

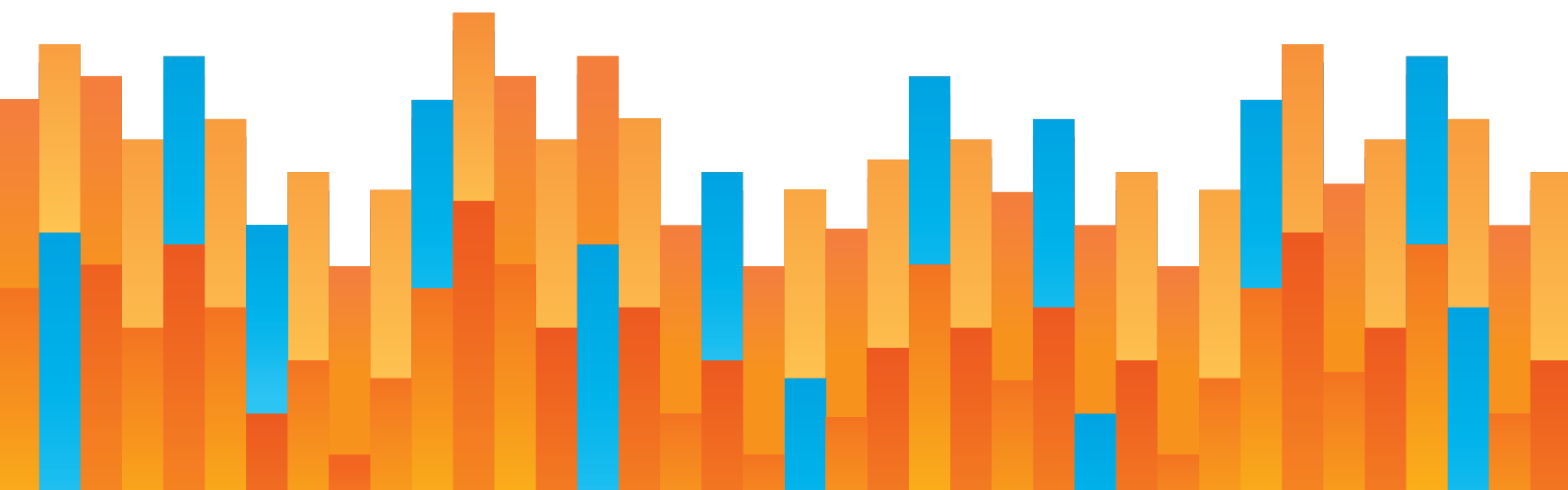


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VANPOOLS: THE FORGOTTEN MODE

by Baruch Feigenbaum

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PART 1

INTRODUCTION

COVID-19 has decimated fixed-route transit ridership. As of January 2021, rail ridership has declined by 80% while bus ridership has declined by 50%.¹ Most experts believe that transit ridership will only recover 70%–90% of its pre-COVID total.² Some bus routes may no longer be feasible to operate. Vanpools, shared vehicles in which 7–15 people travel together to work, have also lost ridership. But those ridership losses have been smaller; further, vanpool ridership is expected to recover more quickly because riders know each other and are comfortable sharing an enclosed space. Vanpools may also be a replacement in areas where fixed-route bus service no longer makes sense.

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Most experts believe that transit ridership will only recover 70%–90% of its pre-COVID total.

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¹ EBP US, Inc. “The Impact of the COVID 19 Pandemic on Public Transit Funding Needs in the U.S.,” *Apta.com*, American Public Transportation Association, 27 Jan. 2021, <https://www.apta.com/wp-content/uploads/APTA-COVID-19-Funding-Impact-2021-01-27.pdf> (13 Aug 2021).

² Laura Bliss, “A Post-Pandemic Reality Check for Transit Boosters,” *Bloomberg.com*, Bloomberg City Lab, 6 May 2020, <https://www.bloomberg.com/news/articles/2020-05-06/a-post-pandemic-reality-check-for-transit-boosters> 13 Aug. 2021.

Vanpools fulfill many of the same policy goals as traditional fixed-route transit. Over the long term most metro areas are seeking to reduce the number of single-occupancy vehicles. The Los Angeles and Washington, D.C. metropolitan areas are two regions that have adopted the explicit goal of increasing the percentage of mass transit users.³ With conventional transit ridership declining, alternative modes such as vanpools will be critical to meeting that goal.

Outside of New York City, transit use is marginal. As Table 1 shows, a variety of different regions had a pre-pandemic transit commute mode share of 5% or less. Transit's nationwide share of 5% is inflated thanks to New York City's 32.4% share.

TABLE 1: COMMUTE MODE SHARE, 2019

| City | Drive Alone | Carpool | Transit | Walk | Cycle | Work at Home |
|---------------|-------------|---------|---------|------|-------|--------------|
| United States | 75.9% | 8.9% | 5.0% | 2.6% | 0.5% | 5.7% |
| New York City | 48.3% | 6.0% | 32.4% | 6.0% | 0.7% | 4.7% |
| Atlanta | 75.5% | 8.8% | 3.2% | 1.3% | 0.2% | 9.1% |
| Buffalo | 80.9% | 7.6% | 3.5% | 2.7% | 0.5% | 3.6% |
| Denver | 74.1% | 8.2% | 4.8% | 2.4% | 1.0% | 8.6% |
| Des Moines | 82.7% | 8.2% | 1.0% | 1.6% | 0.2% | 5.3% |

Source: 2019 U.S. Census Bureau American Community Survey, Table 050801

For many commuters, conventional transit is not a realistic option. In many parts of most metro areas, both residences and employment are dispersed. Transit is most effective when it connects areas of moderate or higher residential density with areas of moderate or higher employment density. Some commuters may live in a high-density community but work in a

³ Luz Lazo, "DC Mayor's Budget Amplifies Goal of Reducing Car Travel in the Nation's Capital," *Washingtonpost.com*, The Washington Post, 11 June 2021, <https://www.washingtonpost.com/transportation/2021/06/11/dc-roads-transportation-budget/>, (13 Aug. 2021).

low-density area or vice versa. As a result, more than 50% of commuters cannot take mass transit in many metro areas.⁴

Even many workers who could take transit choose not to for numerous reasons, such as travel time to station, time spent waiting for a vehicle, longer overall trip time, lack of comfort, perceived safety concerns, and need to use a vehicle throughout the day (for example tradesmen and real estate agents).⁵ And many forecasters predict that COVID-19 has changed the world of work by increasing the percentage of commuters who will work from home. These changes call for a reconsideration of a mode forgotten by many planners: vanpools.

