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Paying Less for Public Transit Buses

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Executive Summary

Technological change and heightened global market competition have revolutionized the market for private vehicles,[1] and the real quality-adjusted price of a new vehicle fell by 40 percent between 1995 and 2025.[2] However, when it comes to buses—the most heavily used transit mode in the US, which accounted for approximately 3.8 billion unlinked passenger trips in 2024[3]—prices have not followed the same trend.[4]

This issue is important for several reasons. First, transit is crucial for promoting equity, addressing climate change, creating jobs, and fostering economic development. Second, transit buses play a pivotal role in public transit systems due to their flexibility and cost-effectiveness. Third, transit agencies are facing budget crises in the aftermath of the COVID-19 pandemic due to lower ridership and revenue, and many operate aging bus fleets that require significant investment. Finally, if we aim for more effective and better transit options, reducing the costs associated with bus services is essential.

In 1983, *The New York Times* reported that New York's Metropolitan Transit Authority purchased 325 air-conditioned buses for $155,000 each, approximately $503,000 in current dollars.[5] In a dataset assembled by Léa Bou Sleiman, Edward L. Glaeser, and Julia Shephard (hereafter BGS data), the median price paid by US public transit agencies for a diesel bus remains around $500,000. There has been little or no change in these costs over 20 years. Over the past 10 years, despite advancements in battery electric and hydrogen fuel cell technology, prices for zero-emissions buses have either remained stable or increased. Of course, a bus of a given fuel type purchased 10 or 20 years ago is not the same as one bought today—Americans with Disabilities Act compliance, emissions controls, new fare-collection technology, and safety features have been added in the interim. However, when we compare these prices to those of analogous products, this stagnation is striking.

The global auto industry is massive, and companies have strong incentives to not just create exciting new products but also cut costs. Mass production of cars, which began with Henry Ford's relentless attempts to lower the cost of the Model T, has allowed the industry to scale. While Americans bought 15.9 million personal vehicles in 2024, transit agencies collectively procure about 4,500 heavy-duty buses each year.[6] These buses are purchased through largely low-volume, highly customized procurements that are far different from buying a car from a dealership.

Moreover, Buy America requirements limit the US bus industry's integration into the global market. Even though bus companies have responded to the demand for new technologies, like electric buses, we have seen far less success in cost reduction. Outside the US, a 36-foot Hyundai electric bus can be bought for $350,000,[7] and Singapore recently bought 300 BYD electric buses for $333,000 each.[8] But in the BGS data, the median price of an electric bus bought by a US transit agency in 2024 was $1.1 million.

The introductory section of this report sets the scene by discussing three core facts about bus production in America. We then highlight three changes meant to reduce the costs of buses in America: improving incentives for cost containment, encouraging mass production, and enhancing competition.

First, we recommend following the Clean School Bus Program and scaling the amount per bus that federal grants will contribute to the 25th percentile of similar buses. For example, the 25th percentile cost of an electric bus in the BGS data was $897,000. Federal bus grants can cover 80 percent of that target cost, or approximately $718,000. Transit agencies are free to spend beyond the grant, but any costs beyond the target price would need to be covered by local funds. The target will rise by inflation minus 2 percent per year. The 2 percent decline is meant to reinforce the expectation that the price will actually decline over time. The subsequent section discusses this proposal and possible ways to reduce any tendency to game this system by paying bus makers in other ways.

Our second proposal is to use federal grants to nudge toward joint purchases and standardization. We see this as a two-step process. The first step is encouraging small agencies to purchase essentially standardized buses together with larger agencies. The second is establishing a "bus formulary," or a list of bus models that are standard, with set prices that fall over time. This formulary could be maintained either by the Department of Transportation or as part of the General Services Administration schedule. Manufacturers would apply to the formulary, which would start with existing bus models that are particularly common. Then, companies, including non-US companies, could propose adding bus models to the formulary as long as they matched the existing formulary buses along a set of metrics and costs. Priority would be given to agency spending proposals that would purchase buses from the formulary.

Finally, we discuss modifying or waiving certain Buy America requirements to create a glide path for new entrants to manufacture buses in the United States. We propose that if a foreign producer can place a model on the bus formulary, then the producer can sell up to 100 buses manufactured outside the United States. If the buses work well and there is abundant demand, the producer would have to generate an American facility with a domestic supply chain that can produce the bus according to existing rules. Our hope is that this would strengthen America's domestic bus production capacity by leading foreign producers to open factories in the US.

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US public transit buses are expensive and do not appear to be getting cheaper over time. The high cost of US buses is particularly striking relative to buses bought from East Asian companies. Additionally, the US bus industry is now dominated by two companies: Gillig and New Flyer. Transit agencies tend to stick with one of these companies, and, consequently, the companies dominate in different markets.

Moreover, the procurement approach most transit agencies take produces extremely high customization. While we cannot say standardized American buses are consistently cheaper than customized American buses (in part because examples of the former may not actually exist), we find examples of more commonly produced buses that seem to be less expensive.

