PI-0386 Alternative Financing Sources for Rural Public Transit Revenue Generation

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Executive Summary

Background

Rural transit agencies need help maintaining financial stability and service efficiency due to limited funding options and reliance on external resources. Unlike their urban counterparts, these agencies often operate in areas where local tax-based funding mechanisms, or "self-help" options, are unavailable. This dependency urgently requires rural transit agencies to identify sustainable revenue sources and cost-effective practices to continue providing essential services.

For the purpose of this report, “self-help counties” will be defined using the definition provided by the Self-Help Counties Coalition which says that “[Self-Help Counties] deliver[] voter-approved (by super-majority) transportation sales tax measures that fund transit, highway, freight, bicycle, pedestrian and other transportation programs.” By extension, the non-self-help counties are those counties that do not have access to these funding mechanisms and rely on alternative sources for revenue to fund their transit systems. This document will focus on these “non-self-help counties” and evaluate current existing research that might provide insights into possible alternatives for funding.

Excluding the implementation of taxes and fees from the set of possible solutions does present a unique challenge for funding these rural non-self-help districts and, due to the average transit program’s reliance on these policy mechanisms, presents a rather grim outlook in this context. Compounding the existing issues inherent being a non-self-help county is the fact that public transit ridership, and therefore fares that could be generated to help fund the program, has failed to recover to pre-pandemic levels in the state of California (Gahbauer, Matute and Taylor 2023). This effect is likely magnified in rural communities that already struggle to attract transit ridership due to their remote location as compared to urban environments.

Summary of Findings

The obvious solution to this lack of funding would be to have these counties work to pass a sales tax or similar legislation for the funding of public transit and transportation. However, this report assumes that this avenue has already either been tried and has failed to pass into law or there are separate complicating factors that make passing additional taxation or fee measures in these areas otherwise untenable. Thus, this research review will focus on those resources that do not rely on taxation/fees or legislative actions to be implemented or collected.

One alternative that was prevalent in the literature was the existence of targeted federal help for disadvantaged communities such as the elderly or disabled. The studies from Kaseko, Nyagah, Teng & Mineta (2014) as well as Kenyan, Glitman & McRae (2009) provide more detail on the specific programs and resources that counties could consider utilizing to fill the fiscal gap. Of particular interest from Kaseko et al. (2014) are chapters 2, 3 and 5 that contain specific sources for additional funding as well as possible changes to existing rural programs that improve the use of existing transportation resources to get more value for the dollars spent. The sources that concentrate on alternative revenue generation through existing programs provide suggestions for various grants and federal funding sources, which are organized in the details section below.

Outside of federal and other grant sources there also exists research that suggests evaluating the marginal and total costs of operation for the transit services in these areas and then determining an

optimal price for transit ridership in these localities (Börjesson, Fung & Proost (2020)). It's important to note that this study focuses on remote locations in Sweden, but its insights are still likely beneficial to rural and remote locations in America. There is also an additional caveat for utilizing this approach in that the price charged to commuters in these regions would need to be higher than the marginal cost of operation to allow for the system to be entirely self-sustaining in an idealized scenario. Therefore the possibility exists that the cost of operation and requisite ridership cost might be too high to implement in a county without making the fee prohibitively high and thereby disincentivizing the use of the service unless a rider subsidy is implemented at some government level to offset this cost or the service operates at less than fully self-sustaining prices. As such, care should be taken to make sure that the evaluation and determination does not happen in a vacuum and takes outside factors into consideration.

Lastly, there was an innovative study performed by Montana State University's Western Transportation Institute Small Urban and Livability Center (MSU) that explored the viability of public transit agencies utilizing their existing vehicle fleets to operate as last mile package delivery curriers for rural and remote locations (Clouser and Chaudhari 2014). This would, in theory, allow the agency to raise additional funds for operation and maintenance that could help offset the non-self-help status of these locations. While a study would need to be conducted in California to understand if the same demand for the service exists as it does in Wyoming, it is certainly worth consideration as a potential revenue source for non self-help counties. The study also reviews potential issue and objections that might be raised in opposition to implementing this service, attitudes toward which were collected in a survey. These factors include uncertainty about total income generation, operational and functional differences between public transit and postal services and potential service disruptions for public transit. However, the paper does note that the benefits of this new stream of revenue outweigh the costs for some agencies. As a result we will continue to see adoption of this function for public transit agencies looking for revenue while ecommerce giants like Amazon look for additional innovative ways to close the "last mile" gap in a cost effective manner.