⁴ Adie Tomer, Elizabeth Kneebone, Robert Puentes, and Alan Berube, "Missed Opportunity: Transit in Jobs in Metropolitan America," Brookings Institution, 2011, https://www.brookings.edu/wp-content/uploads/2016/06/0512_jobs_transit.pdf (13 Aug. 2021).

⁵ Jeff McMahon, "Top Eight Reasons People Give Up On Public Transit," *Forbes.com*, Forbes Magazine, 6 May 2021, <https://www.forbes.com/sites/jeffmcmahon/2013/03/06/top-eight-reasons-people-give-up-on-public-transit/?sh=63963f4cfd84> (13 Aug. 2021).

PART 2

OVERVIEW OF VANPOOLS

Vanpooling is different from the most common shared-vehicle arrangement, carpooling. In carpools two or more people share a vehicle from a residential area to an employment center. Carpools are not a formal entity; typically, they are not organized by an outside entity. And overall, as Table 1 indicates, despite 50 years of policy encouraging carpool formation, the share of commuters carpooling declined from 19% in 1980 to less than 9% in 2019. Federal policy encouraging the creation of high-occupancy vehicle (HOV) lanes has failed to stem the decline.

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Fifty percent of carpools are family members riding together (commonly referred to as fampools). And carpools seldom fill all seats in the vehicle.

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Additionally, many carpoolers are not the “classic” definition of neighbors or friends sharing a vehicle. Fifty percent of carpools are family members riding together (commonly referred

to as fampools). And carpools seldom fill all seats in the vehicle. While carpools can have up to five members, the vast majority (more than 75%) have two members.⁶

Vanpools are ride-sharing arrangements among participants, using a van for commuting to their place of employment.⁷ Between seven and 15 passengers travel in a vehicle from their homes to a common employment destination. Vanpools are organized and run under several different models. Vanpool programs can be operated by employers, transportation management associations, the government, or private providers.

Vanpooling began in North America in the mid-1960s and developed in the U.S. in the 1970s during the oil embargo and resulting increases in gasoline prices.⁸ With rising energy costs, vanpooling expanded quickly in the U.S. By the early 1980s, there were more than 20,000 commuter vanpools in the U.S.⁹ Declining gasoline prices left vanpooling stagnant across the country until the mid-1990s, when they began growing in number again.



The motivations for vanpooling in the 1990s were different from the 1970s.... By the 1990s vanpools could take advantage of the growing network of high occupancy vehicle (HOV) lanes.



The motivations for vanpooling in the 1990s were different from the 1970s. In the 1970s the primary motivation was high gasoline prices; in the 1990s cost, stress, traffic congestion, and the ability to use commute time productively (work, check e-mails) were the primary factors. By the 1990s vanpools could take advantage of the growing network of high occupancy vehicle (HOV) lanes. In later years, after they were constructed, vanpools

⁶ Danielle Kurtzleben, “How Working Women, Cheap Cars and Starbucks Killed Carpooling,” *Vox.com*, Vox, 23 Jan 2015, <https://www.vox.com/2014/10/28/7070835/what-ever-happened-to-carpooling> (13 Aug. 2021).

⁷ Sabina Detrick, “Project Title: Impact of Vanpooling in Pennsylvania and Future Opportunities,” *ucsur.pitt.edu*, Pennsylvania Department of Transportation, 30 Dec. 2010, https://www.ucsur.pitt.edu/files/center/Impacts_of_Vanpooling_2010.pdf, (13 Aug. 2021).

⁸ *Ibid.*

⁹ Detrick, “Project Title: Impact of Vanpooling in Pennsylvania and Future Opportunities.”

could use high occupancy toll (HOT) and express toll lanes (ETL) free of charge.

In the 1990s, the federal government provided new incentives for vanpooling through surface transportation reauthorization bills, specifically the Intermodal Surface Transportation Efficiency Act (ISTEA) and Transportation Equity Act for the 21st Century (TEA-21).¹⁰ Within these bills, the Job Access Reverse Commuter (JARC) Congestion Mitigation and Air Quality Improvement (CMAQ) and Commuter Choice programs provided special IRS benefits that employers could offer to employees who carpooled or vanpooled.

As congestion continued to grow, vanpools expanded to additional metro areas. After starting in Minneapolis, vanpools quickly spread to Houston, Washington, D.C., Atlanta, and Seattle.¹¹

Originally operated exclusively by employers, vanpools are now operated by both public and private sector entities in many different arrangements. There are four common types of vanpool operators:

- 1) Owner-operators/commuter associations:** Individuals/associations who buy or lease vans and often find riders themselves. This model was popular in the early days of vanpools (1970s and 1980s) but decreased in popularity due to the need for a commercial automobile insurance policy and as other models were introduced. Owner-operators are still prominent in the Washington, D.C. and San Francisco Bay area markets. OmniRide in suburban Washington, D.C.'s Prince William County in Virginia works with owner-operators to establish vanpools.¹² Commuter association vanpools are a variation of this model, in which the van is jointly owned or leased by members of the vanpool co-op.
- 2) Employer-sponsored vanpools:** These occur in companies that buy and/or lease vanpool vehicles for use by their employees. Similar to owner-operators, this model was popular

¹⁰ "Legislation, Regulations, and Guidance: Intermodal Surface Transportation Efficiency Act of 1991 Information," Federal Highway Administration, *Fhwa.dot.gov*, 24 Feb 2020, https://www.fhwa.dot.gov/planning/public_involvement/archive/legislation/istea.cfm (13 Aug 2021).

"TEA 21 Moving Americans Into the 21st Century," *Fhwa.dot.gov*, Federal Highway Administration, 4 Nov. 2015, <https://www.fhwa.dot.gov/tea21/> (13 Aug. 2021).