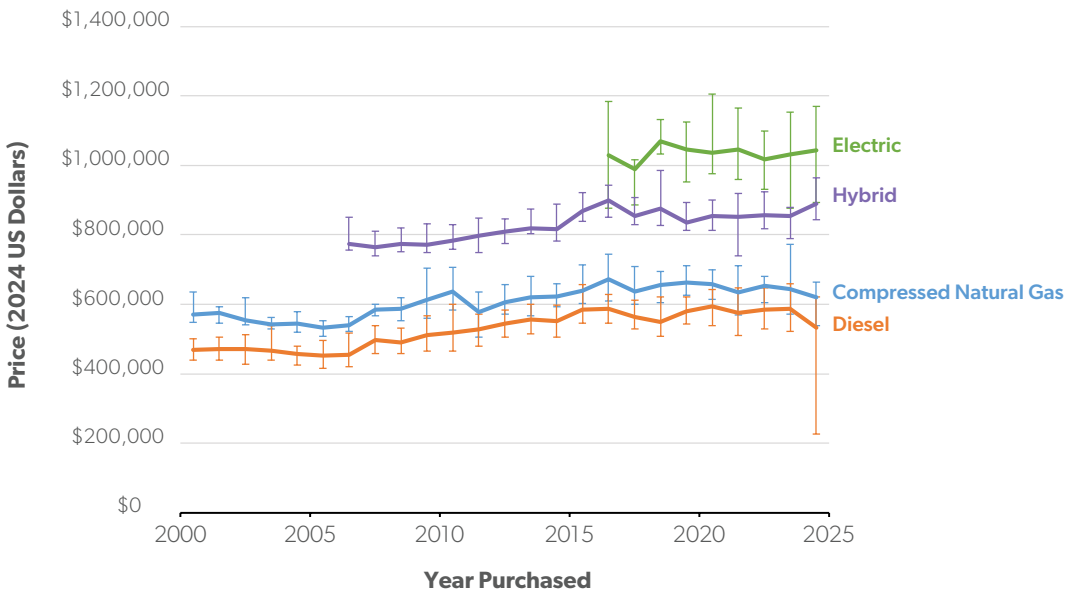
Throughout our analysis, we focus on public transit buses rather than school buses.[9] The latter are often purchased by school districts or separate agencies and are outside the scope of this report.

The State of US Public Transit Bus Procurement

The facts discussed in this section reflect three different data sources. First, a dataset compiled by the American Public Transportation Association (APTA)—the industry association representing public agencies and private companies involved in transit—contains the characteristics and prices of buses that 150 agencies purchased. Second, the National Transit Database (NTD) contains bus characteristics that agencies report to the Federal Transit Administration (FTA). The NTD data include around 800 agencies but no prices.

A final dataset was assembled by Léa Bou Sleiman, Edward L. Glaeser, and Julia Shephard by sending Freedom of Information Act (FOIA) requests for prices to transit agencies in the NTD data. We sent 879 FOIA requests and received comprehensive responses from approximately 200 agencies, which provided us with prices and additional characteristics. Altogether, our dataset contains basic characteristics such as fuel type, manufacturer, and length, for over 180,000 commuter, coach, and cutaway buses; detailed characteristics such as engine manufacturer and accessibility equipment for 130,000 buses; and prices for around 100,000 buses (55 percent of our total dataset) bought between 2000 and 2024. Of these, around 120,000 buses in our dataset are transit buses, while 64,000 of the buses with prices are transit buses. Our analysis focuses largely on transit buses, as smaller buses are often more standardized.

Figure 1. Median Price per Bus by Year (Urban CPI, Adjusted)



Source: BGS dataset.
Note: A contract is defined as a set of buses purchased in the same procurement with the same characteristics. In this chart, bus refers to the codes "bust," "busi," and "bus" in the APTA dataset and all non-articulated, non-coach, non-cutaway, non-truck contracts acquired from FOIA.

The first fact our data show is that US buses are expensive. Figure 1 shows the median price per bus type in the BGS database and the full range of transit buses. The prices are corrected for inflation to 2024 dollars.[10] There is almost no trend in any of the median prices within bus type. The median price of an electric bus hovers slightly above $1 million throughout this period, which may be surprising given the rapid improvements in electric vehicle technology. (A counterargument is that the improvements in the technology led to rising prices, but the same does not hold for heavy-duty electric vehicles.) The cost of a hybrid bus rose until 2015 but has remained relatively constant since then at about $850,000. Diesel buses hover around $500,000, just as in 1983, when New York bought 325 buses from General Motors.

Supply shocks caused by COVID closures are one explanation for a lack of price decrease but do not explain the lack of price trend in the long term. Our data were collected before the imposition of tariffs in 2025. Buy America requirements somewhat limit the exposure of bus manufacturers to these tariffs, since at least 70 percent of components in a bus purchased with federal grant dollars must be domestically sourced. However, costs on remaining materials could induce a further spike.