Gaps in Findings

While there is existing research that evaluates sustainable revenue sources for rural public transit systems, they do not provide a distinct focus on those communities in California with their unique situations and requirements. Therefore this PI was not able to answer the question posed.

Next Steps

Interested parties may consider getting in contact with Montana State University to discuss the delivery fee revenue project mentioned above. They may also find the below sources enlightening.

Detailed Findings

Annotated Bibliography of Resources

California

Gahbauer, J., Matute, J., & Taylor, B. D. (2023). Options for the Future of State Funding for Transit Operations in California: Informing the Future of the Transportation Development Act.

From the abstract: "California supports transit with operating subsidies through Transportation Development Act (TDA) funding. However, these subsidies are not directly linked to an agency's performance, and they do not provide transit agencies with any direct incentive to improve performance, efficiency, or effectiveness other than to avoid a (seldom enforced) financial penalty. TDA funding is often uncoordinated within regions, and its disbursement is not well aligned with the state's contemporary social, economic, and environmental goals for transit. Moreover, for transit to be effective at meeting any of these goals, it needs riders above all else—and while the TDA is an important source of operating revenue for agencies across the state, the TDA does not directly support agency actions that increase ridership. On the contrary, the TDA's funding eligibility threshold requirements (the "farebox recovery ratio" and CPI cost escalation cap) at times gives transit managers an incentive to cut service. By restructuring how TDA funds are paid, the state can more effectively shape what transit service is provided in service of state goals."

Other US States

Anderson, J., & Thompson, E. (2014). Alternative Funding Mechanisms for State Transportation Systems in Predominantly Rural States. *Bureau of Business Research Publications*. https://digitalcommons.unl.edu/bbrpub/42

From the abstract: "The Transportation Research Board of the National Academies has identified a number of research needs related to alternative transportation finance systems. Alternatives are needed because motor fuels taxes are proving to be insufficient to fund operation and maintenance costs of the transportation system. The long-term trend is likely to be continuing use of motor fuel taxes, supplemented by, or transitioning to, use-based fees. Current research in progress in this area is focused on designing variable fees that will internalize congestion externalities in urban areas. These approaches are particularly well suited to highly urbanized areas, but other approaches may be required for predominantly rural states."

Clouser, K., Chaudhari, J., Western Transportation Institute, & Small Urban and Rural Transit Center. (2017). *Last Mile Commercial Package Delivery as a Revenue Generation Tool for Rural Public Transportation Systems in Wyoming* (No. WY 18/02F). https://rosap.ntl.bts.gov/view/dot/37287

From the abstract: "The goal of this project is to assess the feasibility of last mile package delivery as a revenue generation tool for rural public transportation systems in Wyoming. In an effort to assess the feasibility, the research team conducted an in-depth literature review and surveyed local Wyoming businesses, state department of transportation officials, and transit managers. The survey results, literature review, and demand and potential revenue suggest that the transit agencies have a needed capacity to add a package delivery service, a market for the service, and a facility to house the service."

Edrington, S., Brooks, J., Cherrington, L. K., Hansen, T., Hamilton, P. T., Pourteau, C., & Texas A&M Transportation Institute. (2016). *Identifying best practices for managing operating costs for rural and small urban transportation systems: Technical report.* (No. FHWA/TX-13/0-6694-1). https://rosap.ntl.bts.gov/view/dot/31234

From the abstract: "Rural and small urban transit providers across the United States face fiscal challenges caused by the growing gap between the cost of providing transit service and available federal, state, and local funding. In Texas, the fiscal challenges facing rural and small urban transit providers are compounded by an increasing population and growth in urbanization in some counties and declining population with increasing demand for transit service for an aging population in other counties. The research report examines the drivers of operating costs, approaches to containing costs, transit agency priorities for tools needed to better contain costs, and methodology used to develop the guidebook and workshop"