¹¹ "Vanpooling: The Three Major Approaches," *osti.gov*, U.S. Department of Energy, August 1979, <https://www.osti.gov/servlets/purl/5764867/> (16 Aug. 2021).

¹² "Vanpool Finder," *Oomniride.com* OmniRide, 2021, <https://omniride.com/ridesharing/vanpool/> (13 Aug. 2021)

in the early days of vanpools but decreased in popularity as other models were introduced. Employer-sponsored vanpools suffered from increased costs to employers and lack of recapitalization of existing stock. Many employers in the greater Seattle area still sponsor vanpools. Children's Hospital and Regional Medical Center in Seattle sponsors vanpools for its employees.¹³ Several transportation management organizations, including the Hudson Transportation Management Association, help coordinate vanpools on behalf of their employers.¹⁴

- 3) **Private operators:** These are private firms operating vanpools and leasing vans. They can be for-profit or not-for-profit entities. The two most common operators are VPSI, and Enterprise Vanpool (a division of Enterprise Rent-A-Car). Many organizations, including metropolitan planning organizations, transit nonprofits, and transit agencies, contract with private operators for their vanpooling operations. Private operators typically engage in a range of services including vehicle acquisition, vehicle maintenance, invoicing the van group, data collection, and conducting driver checks. Both Enterprise and VPSI offer vanpool services in Atlanta, GA.¹⁵
- 4) **Public transit:** Many public transit systems operate vanpooling programs as part of their services and fleets. Generally, the public agency handles all aspects of the vanpool such as gas, insurance, van maintenance, roadside assistance, and emergency ride home, with the exception of driving the vehicle.¹⁶ The form differs across agencies. Some transit agencies, including King County Metro in Seattle and PACE in Chicago, build their own vanpool operations while other agencies work with a private operator, as in Orlando, Tampa Bay, and Phoenix.

Table 2 summarizes the attributes of the five (splitting owner-operators and commuter associations into two groups) different types of vanpools.

¹³ "Best Workplaces for Commuters Success Stories," *Bestworkplaces.org*, 26 Sep. 2007, <https://www.Bestworkplaces.org/about/success.htm> (8 Sep 2021).

¹⁴ "Shuttle and Vanpool Programs, *Hudsontma.org*, "Hudson TMA," 2021, <https://hudsontma.org/shuttle-and-vanpool-programs/> (13 Aug. 2021)

¹⁵ "Welcome to Vanpooling with VPSI," Georgia Regional Transportation Authority Vanpool Program, *Yumpu.com*, 15 May 2009, <https://www.yumpu.com/en/document/read/46702775/welcome-to-vanpooling-with-vpsi> (13 Aug. 2021).

¹⁶ "Restart Your Commute with Vanpool," King County Metro, *Kingcounty.gov*, 8 March 2021, <https://kingcounty.gov/depts/transportation/metro/travel-options/rideshare/programs/vanpool/restart-your-commute.aspx> (13 Aug. 2021).

TABLE 2: VANPOOL TYPES

| | Private Operators | Employer-sponsored vanpools | Owner operators | Commuter Associations* | Public Transit |
|---------------|--|--|---|---|---|
| Definition | Provides services to commuters, companies, government, others | Companies buy or lease vans for use by their employees | Van supplied by one member | Van is jointly owned or leased by members of the vanpool as a cooperative venture | Transit systems operate program or partner with a private operator |
| Services | Promotion, ridesharing, van acquisition, insurance, maintenance, emergency back-up | Employers buy/lease the vans, insure and maintain the vans, and administer the program | Individual buys/leases a van for vanpooling | Association owned/leased by members of the vanpool | Mainly on public transit service |
| Fee | Riders pay for vehicle recovery, maintenance, fuel, insurance and administration costs | Volunteer driver rides for free; other riders pay a monthly fee | Riders charged for commuting costs; maintenance, insurance costs paid by owners | Employees join and pay membership fees | Same as third party vanpools, employers may help employees pay part of their cost |
| Size | Most common type | 2,500 in 2000 | Concentrated in D.C. and S.F. Bay area | Unknown | Unknown |
| Examples | VPSI, Enterprise Vanpool | Air Canada, 3M | Virginia Vanpool Association | Association for Commuter Transportation | PACE in Chicago, Centre County Transportation Authority in State College |
| Advantages | Run by contract, flexible | Flexible, employer bears costs | Affordable insurance, adequate coverage, supported by subsidies | Maintain a considerable size and easy to manage | May subsidize part with funding stream; can recover operating costs |
| Disadvantages | Operation cost for third-party could be high | High cost; many employers moved away from model | Less attractive as insurance costs increased | Closed membership | Most of public transit services are bus services |

*Considered a variation on owner-operators

Source: Recreated based on "Impacts of Vanpooling in Pennsylvania and Future Opportunities," by Sabina Deitrick

History and traffic congestion heavily influence the location of vanpool services. There are 112 agencies that report their vanpool service information to the National Transit Database.¹⁷ However, only federally funded agencies are required to report service. Thus the actual number of vanpool services is likely much higher. Table 3 displays the largest vanpools ranked by passenger trips and passenger-miles. California has the largest number of agencies in the top 20, at five. This is due partly to the state's large population and partly to state funding being available. Washington State has four of the 20 largest vanpool agencies in the country. Washington has a long history with vanpooling. The state passed a Commute Trip Reduction Law (CTR) in 1991 and incorporated it into the state's Clean Air Act. Texas also has four agencies in the top 20. The motivation for vanpooling in Texas is to avoid severe traffic congestion.