National price data also support the view that the bus industry is far less dynamic than other vehicle industries. Public bus companies operate in a market where prices remain largely unchanged from 40 years ago. Between January 1995 and January 2025, the Consumer Price Index for new vehicles rose by only 26.6 percent, which, since the Consumer Price Index for all items rose by around 106 percent, means that quality-adjusted real car prices fell by 40 percent over that 30-year period. Over the same period, the Producer Price Index for the real cost of truck and bus bodies rose by 18 percent.

In the BGS data, the range of prices within buses of similar characteristics is striking. In 2023, one agency purchased 65 40-foot diesel buses for around $450,000 per bus, while another bought 10 buses

from the same manufacturer of the same length and fuel type for over $950,000 per bus. Different agencies may be buying buses with high levels of feature variation beyond what we observe. Alternatively, some agencies may be better at handling the procurement process.

These high prices are accompanied by market concentration. In 2019–22, 56 percent of commuter bus contracts (representing 58 percent of buses) in the BGS datasets were made to Gillig and New Flyer. In 2023, the Herfindahl–Hirschman Index for transit buses per our data was 2084 (high concentration), much higher than the general automotive market's estimated 1033 (mild concentration).[11] This concentration has increased relative to 15 years ago. Between 2000 and 2010, these two companies accounted for only 32 percent of commuter bus contracts in the NTD and APTA datasets (and 27 percent of all bus contracts).

Increasing concentration reflects, at least in part, New Flyer and its parent group purchasing rival bus companies, such as Motor Coach Industries International and North American Bus Industries. It also involves a legal component: In 2020, Congress passed legislation restricting recipients of FTA funding from contracting with manufacturers with ties to China, affecting BYD and other international firms that had previously sold to US clients. Finally, concentration appears likely to worsen with the exodus of major market players. Rivaz bought the ElDorado National–California bus company in 2024, the electric bus startup Proterra exited through Chapter 11 bankruptcy in 2023, and Nova Bus, which accounted for 17 percent of transit buses sold between 2019 and 2023, has announced plans to exit the US market by 2025. Importantly, Nova Bus plans to continue to operate in the smaller Canadian bus market, and it cited consistent financial losses as its reason for departure.

Not only do Gillig and New Flyer dominate the bus market, but agencies tend to stick with one of the two. We find that 77 percent of agencies that bought transit buses from New Flyer between 2015 and 2018 also bought transit buses from New Flyer between 2019 and 2022 if they bought at all during the later period. Eighty-eight percent of agencies that bought from Gillig between 2015 and 2018 also bought from Gillig between 2019 and 2022 if they bought at all during the later period.

This stickiness may help explain the dominance of one or the other company in particular market segments. Between 2016 and 2023, Gillig had 40 percent of the Midwestern bus market but only 14 percent of the Northeastern bus market. Over the same period, New Flyer sold over 22 percent of the buses bought in the West but only 11 percent of the buses bought in the Midwest. This regional market dominance appears independent of the two companies' plant locations.

Gillig also dominated smaller agencies, accounting alone for 47 percent of the contracts made with agencies that bought fewer than 20 transit buses in this period. Contracts with smaller transit agencies are particularly appealing for manufacturers to reduce the financial risks associated with a big order going awry. Individual relationships between the companies and procurement officers might also strengthen manufacturers' advantages in particular markets.

A final notable feature of this market is the enormous amount of customization. For example, 68 percent of the transit buses for which we have detailed feature-level data in our APTA dataset differ by at least one characteristic from every other contract, meaning they may have been uniquely commissioned. The ratio of the number of unique specifications to total contracts among transit buses has risen from around 0.45 in 2005 to over 0.7 in 2024.[12] In other words, 70 percent of contracts in the BGS data in 2024 were for unique buses. The median contract size for a unique bus type is for only five buses, which would seem to limit the ability to benefit from economies of scale.

There are several reasons that actors in transit agencies might desire customization. Agencies may value buses that feel consistent with the style of the local transit system—requiring equipment to be differently colored or sized. Bargaining units such as bus driver unions may demand more stringent safety requirements that push up vehicle costs. Accessibility and environmental regulations differ across states, as does the weather. Many of these aims are laudable.

We think it is likely, however, that this culture of customization has gone too far, creating make-work for procurement officials that leads to delays and cost increases. Customization may also reflect excessively close relationships between transit agency decision-makers and component vendors that leads procurement officers to micromanage the supply chain.

While the vast majority of transit buses are produced according to detailed spec sheets, there is some evidence that mass-produced buses can cost less. Grouping buses by their features, we find that distinct buses have cost slightly more than their non-unique counterparts since 2018. The median price of the most sold 40-foot electric bus by New Flyer, the most frequent seller of electric buses in our sample, was 5 percent cheaper than the median price of its other 40-foot electric buses. Bulk procurements are also cheaper; controlling for features, we find that every additional bus in a contract reduces the price per bus by around $140.

