8 billion. Construction on Brightline West is expected to begin this year. Many corridors are begging for alternatives to airline travel. We seem willing to squander bundles of money to accommodate them when subsidy-free solutions lie at our fingertips.

To place these hypothetical-yet-likely trips in perspective, 10 million people would fill up 175,000 57-passenger motorcoaches. If even 10 percent of these trips were provided by motorcoach, this number would fill up 17,500 motorcoaches. If they traveled every day of the year, we would need about 50 motorcoaches a day. This number grossly underrepresents the mode split if the motorcoach industry made intelligible adjustments. Plus, this figure applies to only a single pair of cities. One studying a map of the U.S. alongside a map of AMTRAK routes would easily find 50 similar pairs of major cities (although many of them not as large as the ones cited above) not served directly by AMTRAK. With a similar mode split, this would translate into 2,500 motorcoach trips a day. Yet there are only 33,000 motorcoaches in the entire country – and many are deployed by transit agencies in commuter/express service. Many others provide charter and tour service from cities of all sizes to often out-of-the-way places with no intercity coach service whatsoever. I am talking about a mode split from the airlines of only 10 percent. If we were to increase this split, where would we get the vehicles? To some degree, the shortage of motorcoach services, or the public's lack of awareness about them, likely accounts for some percentage of these foolish airline trips – particularly in corridors vastly underserved by motorcoach service.

If we modified motorcoach vehicles intelligibly (see Part 2 of this series, coming in National Bus Trader, March, 2022), we would attract even more passengers. We could charge them considerably higher fares. The vehicle modifications mean that we would need even more of them. If we modified them intelligibly, even longer trips would make sense. Relying once again on round numbers, two lists of five pair of cities each make sense for this type of trip – defining both ends of the envelope (300 to 750 miles) for which air travel is senseless for many who use it. A sample of relatively short trips (for which airline travel makes little sense even without the sleeping component) might include:

1. San Diego to Phoenix (355 miles, 5½ hours of highway travel time)
2. Des Moines to St. Louis (349 miles, 5½ hours of highway travel time)
3. Oklahoma City to Little Rock (339 miles, five hours of highway travel time)
4. Los Angeles to Las Vegas (269 miles, 5¼ hours of highway travel time)
5. St. Paul to Milwaukee (327 miles, five hours of highway travel time)

A much, much longer set of trip pairings would be possible with passengers sleeping on board during a "night-and-owl" run. A small sample includes:

1. San Francisco to Portland (635 miles, 11 hours of highway travel time)
2. Santa Fe to Austin (703 miles, 11 hours of highway travel time)
3. Pittsburgh to Atlanta (705 miles, 11 hours of highway travel time)
4. Charlotte to Miami (739 miles, 11 hours of highway travel time)
5. Denver to Las Vegas (749 miles, 11½ hours of highway travel time)

Truth and Consequences

Would a traveler from Europe, South America, Asia or Africa wishing to visit two U.S. cities this far apart want to step on another flight as stupid as one connecting any pair of these destinations? Would such a traveler not want to look out the windows and catch a glimpse of the often breathtaking American countryside for at least part of the ride? Would he or she miss checking into yet another hotel or motel and everything that comes with it? Would he or she miss the reservation holocaust of broken Web sites and no telephone service? Would he or she cherish the inflexibility of pre-scheduling his or her entire tourist experience? Since a rational traveler with or without means likely would not, this notion has implications for international advertising.

In Part 2 of this series, I will outline the salient features that a vehicle might contain to mode split large numbers of moderate and medium-distance airline trips to motorcoach travel. I will ballpark the radical differences between traveling via one mode versus another in terms of fares, as well as a long list of striking comfort and convenience factors, and other considerations. Of course, this discussion will compare totally unsubsidized trips using existing infrastructure (roads) with those requiring enormous infrastructure costs (airports and tarmacs). God forbid we should consider subsidizing something exponentially superior in this and countless other ways.

As National Bus Trader readers familiar with my writing should expect, I will include a juicy set of comments about both the advantages of this mode split and the cost of our failure to effect it. The former will be breathtaking. The latter will be ugly.

The opinions expressed in this article are that of the author and do not necessarily represent the opinions of National Bus Trader, Inc. or its staff and management. ❑

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1940s White Model 788 or 798 wanted. 12 cylinder engine mounted under floor midship. Would like a complete original bus, but like to hear about parts buses. Contact Howard Lane, Hardwick MA 01037 at (413) 477-8790 or howard.lane@comcast.net. ☆

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MCI MC5A '67 (shell). 8V-71, 4-speed. For sale to highest bidder. Call (928) 358-6415 or (505) 713-9242 in AZ. ☆

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1956 Flxible coach – old conversion. Phone (802) 948-2886 in VT for details. ☆

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10 – PARTS AND EQUIPMENT

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14 – NOTICES

Visit our 40+ vintage bus collection most Saturday mornings at Lakewood NJ Bus Terminal. Join: Friends NJ Transport Heritage Center ($30 annually). See/learn: www.friendsnjthc.org. ☆

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Down The Road

Coming events of interest to readers of NATIONAL BUS TRADER. Submissions for the department should be directed to the editor. Unless otherwise indicated, events are not open to the general public.

February 23-27, 2022. **UMA Motorcoach Expo 2022.** Long Beach, California. For more information view motorcoachexpo.com.

March 21-22, 2022. **Pennsylvania Bus Association Marketplace.** Liberty Arena, Williamsport, Pennsylvania. For more information view pabus.org.

March 23-26, 2022. F**MCA's 104th International Convention and RV Expo.** Pima County Fairground, Tucson AZ 85747.

August 24-27, 2022. F**MCA's 105th International Convention and RV Expo.** Lincoln, Nebraska.

November 13-16, 2022. **Travel Exchange.** Reno Tahoe, Nevada.

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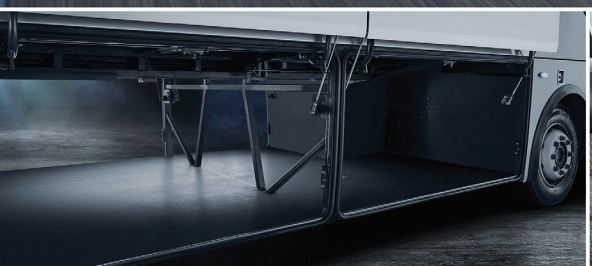

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