TABLE 3: THE 20 LARGEST VANPOOL AGENCIES RANKED BY UNLINKED PASSENGER TRIPS AND PASSENGER-MILES, 2019

| Transit Agency | Metro Area | Unlinked Passenger Trips (Thousands) | Rank | Passenger-Miles (Thousands) | Rank |
|---|-----------------------|--------------------------------------|------|-----------------------------|------|
| California Vanpool Authority | Hanford, CA | 3,434,148 | 1 | 121,788,224 | 2 |
| King County Metro | Seattle, WA | 3,300,186 | 2 | 61,644,511 | 5 |
| Los Angeles County Metro | Los Angeles, CA | 3,240,720 | 3 | 142,563,803 | 1 |
| Metro Transit Authority Harris County | Houston, TX | 1,791,670 | 4 | 55,659,344 | 6 |
| San Diego Association of Governments | San Diego, CA | 1,746,541 | 5 | 81,692,067 | 3 |
| Potomac and Rappahannock Transportation Commission | Woodbridge, VA | 1,449,867 | 6 | 65,137,108 | 4 |
| Pace Suburban Bus Division | Arlington Heights, IL | 1,361,264 | 7 | 29,521,989 | 11 |
| Orange County Transportation Authority | Orange, CA | 1,230,296 | 8 | 41,926,341 | 7 |
| Utah Transit Authority | Salt Lake City, UT | 1,068,364 | 9 | 37,026,581 | 8 |
| Regional Public Transportation Authority | Phoenix, AZ | 1,004,018 | 10 | 36,341,744 | 9 |
| Enterprise Rideshare, Michigan | Farmington Hills, MI | 871,514 | 11 | 33,664,242 | 10 |
| Snohomish County Public Transportation Benefit Area Corporation | Everett, WA | 823,759 | 12 | 18,931,431 | 20 |
| Pierce County Transportation Benefit Area Authority | Tacoma, WA | 740,207 | 13 | 21,234,316 | 18 |
| Georgia State Road and Tollway Authority | Atlanta, GA | 681,364 | 14 | 27,339,046 | 13 |
| Ben Franklin Transit | Richland, WA | 652,803 | 15 | 21,616,064 | 17 |
| New Jersey Transit Corporation | Newark, NJ | 635,166 | 16 | 22,289,755 | 16 |

¹⁷ "The National Transit Database," Federal Transit Administration, *Transit.dot.gov*, 5 Nov. 2020, <https://www.transit.dot.gov/ntd> (13 Aug. 2021).

| Transit Agency | Metro Area | Unlinked Passenger Trips (Thousands) | Rank | Passenger-Miles (Thousands) | Rank |
|---|-----------------|--------------------------------------|------|-----------------------------|------|
| Victor Valley Transit Authority | Hesperia, CA | 572,713 | 17 | 26,049,223 | 14 |
| Capital Metropolitan Transportation Authority | Austin, TX | 548,873 | 18 | 20,766,873 | 19 |
| VIA Metropolitan Transit | San Antonio, TX | 499,290 | 19 | 24,569,985 | 15 |
| Dallas Area Rapid Transit | Dallas, TX | 495,882 | 20 | 18,228,162 | 22 |

Source: 2019 National Transit Database

Three types of factors affect vanpooling.¹⁸ The first type is geographic factors, including commute distance, government incentives, employment location, and traffic congestion. The second type is economic factors, such as housing markets, fuel prices, retail growth, and firm size. The third type is social/demographic factors, such as income, number of white-collar workers, shift workers without access to transit, and workers with limited access to automobiles.

Commuters choose to join vanpools for a number of reasons.¹⁹ The number one factor is financial. Vanpools can reduce transportation costs by 50% or more, even compared to carpools. Both public and private incentives as well as reduced costs for commuting are major factors. Reducing stress is another significant factor.

Other factors can, but don't necessarily do, lead to an increase in vanpooling. These include socialization of vanpool riders, constraints on independence, as well as the time and distance of the commute.

In most vanpools, in the morning the driver picks up between six and 14 other passengers within a five-mile residential radius. The driver then pilots the van approximately 20-100 miles to the employment center. This could be a single employer or a grouping of businesses such as an office park. For the afternoon commute the trip reverses, with the driver dropping off each passenger at their place of residence. Typically, the driver will keep the van at their residence overnight. In many programs the driver and backup driver don't have to pay to be members of the vanpool.

Vanpools are different from other transit technologies in that they are more likely to be

¹⁸ Detrick, "Project Title: Impact of Vanpooling in Pennsylvania and Future Opportunities."

¹⁹ Ibid.

operated by the private sector. Fifty-five percent of vanpools are operated privately compared to 19% of bus service and 6% of rail service.²⁰ The biggest reason is that vanpools can more easily cover their operating and maintenance costs than other transit technologies.

As smartphone technology has become more widespread, some vanpools have started to adopt the technology to change how service is operated. In the past vanpool organization has been mostly static (arranged ahead of time); today's smartphone technology allows more dynamic scenarios. Dynamic vanpooling uses social network and smartphone data to allow drivers to pick up customers anywhere along the route. The driver can connect with riders through smartphone and GPS location.

Dynamic vanpools differ from static options in two ways. First, the vanpool composition may change day by day. On one hand, this ensures that the most or all seats in the vanpool are used. On the other, it does not provide the same kind of guaranteed ride and socialization features of traditional vanpools. Second, since these vanpools transport different people, employers and other traditional sponsors may not support them. Dynamic vanpooling is still very rare but it is an intriguing 21st century transit option.

²⁰ "2020 Public Transportation Fact Book," *Apta.com*, American Public Transportation Association, March 2020, <https://www.apta.com/wp-content/uploads/APTA-2020-Fact-Book.pdf> (13 Aug. 2021).

PART 3

COSTS OF VANPOOLS

In financial terms, vanpools are very different from conventional transit. Most vanpools are funded by a combination of user fees (vanpool riders paying a fee) and employer subsidies. Public subsidies are limited to the capital costs to purchase the vehicle. Unlike conventional transit, vanpools tend to recover most of their operating costs. The farebox recovery rate is the percentage of operating costs recovered by fares. In the greater Seattle area, Seattle Metro recovers 107% of its vanpool operating costs, Pierce Transit recovers 73%, and Community Transit recovers 70%.²¹ Compare these numbers to conventional transit, whose farebox recovery ratio is between 20% and 40%.²² Vanpools are also significantly cheaper than carpools, offering cost reductions of 50%. Table 4 breaks down the per capita costs of driving alone, three-person carpools, and 10-person vanpools.

²¹ Dan Ryan, "Vanpools are a Success Story," *Seattletransitblog.com*, Seattle Transit Blog, 14 March 2015, <https://seattletransitblog.com/2015/03/14/vanpools-are-a-success-story/> (13 Aug. 2021).