Proposal 1: Cost Containment

Basic economics teaches that market ceilings have very different effects on a competitive market versus a market dominated by a monopoly or duopoly. In a competitive market, price caps are generally thought to reduce the quantity sold and lead to shortages. In a more monopolistic market, price caps can actually lead to quantity increases because the monopolistic firm no longer has any reason to cut quantity in order to raise prices.

The relatively concentrated nature of the bus market leads us to believe that price ceilings may be able to cut costs without leading to shortages or material cuts in quality. Moreover, we see price caps as a tool to push transit agencies toward more cost-efficient methods of purchasing buses, such as joint procurement or standardization, as described in the previous section.

There are several models for price ceilings in public bus purchases. Section 8 housing vouchers come with a location-specific payment standard, which fixes the maximum that the government will pay for different types of apartments. The US General Services Administration (GSA) already sets a price ceiling for transportation services used as part of official government travel. Even if a public employee drives the world's fanciest sports car, the US government will reimburse its workers at a rate of only 70 cents per mile.[13] Many countries, including Canada, France, Germany, and the United Kingdom, impose a ceiling on the prices the government will pay for pharmaceuticals. A price limit on public spending per item is conceptually quite far from a price limit on a private transaction because it aims to regulate public officials' behavior rather than distort an equilibrium price.

We begin by describing a mechanism for determining a target price within a product category and then describe the means of encouraging that target price. We end with possible problems with these mechanisms and some tools for limiting those problems. The changes we suggest can be done within the existing Department of Transportation authorities for the two primary competitive grant programs that fund bus procurements—the Grants for Bus and Bus Facilities Competitive Program and the Low- or No-Emission Grant Program. These changes could also be embedded into FTA's Section 5307 Urbanized Area Formula Grants, which are available for a variety of capital investments, including buses.

Under the Infrastructure Investment and Jobs Act, approximately $3 billion is reserved to fund competitive bus grants under these programs through fiscal years 2025 and 2026, and $14 billion is reserved for Urbanized Area Formula Grants in fiscal years 2025 and 2026.[14] Future funding will require additional action from Congress.

This proposal is roughly based on the model employed by the US Environmental Protection Administration's Clean School Bus Program, which specified a maximum federal funding amount per replacement bus purchased under the program. This amount declined over time to reflect anticipated advances in vehicle technology and manufacturing and to incentivize lower prices. Other state-run clean vehicle voucher and rebate programs also include a per-vehicle amount, such as the California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project.

FTA devotes substantial funds to transit agencies for their bus purchases. The federal share of bus purchases can total up to 80 percent or even higher (functionally 85 percent) for certain projects related to Americans with Disabilities Act and Clean Air Act goals.

Under our proposal, FTA would maintain a price list for buses according to propulsion type (battery electric, hybrid, diesel, etc.) and size (40-foot, 60-foot, etc.) based on average prices paid over the past five years. The target prices would represent the 25th percentile of the price distribution conditional on that bus type, adjusted for inflation, as measured by the Producer Price Index for Transportation Equipment corresponding to costs of motor vehicle manufacturing.[15] Prices in this range are in line with those of foreign buses.[16] The federal grant could be used to pay up to 80 percent of the purchase price of buses of that type that cost the target price or less. FTA would include this target price in the Notice of Funding Opportunity published to solicit applications for the bus grant programs, along with other requirements and policy priorities for the program.

At the time of the grant application, the transit agency would need to specify bus type (electric, hybrid, diesel, etc.), size, and a project budget reflecting the target price for buses matching those characteristics, along with other eligible costs like charging infrastructure or workforce development. We expect that agencies will be incentivized to switch to manufacturers selling similar products at lower costs.

Of course, if the agency got less per bus, the agency might decide to purchase more buses to use up the entire grant. In that case, the agency would have put more of its own resources into the purchase. We suspect that this possibility would be helpful in encouraging more frugal behavior.

This program would have risks. A price ceiling could certainly lead to quality problems. Some companies may not want to bid for a lower price. Transit agencies may seek loopholes by compensating the bus manufacturer in some other way to keep the price below the cap. It is impossible to rule out all potential problems, but there are possible safeguards.

First of all, the transit agency itself would have strong incentives to keep quality up since it would have to deal with future maintenance issues. Moreover, bus manufacturers would continue to face stringent performance and safety standards, so we see little risk of major issues. Finally, a company that produces vehicles with regular problems could be excluded from any federally funded procurement, which would seem to generate potent incentives to maintain basic quality levels.

Lower-priced buses would likely have fewer bells and whistles, which some may argue would lead to a degraded passenger experience. However, passenger-facing features are often cheaper than more expensive fundamental engineering choices. We see the price ceiling as an opportunity to force trade-offs and ultimately purchase more buses, which would yield better customer experience through more reliability and frequent service.

Companies certainly may not want to bid at lower prices, but since they would all face the same cap, there would be no competitive disadvantage. We expect that these caps would be met with cost-cutting efforts rather than wholesale exits, at least as long as the price cap were based on a reasonable figure. Since prices under our proposal would correspond to actual prices of one-fourth of buses in the previous five years, they should be feasible to produce for at least some manufacturers. Moreover, many of the remaining producers are completely specialized in the public bus market, which means the alternative to bidding would be going out of business.

We are particularly worried about arrangements in which transit agencies compensate the bus company in some way, such as a long-term service relationship at significantly above market cost. One approach to limiting this would be to include language prohibiting such an arrangement in the bus grant's terms and conditions and provide oversight through existing audits, such as FTA's Triennial Review of major transit agencies. FTA could penalize transit agencies that seemed to be flouting the spirit of the target price grant.

There are three possible ways to let target prices evolve over time. One way is to continue to use the 25th percentile price as a target, again correcting for inflation indexed by the Producer Price Index for Motor Vehicle Manufacturing, but if all prices converged on the price cap, this would no longer be a workable solution. An

alternative is just to let the target price grow with inflation minus 1 or 2 percent, which would also push down prices over time. A third option is to create a global bus price index and tie price changes to that index, perhaps subtracting 1 percentage point.

Proposal 2: Sharing Bus Purchases and Moving to a Bus Formulary

The tendency to favor small orders and customized solutions in the transit industry, although it addresses specific local needs and preferences, often leads to several economic disadvantages that can increase unit costs. In contrast, mass production allows for economies of scale, where the cost per unit drops as production volume rises, since fixed costs are distributed across a greater number of units.

In recent years, Congress, FTA, and the transit industry have all recognized the merits of employing procurement approaches that support greater economies of scale by pooling procurement to increase the size of orders or moving toward more standardization. To date, however, policy changes have focused on nudges and voluntary opportunities that have done little to bring down bus prices.

For example, the Fixing America's Surface Transportation (FAST) Act, passed in 2015, included provisions to give transit agencies new, voluntary mechanisms for purchasing buses through cooperative procurements.[17] The Conference Report accompanying the bill explained that these new authorities would allow agencies with similar needs to pool their procurement requests, increasing the size of the contract and yielding more competition and lower prices.[18]

In response to the FAST Act provisions, in 2020 Washington state developed a suite of statewide cooperative procurement contracts for buses of different sizes and propulsion types, which transit agencies in any state could use. Multiple states and agencies have partnered with Washington to buy buses off these contracts, including agencies in California, Colorado, and Minnesota. In both Washington and its state partners, the median agency that used the contract paid $130,000 less per bus than the median agency that did not use the contract.[19] In principle, a statewide contract could also negotiate quantity discounts to induce larger agencies to use the contract and smaller agencies to pool their orders.

The industry has also acknowledged that high degrees of customization may drive costs and could be remedied with some level of standardization. In January 2024, the APTA Bus Manufacturing Task Force noted that the industry preference for highly bespoke orders "requires specialized engineering, procurement of tens of thousands of individual parts and components, and a unique and highly specialized supply chain. These factors may increase the price of each bus and lengthen the procurement cycle." The Task Force fell short of recommending action, but noted that "the industry might benefit from the development of a limited set of options and floor plans for some major bus systems."[20]

Most recently, in February 2024, the federal government sought to leverage $1.5 billion in bus grants to incentivize transit agencies to employ more efficient procurement approaches and drive down costs. The Notice of Funding Opportunity soliciting applications for fiscal year 2024 competitive bus grants stated,

> In order to support efficient and cost effective vehicle procurements, FTA will provide priority consideration to applicants that identify their intent to use a procurement method that reduces vehicle customization, by either: identifying an intent for a joint procurement with at least three total transit agencies using a common specification; or committing to using a standard vehicle model.[21]

This approach follows different stakeholders' longstanding interest in reducing customization. It follows the logic of mass production and attempts to push agencies to work together to get to economies of scale.

The process generated plenty of proposals committing to joint procurement or standardization: "Of the 117 projects selected, 47 projects totaling $817 million are from applicants that committed to procuring standard model buses or using a joint procurement."[22] For example, the Los Angeles County Metropolitan Transportation Authority is collaborating with communities across Los Angeles County to purchase buses through

a consolidated regional procurement.[23] We do not yet know what will happen to costs because of these joint purchases. Our first proposal, then, is to continue making shared purchases a priority and continue to study their effects.

But we see joint purchases as a starting point to an even more standardized system, which produces a list of bus models that are approved for purchase at a given price. We term this list, by analogy with the lists of drugs that are approved by different insurance plans, the "bus formulary." The bus formulary starts with buses that have been part of a successful joint procurement, like the Los Angeles Metro regional procurement or the Washington state contract. If the bus manufacturer agrees to supply the bus in a timely fashion at a price equal to or below the price in the joint procurement, then this bus is added to the formulary list. A placement on the formulary list also limits the extent of customization that the manufacturer is willing to deliver at the listed price and a small allowance for above base options.

This formulary could be either housed at the Department of Transportation or part of the GSA Multiple Award Schedule, which includes millions of products with transparent prices that have been vetted for compliance with federal regulations. Even if the bus formulary were part of the schedule, the Department of Transportation would still need some involvement related to safety and inspections.