²² "National Transit Database: 2018 National Transit: Summaries and Trends," *Transit.dot.gov*, December 2019, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/ntd/data-product/134401/2018-ntst_1.pdf, (16 Aug. 2021).

TABLE 4: ESTIMATED MONTHLY COMMUTING COSTS PER RIDER

| Roundtrip Miles | Drive Alone | 3-Rider Carpool | 10-Rider Vanpool |
|-----------------|-------------|-----------------|------------------|
| 30 | \$306 | \$101 | \$49 |
| 40 | \$407 | \$136 | \$59 |
| 50 | \$509 | \$170 | \$43 |
| 60 | \$612 | \$205 | \$68 |
| 70 | \$713 | \$238 | \$89 |
| 80 | \$815 | \$271 | \$100 |

Source: Victoria Transport Policy Institute (Costs updated to 2021 numbers)

Vanpools fare well in cost-benefit analyses. Direct costs of vanpooling include, purchase/lease, fuel, and maintenance costs, vehicle and related liability insurance, additional costs resulting from vehicle accidents, and the administrative costs of organizing and operating the vanpool system.²³ An internal cost to vanpoolers is reduced flexibility in travel arrangements. The one external cost is parking, although some businesses provide free or discounted parking to vanpools.

Internal benefits to vanpooling employees include decreased automobile-related costs (automobile insurance, maintenance, and fuel) and various psychological benefits, such as decreased stress, increased discretionary time, and social time/social relationships.²⁴ External benefits include reduced traffic congestion and proportional decreases in greenhouse gas emissions.

3.1

VANPOOL COSTS

The following paragraphs detail the different types of costs.

²³ Detrick, "Project Title: Impact of Vanpooling in Pennsylvania and Future Opportunities."

²⁴ Ibid.

#1 COSTS OF THE LEASE

The lease cost is the largest capital cost item, with the actual figures depending on the amenities (such as air conditioning) provided per van and the average annual vehicle mileage. The calculation of vehicle costs will be different for organizations that purchase vehicles directly for vanpool operations and those that lease their vehicles. Costs vary for each of the four vanpool operating options.

Third-party van leasing costs typically cover the van, insurance, maintenance, repair, registration, tax and license, and roadside assistance. The per month fee typically covers both the capital purchase costs of the vehicles and a large part of the routine maintenance and administrative overhead associated with maintaining a vanpool operation. For smaller organizations, a third-party vanpool service provider would be the only practical way to operate vanpools. Only larger operations, with a significant number of vans, could have an in-house operation that efficiently supports the fixed overhead costs and maintains the services typically provided by a third party vendor.

#2 CAPITAL AND OPERATING COSTS

The Chevrolet Traverse, Dodge Durango, Ford Transit, and Ford Transit Premium are four common vanpool vehicles.²⁵ Each costs around \$40,000. The Chevrolet and Dodge vehicles are identical to a typical sport utility vehicle. The Ford vehicles are Work Vans—less plush but also more durable and likely to operate for more miles.

Operating costs vary for each of the four operations types. Third-party leasing typically provides turnkey support for a vanpool program, which reduces administrative and overhead costs and makes operating a vanpool program easier.²⁶ Turnkey operations will typically cover expenses for vehicle insurance and routine maintenance, which would either need to be covered by individual vanpools or overall vanpool program administration.

²⁵ “A Smarter Way to Commute to Work,” *Commutewithenterprise.com*, Commute with Enterprise, 2021, <https://www.commutewithenterprise.com> (13 Aug. 2021).

²⁶ Detrick, “Project Title: Impact of Vanpooling in Pennsylvania and Future Opportunities.”

Vanpool leasing costs vary. The typical monthly lease provides for the capital expense of the van itself and routine maintenance. Leasing also eliminates most costs associated with vehicle acquisition and turnover. Lease rates will vary by size of van, from seven-person minivans to 15-person luxury vans. For a 10-person vanpool using a 12-person van, lease rates will typically range from \$800–\$1,000 per month.²⁷

With leasing, individual vanpools will incur additional vehicle operation costs, which will be paid for by their member-riders.²⁸ Fuel is the largest expense. The example used here assumes an annual van usage of 15,000 miles (250 days at 60 miles per day), fuel efficiency of 12 miles per gallon, and fuel cost of \$2.85 per gallon per van, resulting in fuel costs of \$3,562 per year. With a \$900 monthly lease total, operating costs for an individual vanpool comes to \$14,362 or \$120 per rider per month. Additional costs will be incurred if paid parking is required, along with any tolls and indirect costs passed on to individual vans to support program administration.

3 ADMINISTRATIVE COSTS

Most vanpool programs average one full-time staff person per 20 to 30 vans. It is possible for one person to support a larger number of vans if they rely on a third-party vanpool service provider. Due to economies of scale, the larger the vanpool program, the smaller the per capita administrative costs.

If we assume one full-time equivalent staff person per 25 vans with minimal additional overhead, administrative and marketing costs work out to slightly more than \$2,996 in costs per year per individual van.²⁹ With an average vanpool having 10 riders, per rider costs average \$359 per rider annually or about \$30 monthly. These numbers assume a 10% expenditure for administration costs, but do not include expenditures for startup costs or major costs for program expansion, such as marketing.

This estimate for program administration assumes third-party leasing that provides turnkey vanpool support. Typical administrative costs, such as on-road services and certain maintenance costs, are included in the third-party vanpool service provider costs. However, additional costs, such as for a guaranteed ride home program, are not included.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Ibid.

Guaranteed Ride Home

When vanpool operators conducted surveys to find out why potential riders did not want to join a vanpool, they found the biggest reason was that potential riders were worried that they would need to leave work early for an emergency such as a sick child and not have access to a vehicle. The fear of having to leave early was a bigger factor than the actual need to leave early. Yet, a large group of commuters did not feel comfortable vanpooling for this reason. Therefore, many metro areas created Guaranteed Ride Home programs.

Available to commuters who vanpool (and also those who carpool, bike, walk, or take transit), Guaranteed Ride Home programs provide access to a transportation service (typically taxicab or ride-hailing) that the commuter can use free of charge, typically four or five times per year. In many locations, a ride home can now be scheduled on a computer in real-time, limiting phone calls and wait time. The Guaranteed Ride Home programs have been estimated to increase the number of commuters vanpooling by 20%.³⁰

3.2

FUNDING VANPOOLS

Research has shown that vanpool services have a price elasticity of demand estimated to be -0.73.³¹ This means that a 10% increase in vanpool price is associated with a 7.3% percent decrease in its quantity demanded.