We argue that the Department of Transportation should not try to design a "model" bus, as doing so risks over-specifying. Instead, private companies should be invited to offer models for the formulary. We understand that some ex post customization may occur, as is often the case with cluster purchases, but hope this is limited to small and cosmetic changes.

Future grants could be proposed directly for particular buses on the formulary list. Thus, FTA could directly assess the cost and quality of the buses that a particular grant would produce. This would gradually shift the process of buying buses from the complexity of a procurement auction to the simplicity of ordering from a catalog. It would also provide more certainty to the vehicle manufacturers and their component suppliers. In the beginning, the formulary prices would be capped in real value since prices cannot rise by more than inflation.

Once the formulary list had a credible number of vehicles, more draconian price rules could be imposed, such as requiring that the prices decline in real terms by 1 percent per year. Such standards are similar to embedding yearly battery range improvements in procurement targets, which already exists. Ideally, competition would also engender price cuts, especially if we allowed entry from elsewhere in the world, as we discuss in the next section. Firms afraid of locking in lower prices permanently could be allowed to offer a temporary discount that reverts to the old price at the end of the year.

While the idea is to begin the formulary with buses produced for shared or large purchases, there is no reason to limit the buses on the formulary to that set. Any bus manufacturer that could offer a bus with comparable or better performance to a bus on the formulary and a lower price could add its bus to the formulary list. The bus would need to be tested, but this should make it easier for companies unused to handling transit procurement auctions to enter this market.

Additionally, a coalition of transit agencies, a nonprofit facilitator, or the federal government itself could develop national, performance-based specifications for common bus designs, similar to those developed for passenger rail rolling stock following the Passenger Rail Investment and Improvement Act of 2008. The goal is not to specify the bus design but rather a minimum set of bus features, such as safety. A manufacturer that agreed to produce a bus built to an FTA-approved national specification could be placed on the formulary along with previously sold models.

Perhaps the biggest gains could come from global bus companies submitting their products to the formulary list. We turn to that process next.

Proposal 3: Easing Entry into Manufacturing in America

Our last proposal concerns engendering more global competition in the short run and eventually more production in America. Buy America requirements

for transit vehicles create a high bar for entry into the United States market, even for well-established global companies that have other vehicle manufacturing facilities in the US. To be eligible for federal grant funding, a vehicle must be assembled in the United States, and at least 70 percent of its components and subcomponents must be produced in the United States.

The law does allow FTA to issue waivers under limited circumstances: if the application of Buy America is inconsistent with the public interest, if the product in question is not produced in the United States, or if including domestic material would increase the cost by more than 25 percent. The Biden administration issued time-limited, phased Buy America waivers across multiple sectors, including transportation, arguing that waiving certain Buy America requirements in the short term would support domestic manufacturing in the long term. We propose following the same logic to invite global bus manufacturers to establish operations in the US. Other legal restrictions on transit agencies, such as the prohibition on doing business with certain state-owned enterprises, would remain.

The vehicle manufacturers and component suppliers on which they rely have built an ecosystem over decades to cater to US transit agencies' demands. Normal market competition is unlikely to significantly increase competition and innovation, partly because customization has become the norm and partly because the Buy America rules block foreign competition. But reforming the system presents a difficult set of trade-offs for policymakers. Abandoning Buy America altogether might do the most to improve efficiency but also seems likely to immediately harm the firms and workers that have built a manufacturing presence in nearly every US state. That course of action seems wildly implausible and probably unwise.[24]

Therefore, we propose modifying or waiving Buy America requirements to provide a glide path for new entrants to sell a limited number of buses in the United States under certain conditions, leading to full domestic manufacturing. Initially, this would allow a foreign producer to sell up to 100 buses manufactured abroad if the cost per bus is at or below the target price set by FTA for its grant programs under our first proposal. The company would have to commit to a reasonable maintenance plan to assure the transit agencies about quality and to avoid leaving orphaned buses if that foreign producer did not remain in the US market. After 100 buses, final assembly must occur in the United States, with full Buy America compliance of 70 percent domestic content effective two years after that date.

If the bus formulary is adopted, then it should be possible to be listed on the formulary as a purely foreign producer and switch to domestic production only when a market has already emerged. We anticipate that vehicle companies that already have US facilities, such as Hyundai and Volvo, would be most likely to take advantage of the opportunity to be listed, but the rules should be the same for all potential providers. Any bus bought with federal grant funding would still be subject to the FTA Bus Testing Program in Altoona, Pennsylvania, to ensure that the vehicle complies with US safety and performance regulations.

We think this policy has the best chance of working if America has also reduced the need to customize buses for every agency. There are good reasons why General Motors and Ford stopped producing buses that needed to be customized for each transit agency, and those same reasons would prevent large and efficient foreign producers from wanting to compete in this market. However, if capturing a significant chunk of a large, national market with one or two core models becomes a possibility, then entry into the American market will become more attractive.