Since vanpools do not provide direct door-to-door service (they pick up riders from different residential locations before traveling to the shared employment destination), in order to be competitive with single-occupant vehicle commuting, vanpooling must actually provide less expensive service. Passenger fares are the dominant source of vanpool funding, supplemented by other types of funding. However, public subsidies for vanpooling are much lower than subsidies for conventional mass transit.

³⁰ "Guaranteed Ride Home," *commuterconnections.org*, Commuter Connections: A Smarter Way to Work," 2020, <https://www.commuterconnections.org/guaranteed-ride-home/> 4 Oct 2021.

³¹ Sisinnio Concas, Phil Winters, and Francis Wambalaba, "Fare Pricing Elasticity, Subsidies, and Demand for Vanpool Services," *Journals.sagepub.com*, 2005, <https://journals.sagepub.com/doi/10.1177/0361198105192400127> (13 Aug. 2021).

Vanpool funding is available from a variety of sources, which are detailed in Table 5.

TABLE 5: FUNDING SOURCES FOR VANPOOLS

| Funding Source | Description | Examples |
|--|--|---|
| Passenger fares | Most common source | Ride Share Company (CT) and Ben Franklin Transit (WA) cover all costs through passenger fares |
| Transit funds | Common source for transit agencies | Ben Franklin Transit (WA), Greater Cleveland Regional Transit Authority (OH) |
| Congestion Mitigation Air Quality (CMAQ) | Used to purchase vans and subsidize fares | Community Transit (WA), PACE (IL), |
| Other federal funds | Grants, Temporary Assistance for Needy Families (TANF), flexible funds for metropolitan planning organizations (MPOs), regional surface transportation funds | Nashville's Metro Transit (TN), Space Coast Area Transit (FL) |
| Other state/local funds | Various | Capital Metro (TX), Santa Cruz Metro (CA) |
| Other state/local funds | Chambers of commerce | Greater Cleveland Regional Transit Agency (OH), Ki Bois Area Transit Authority (OK) |
| Employer subsidy | Numerous | Pierce Transit (WA), SANDAG (CA) |
| State contract | Vehicle and equipment purchases via state contract | Ben Franklin Transit (WA) |

Potential Funding Model: Washington State

As of 2021, Washington State has the second largest number of vanpool programs in the country. Pre-COVID-19 more than 18,000 commuters rode in more than 3,000 vanpools.³² Washington's statewide program encourages vanpools in all areas of the state by contributing to growth through supportive policies, incentives, strong local programs, high gas prices, enhanced collaboration and partnerships, and legislative investments.

In 2003, the Washington State Legislature developed a 10-year transportation plan allocating \$30 million in grant funds to expand the vanpool program statewide. Designated for public transit agencies, the funds can be used only for capital costs associated with placing new vans on the road or incentives for employers to increase employee vanpool use. Since 2003 over \$12 million has been invested to purchase 577 vans for 20 transit agencies. The Vanpool Investment Program was funded at \$4 million for 2003–2005. Initially, the legislature provided \$4 million to purchase vans, and subsequently added \$3.9 million in 2006 for a total of \$8.9 million.

In the Washington State program, the cash match for both expansion and replacement vans is 20%. Transit agencies are reimbursed 80% of the cost of a van.

The overall Washington State vanpooling program incorporates more than just financial support for regional vanpool programs. It also funds capital equipment purchases and statewide marketing efforts, and provides technical assistance and other support for regional programs.

Washington State's vanpool investment program provides a benchmark not only for program design, but for the scale of expenditures that has promoted successful vanpool usage. On average, the vanpool program has dispersed \$3.5 million annually since its inception.

Promotional efforts are helpful. The state plans to continue to increase awareness and stimulate demand with statewide promotional campaigns and incentives.

³² "Vanpool Investment Grants," Washington State Department of Transportation, *Wsdot.wa.gov*, 2021, <https://wsdot.wa.gov/transit/grants/vanpool-investment> (13 Aug. 2021).

PART 4

BENEFITS OF VANPOOLS

Vanpools have many benefits and advantages, as detailed below.

#1 REALISTIC ALTERNATIVE TO THE AUTOMOBILE

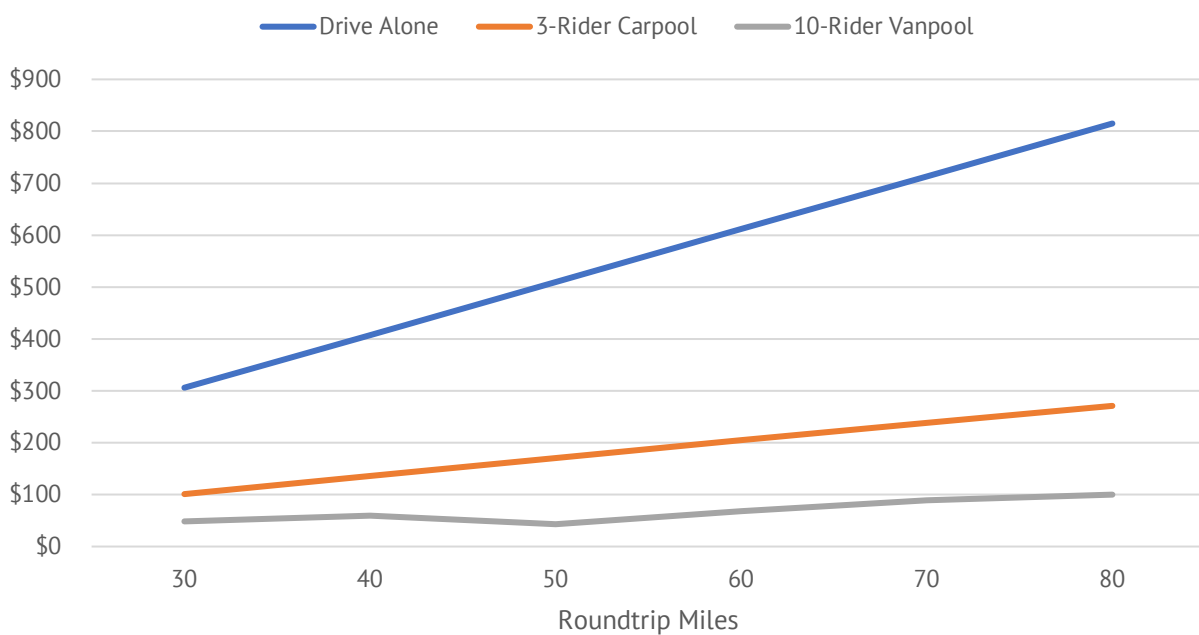
For many riders vanpools are the most realistic alternative to the automobile.³³ Fixed-route transit effectively links areas of moderate or higher residential density with areas of moderate or higher employment density. But many residents live in low-density areas and work in low-density areas. Some commuters may live in high-density developments and work in low-density areas or vice versa. As a result, fixed-route transit does not serve more than 50% of commuters. However, by matching commuters that live in one general area and work in another general area, vanpools serve these workers who are unable or unwilling to drive alone to work. While the absolute number of vanpools is largest in metro areas, vanpool ridership is a larger percentage of the total mass transit ridership in more rural areas. In many locations, vanpooling is the only mass transit option available.