This glide path to domestic production could be implemented by changing the underlying Buy America statute or through a general waiver under the public interest justification. A general Buy America waiver for up to 100 buses would make it easier for a non-American producer to enter the US market and compete for a larger contract without needing to start a facility in the US or participate in smaller pilot or demonstration projects to show US agencies that its product would work for them. To further reduce barriers to entry, Congress or FTA could also consider modifications to Altoona testing requirements for the first 100 buses if the imported bus has been regularly used outside the US and has equivalent safety and performance records. If the bus is new, it is harder to see the case for waiving safety testing.

We see this not as a means of permanently replacing US production with production elsewhere. We cannot imagine that occurring given the current political situation. Instead, we see this as a means of attracting globally competitive bus companies to get started in the US market with the hope that they will do so well that they eventually open production facilities in America. This could also encourage established vehicle manufacturers with US plants but global supply chains to consider adding a production line for transit buses. The existing US firms and their congressional allies may protest such a waiver, but we do not see this initial allowance as a major encroachment on market share and believe this would lead to a healthier overall industry.

If we adopted a formulary system, then the approach could be somewhat modified. Following the same rules as US producers, a non-US producer could apply to get a model on the formulary. At that point, Altoona testing would be required because all formulary buses should be subject to the same degree of testing. However, the cap on the number of sales could be modified to adjust to the formulary system.

Instead of a 100-bus cap, the cap would be tied to the fiscal year. A foreign-produced bus could remain on the formulary list for an entire fiscal year, no matter how many buses sold. The Buy America requirement would set in at the end of the year in which the 100-bus limit had been breached. The advantage of a year-based cap is certainty. Bus companies could order a non-US bus and expect it to arrive at the quoted price.

Conclusion

The recommendations above would not solve all the challenges confronting the transit bus industry, but we hope the combination of global competition, greater economies of scale, and fixed prices could enable a far higher level of efficiency in the production of US public buses. If federal funding remained at or near existing levels, transit agencies could purchase more buses at a lower price point, potentially allowing for an increase in the quality, frequency, and reliability of transit service nationwide.

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Notes

1. Paul L. E. Grieco et al., "The Evolution of Market Power in the U.S. Automobile Industry," *The Quarterly Journal of Economics* 139, no. 2 (2024): 1201–53, https://academic.oup.com/qje/article-abstract/139/2/1201/7276495.

2. The quality-adjusted urban consumer price index (CPI) for new vehicles was 139.8 in January 1995 and 177.6 in July 2025. The urban CPI for all items was 150.5 in January 1995 and 322.132 in July 2025. This means that the overall CPI-adjusted urban CPI for new vehicles has decreased from 0.895 to 0.55, a 40 percent decrease. US Department of Labor, Bureau of Labor Statistics, "Consumer Price Index for All Urban Consumers: New Vehicles in U.S. City Average," Federal Reserve Bank of St. Louis, August 12, 2025, https://fred.stlouisfed.org/series/CUSR0000SETA01; and US Department of Labor, Bureau of Labor Statistics, "Consumer Price Index for All Urban Consumers: All Items in U.S. City Average," Federal Reserve Bank of St. Louis, August 12, 2025, https://fred.stlouisfed.org/series/CPIAUCSL.

3. According to the Bureau of Transportation Statistics,

> unlinked trips are total boardings on an individual vehicle. Linked trips refers to the total number of riders and measures the actual number of complete trips from origin to destination, including transfers. Unlinked trips are viewed as a measure of transit utilization (at the system, route, or subroute level), while linked trips are used to measure revenue passengers.

US Department of Transportation, Bureau of Transportation Statistics, "Linked and Unlinked Trips vs. Number of Passengers," September 10, 2012, https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2003/chapter_02 chapter_02_box_page_72.

4. Jared Bonina, *Public Transportation Ridership Report: Fourth Quarter 2024*, American Public Transportation Association, February 19, 2025, https://www.apta.com/wp-content/uploads/2024-Q4-Ridership-APTA.pdf.

5. Ari L. Goldman, "325 Air-Conditioned Buses to Be Purchased by M.T.A.," *The New York Times*, March 16, 1983, https://www.nytimes.com/1983/03/16/nyregion/325-air-conditioned-buses-to-be-purchased-by-mta.html.

6. Nora Eckert, "US New Car Sales Rose to Five-Year High in 2024, Helped by Hybrids," Reuters, January 3, 2025, https://www.reuters.com/business/autos-transportation/consumers-boosted-2024-us-new-car-sales-five-year-high-2025-01-03/; and America Public Transportation Association, *Bus Manufacturing Task Force Recommendations*, January 2024, https://www.apta.com/wp-content/uploads/APTA-Bus-Manufacturing-Task-Force-Recommendations.pdf.

7. Leigh Collins, "Hyundai Has Sold More Than 1,000 Hydrogen Buses Since Launching the World's First in 2019," *Hydrogen Insight*, October 7, 2024, https://www.hydrogeninsight.com/transport/hyundai-has-sold-more-than-1-000-hydrogen-buses-since-launching-the-worlds-first-in-2019/2-1-1720760; and Perplexity, "Overview of Hyundai Hydrogen Buses in Korea," May 2025, https://pragmaticenvironmentalistofnewyork.blog/wp-content/uploads/2025/05/overview-of-hyundai-hydrogen-buses-in-korea.pdf.