³³ "Vanpool Programs: Implementing Commuter Benefits Under the Commuter Choice Leadership Initiative," *Epa.gov*, United States Environmental Protection Agency, Sep. 2001, https://www.bestworkplaces.org/empkit/files/section3/vanpool_benefit_brief.pdf, 16 Aug. 2021.

#2 COST SAVINGS

Vanpools are significantly cheaper than commuting alone to work. Figure 1 displays the differences in cost among commuting alone, riding in a three-person carpool, and riding in a vanpool. Even compared to carpools, vanpools are less than half the cost. Costs are the largest reason that commuters choose to vanpool. With savings of \$1,200 per year for a 10-person vanpool, the savings can be substantial.

FIGURE 1: ESTIMATED MONTHLY COMMUTING COSTS PER RIDER



Source: Victoria Transport Policy Institute (Costs updated to 2021 numbers)

#3 SPEED OF IMPLEMENTATION

A vanpool program can be implemented quickly. Vans are mass-produced vehicles that can be purchased off-the-shelf with very short lead times.³⁴ As discussed in Part 3, there are a number of different vanpool manufacturers, leading to good vehicle availability and competitively priced vehicles. Computerized dispatch systems are relatively easy to create. The van itself can be outfitted with a GPS tracker and driver monitoring software plugged into the onboard diagnostic port to monitor driver behavior.

³⁴ Detrick, "Project Title: Impact of Vanpooling in Pennsylvania and Future Opportunities."

#4 PERCEIVED SAFER FORM OF TRANSIT

COVID-19 is unlikely to be eradicated anytime soon. With traditional transit service, all riders, including those who are not vaccinated, sit or stand in close proximity to each other for 30 minutes or more. This is an ideal setting for transmitting COVID-19. The Centers for Disease Control has mandated the use of masks on transit, but masks don't offer 100% protection, and at some time the mask mandate will end. Many potential riders, especially women, have other safety concerns with traditional transit such as being assaulted or robbed. While the risks of catching COVID-19 or being physically harmed on transit are extraordinarily low, many potential riders do not *feel* comfortable.

Within each vanpool, riders *feel* more comfortable because they know each other. Vanpool drivers can require that riders become vaccinated. Further, riders have more space to spread out, lowering the risk of disease transmission. Therefore, vanpools can attract riders who would not use traditional transit.

PART 5

RECOMMENDATIONS: POLICIES NEEDED FOR SUCCESS

First created in the 1970s as a response to the oil crisis, vanpools have remained a low-subsidy mass transit option. Unfortunately, vanpools have always been a niche option that is overlooked by many transit agencies. Adopting four policies will help change that mindset and increase the number of vanpools on America's highways:

- First, deregulate entry into the van transportation business, so that entrepreneurs are encouraged to try new ways of meeting transportation needs.
- Second, complete regionwide networks of express toll lanes as soon as possible, and convert HOV lanes to express toll lanes, so that commuter vans can offer a speed and time advantage.
- Third, apply market pricing to work-site parking, and later to freeway use, to level the playing field between driving alone and choosing other modes, and
- Fourth, create a commute voucher program for low-income commuters.

#1 DEREGULATION

Currently, private vanpools are required to comply with the same Federal Transit Administration and other federal government requirements as traditional public transportation modes such as local bus, light rail, and heavy rail. For individual owner/operator vanpools, this means that the public agency, non-profit organization, or vanpool cooperative is required to meet these requirements:

- Meeting the needs of passengers with Americans with Disabilities Act (ADA) mobility issues,³⁵
- Filling empty seats of existing vanpools, and
- Marketing the vanpool program to ensure the availability of vanpools is known to the general public.

Private vanpools (those that are 100% supported by fares or operated by business associations) should not have to abide by these regulations. Some vehicles need to meet the needs of passengers with Americans with Disabilities Act of 1990 (ADA) mobility challenges. But it would be more cost-effective for transit agencies to partner with ride-hailing services such as Uber and Lyft or subsidize a small portion of the fleet compared with requiring ADA enhancements in every vanpool. Vanpool users have every incentive to fill seats as the cost per rider declines with each additional rider. If the vanpool program is successful, no marketing is needed (although marketing can be helpful and a cost-effective way to increase ridership). Transit systems don't market their routes and state DOTs don't market their roadways.

Each of these regulatory requirements may not seem that onerous. But each administrative task requires additional program staff. And additional staff increases the fare or subsidy needed to operate the vanpool. In addition, many small metro and rural areas that would benefit may not be able to start vanpool programs because they cannot afford the staff needed to comply with these regulations.

³⁵ Vanasse Hangen Brustlin, "Multi Region Vanpool Incentive Program Task 3F Technical Memorandum," *fampo.gwregion.org*, Fredericksburg Area Metropolitan Planning Organization, September 2011, <http://www.fampo.gwregion.org/wp-content/uploads/2012/03/Task-3F-Compliance-with-Regulations.pdf> (13 Aug. 2021).