8. More specifically, BYD Singapore was awarded a contract for 240 electric buses for S$108 million in November 2023. Using the conversion rate at the time (S$1 = 0.74 USD), we find a per-bus price of $333,308 in November 2023 USD. Singapore Land Transport Authority, "More Electric Buses to Be Deployed from December 2024," press release, November 25, 2023, https://www.lta.gov.sg/content/ltagov/en/newsroom/2023/11/news-releases/more_electric_buses_to_be_deployed.html.

9. We use "transit bus" in line with the definition of "bus" in the NTD: "a transit mode comprised of rubber-tired passenger vehicles operating on fixed routes and schedules over roadways." US Department of Transportation, Federal Transit Administration, "National Transit Database Glossary," under "bus," https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary.

10. We measure inflation using the Consumer Price Index's urban goods basket to compare with other items transit agencies might purchase. Summon Dutta, United States (US) Automotive Market Outlook: Analysis, Share, Trends, Size, Value, COVID-19 Impact, Forecast, Growth, Industry, Revenue & Companies, 6Wresearch, July 2025, https://www.6wresearch.com/industry-report/united-states-us-automotive-market-outlook.

11. US Bureau of Labor Statistics, "Consumer Price Index for All Urban Consumers: All Items in U.S. City Average," Federal Reserve Bank of St. Louis, July 15, 2025, https://fred.stlouisfed.org/series/CPIAUCSL.

12. A unique specification is defined as a bus sold in a given year and of a given fuel type, manufacturer, length, platform height, and vehicle accessibility equipment set.

13. US General Services Administration, "Privately Owned Vehicle (POV) Mileage Reimbursement Rates," https://origin-www.gsa.gov/travel/plan-a-trip/transportation-airfare-rates-pov-rates-etc/privately-owned-vehicle-pov-mileage-reimbursement.

14. Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (2021).

15. US Department of Transportation, Bureau of Transportation Statistics, "Producer Price Indices for Transportation Equipment," https://www.bts.gov/content/producer-price-indices-transportation-equipment-naics-basis-base-date-100.

16. Léa Bou Sleiman compiled a dataset of reports on foreign bus purchases from Europe and Asia, which total 34 contracts. These contracts generally include chargers for electric vehicles. It is difficult to make an apples-to-apples comparison, as US contracts may include worker training to learn to service the vehicle (though they generally do not), and foreign contracts, which we find overwhelmingly on online marketplaces, may be more standardized. However, the sheer magnitude of the listed price difference between foreign and US buses indicates that a real price difference exists.

17. Fixing America's Surface Transportation Act, Pub. L. No. 114-94 (2015).

18. Fixing America's Surface Transportation Act, H.R. Rep. No. 114-357 (2015), https://www.congress.gov/congressional-report/114th-congress/house-report/357/1.

19. These numbers may obscure selection into the joint procurement contract. Controlling for major bus features (type of bus, vehicle length, fuel type, and manufacturer), buses sold in Washington off the statewide contract are more expensive than buses not bought off this contract. The coefficient on an ordinary least squares regression for bus contracts post-2019 in Washington with the above controls is that buying off the state contract actually increases prices by $150,000 ($p < 0.05$; 44 observations). Results for buses sold in other states that use the contract are not statistically significant.

20. American Public Transportation Association, Bus Manufacturing Task Force Recommendations, 6.

21. US Department of Transportation, Federal Transit Administration, "FY 2024 Competitive Funding Opportunity: Low or No Emission Grant Program and the Grants for Buses and Bus Facilities Competitive Program," *Federal Register* 89, no. 27 (February 8, 2024): 8741–53, https://www.govinfo.gov/content/pkg/FR-2024-02-08/pdf/2024-02246.pdf.

22. US Department of Transportation, Federal Transit Administration, "Investing in America: Biden–Harris Administration Strengthens Transit Manufacturing Industry with $1.5 Billion from Bipartisan Infrastructure Law to Put More American-Made Buses on the Road," press release, July 9, 2024, https://www.transit.dot.gov/about/news/investing-america-biden-harris-administration-strengthens-transit-manufacturing-industry.

23. Los Angeles County Metropolitan Transportation Authority, *Senate Bill 125 (SB 125) Zero-Emission Transit Capital Program*, September 30, 2024, https://boardagendas.metro.net/board-report/2024-0172/.

24. BlueGreen Alliance Foundation, the research arm of the advocacy group with the same name that represents labor and environmental interests, produced a map of US transit and rail manufacturing facilities that shows manufacturers and suppliers in every US state except Alaska, Hawaii, and Wyoming. BlueGreen Alliance Foundation, "U.S. Transit Bus and Rail Manufacturing," https://www.bgafoundation.org/programs/transit-and-rail-manufacturing-database/.