#2 HOT AND EXPRESS TOLL LANES

Managed lanes are critical to a successful vanpool program. Most vanpools travel between 20 and 100 miles one way and use at least one freeway during their trip. Managed lanes provide travel time savings during the line-haul part of the trip, countering the extra time required for the vanpool to pick up and drop off passengers.

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Managed lanes are critical to a successful vanpool program.

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Many large metro areas are building networks of managed lanes. While high-occupancy-vehicle (HOV), high-occupancy-toll (HOT), and express toll lanes (ETL) are all valuable, express toll lanes work the best for vanpools. HOV lanes suffer from the Goldilocks Phenomena, they are either “too hot” (too many vehicles in the lanes slowing down traffic speeds) or “too cold” (too few vehicles in the lane, leading to worse traffic congestion in the general purpose lanes and vehicles cheating or using the lanes when they don’t have the required occupancies). While vanpools won’t be affected during the times the lanes are too cold, having lanes that are too hot could encourage vanpool members to quit the vanpool and drive to work alone since vanpooling does not reduce travel times.

HOT lanes are an improvement over HOV lanes in that they use pricing to help manage demand. However, since many HOT lanes have a large number of two- and three-person carpools, they can also become congested during peak periods. Again, vanpool members may decide to quit the vanpool and drive to work alone.

The most effective managed lanes are express toll lanes (ETL). ETLs provide free passage to buses and registered vanpools only. Since most of the vehicles pay tolls, ETLs do not become congested and offer a fast, reliable travel time 24 hours per day.

#3 PARKING PRICING

One of the biggest factors that incentivizes solo commuting is free parking. If employers no longer offered parking as a tax-free fringe benefit, fewer people would drive alone to work, and more would seek out alternatives such as vanpools.

The impact of parking pricing has been studied extensively by retired UCLA researcher Donald Shoup. In a 1992 study of Los Angeles, Shoup and Richard Wilson found that, on average, when the employer paid for parking, 66% of employees drove alone, compared with only 39% driving alone if employees themselves had to pay.³⁶



If employers no longer offered parking as a tax-free fringe benefit, fewer people would drive alone to work, and more would seek out alternatives such as vanpools.



In order to level the playing field, Shoup proposed requiring that any employer that offers parking as a paid fringe benefit also offer the employee the cash value. Shoup and Wilson estimate that this kind of parking “cash-out” would reduce the number of SOV commuters in Los Angeles by 20%, while reducing commuter vehicle-miles traveled in Los Angeles by 59 million per year.³⁷

Many workplaces have voluntarily offered parking cash-out programs to their employees. California and Washington, D.C. require the program for employers of a certain size.³⁸ Seattle’s Children’s Hospital offers employees a \$4 bonus every day they do not drive to work. (Drivers are required to pay for parking daily, so the hospital knows who drives to

³⁶ Richard Wilson, “Estimating the Travel and Parking Demand Effects of Employer Paid Parking,” *Regional Science and Urban Economics*, Volume 22, Issue 1, (March 1992) 133-145, [sciencedirect.com](https://www.sciencedirect.com/science/article/abs/pii/016604629290029Z), <https://www.sciencedirect.com/science/article/abs/pii/016604629290029Z> (13 Aug. 2021).

³⁷ Ibid.

³⁸ Jordan Griffin, “Offering a Parking Cash Out Program,” Transitscreen, *Transitscreen.com*, 8 Nov. 2019, <https://transitscreen.com/blog/commuting-cash-out-programs-parking-public-transit-employee-incentives-decrease-traffic-how-to-create-effective-transit-programs-in-the-office/> (13 Aug. 2021).

work alone.) The University of Maryland offered a \$450 bonus during the 2019–2020 academic year for students who did not drive to campus.

#4 COMMUTE VOUCHERS

The final policy measure that would make vanpools more competitive with SOVs is commute vouchers. This would be a form of subsidy, but unlike conventional transit subsidies, it would be provided directly to the user, not to the producer, of transit services. A vanpool provider would only receive the subsidy if it succeeded in attracting a given user to its service.

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The final policy measure that would make vanpools more competitive with SOVs is commute vouchers.

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Vanpools in some metro areas are commercially viable without subsidies, as long as express lanes are available and employees are able to cash out their parking benefit. Commute vouchers should be used only in metro areas where vanpools are not viable with express lanes and parking cash-out benefits.

What would be the cost of this subsidy? A small subsidy (\$3/day) would be effective. For comparison purposes, the L.A. Metro Blue Line requires a subsidy of more than \$15 per passenger per day.³⁹ The Metrolink commuter rail subsidy exceeds \$20 and varies based on the line.

³⁹ Robert Poole, “Shuttle Vans: The Overlooked Transit Alternative,” Reason Foundation, April 1994, <https://reason.org/wp-content/uploads/files/3be42001e6e0fbf8d4736319d3d82dea.pdf>, (16 Aug. 2021).

PART 6

CONCLUSION

Vanpools are a high-quality, low-cost mass transit option celebrating their 50th birthday. Unfortunately, vanpools are overshadowed by sexier mass transit options such as light rail and even bus rapid transit. The value in vanpools is their ability to transport a small number of commuters from low-to-medium-density origins to a low-to-medium-density destination. Many metro areas have a growing number of suburb-to-suburb commuters and exurb-to-suburb commuters, who are a great fit for vanpools. Further, vanpools require a much smaller subsidy, sometimes no subsidy at all, compared with fixed-route mass transit, providing more bang for the buck for taxpayers.

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The value in vanpools is their ability to transport a small number of commuters from low-to-medium-density origins to a low-to-medium-density destination.

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While traditional vanpooling involves the same group of passengers, matched once, who ride together on a daily basis, new technology allows dynamic vanpooling, in which drivers find riders in real time using smartphone apps. Dynamic vanpooling could dramatically increase ridership.

Finally, commute vouchers can be a promising way to provide low-income commuters suburb-suburb or suburb-exurb service. While some vanpool services are subsidized by employers, others are paid for mainly by riders. Commute vouchers can ensure that low-income riders have a high-quality, cost-effective mass transit option.

ABOUT THE AUTHOR

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