Ernzen, J., Ernzen, K., & Arizona. Dept. of Transportation. (2007). *Developing a Stabilized Public Transportation Revenue Source* (No. FHWA-AZ-07-620). https://rosap.ntl.bts.gov/view/dot/40322

From the abstract: "The objective of this research was to explore new dedicated funding mechanisms for public transportation for the State of Arizona. The research work began with a search of the existing literature on the subject to determine what other studies had been done about this topic and what innovative financing methods had been discovered. [In conclusion] [i]t would appear that innovative funding sources across the nation are very rare and often very personalized to the state affected. However, the researchers investigated the programs and legislation provided by the survey, along with what was found by their own research, in order to provide the most comprehensive report possible based on the limited response. The population and transportation needs for the State of Arizona will continue to increase significantly into the future. Finding a dedicated revenue source is the most effective way of ensuring adequate funding for public transportation that will serve the needs of users. Researchers believe that implementation of one or more of the above potential options will lead to more revenue dedicated to public transportation for the State of Arizona."

Gahbauer, J., Matute, J., & Taylor, B. D. (n.d.). *Options for the Future of State Funding for Transit Operations in California: Informing the Future of the Transportation Development Act*. From https://stran.senate.ca.gov/sites/stran.senate.ca.gov/files/UCITS%20Options%20for%20the%20Future%20of%20State%20Funding%20for%20Transit%20Operations%20in%20California.pdf

From the abstract: "California supports transit with operating subsidies through Transportation Development Act (TDA) funding. However, these subsidies are not directly linked to an agency's performance, and they do not provide transit agencies with any direct incentive to improve performance, efficiency, or effectiveness other than to avoid a (seldom enforced) financial penalty. TDA funding is often uncoordinated within regions, and its disbursement is not well aligned with the state's contemporary social, economic, and environmental goals for transit. Moreover, for transit to be effective at meeting any of these goals, it needs riders above all else—and while the TDA is an important source of operating revenue for agencies across the state, the TDA does not directly support agency actions that increase ridership. On the contrary, the TDA's funding eligibility threshold requirements (the "farebox recovery ratio" and CPI cost escalation cap) at times gives transit managers an incentive to cut service. By restructuring how TDA funds are paid, the state can more effectively shape what transit service is provided in service of state goals. Accordingly, this brief outlines five ideas for doing this."

Kaseko, M., Nyagah, P., Teng, H. (Harry), & Mineta National Transit Research Consortium. (2014). *Enhancing Transit Service in Rural Areas and Native American Tribal Communities: Potential Mechanisms to Improve Funding and Service* (No. CA-MNTRC-14-1147). https://rosap.ntl.bts.gov/view/dot/27889

From the abstract: " Primary funding for rural transit comes from federal and state Departments of Transportation (DOTs). However, through numerous surveys, rural transit providers have cited financial constraints as a major limitation to providing adequate desired transit services, meaning that these traditional DOT funds are not sufficient for funding rural transit. Consequently, transit planners and providers must pursue additional funding beyond these traditional programs before they can meet and satisfy the transit demand. To that end, the primary objective of this study was to identify and document current non-DOT (i.e., non-traditional) funding programs that rural transit providers and planners could pursue and acquire to close that funding gap and enable them to meet the transit demand."

Kenyan, J., Glitman, K., McRae, G., & University of Vermont. Transportation Research Center. (2009). *Future Surface Transportation Financing Options: Challenges and Opportunities for Rural States* (No. UVM TRC Report # 09-003). https://rosap.ntl.bts.gov/view/dot/34411

From the abstract: " At the national level, the Commission on National Surface Transportation Policy and the Revenue Study Commission are considering short and long-term alternatives to replace or supplement the gasoline and diesel tax as the principal revenue source to support the Federal Highway Trust Fund (HTF) over the next 30 years. Actions are also being initiated on the state level in a number of states, in part to meet immediate resource shortfalls, but also to test new revenue systems for longer-term deployment. The outcomes of these various deliberations and experimentation inform this report and how it addresses [various] questions[.]"

Mattson, J., Mistry, D., North Dakota State University, Upper Great Plains Transportation Institute, & Small Urban and Rural Center on Mobility. (2024). *Rural Transit Fact Book 2024* (No. 325). https://rosap.ntl.bts.gov/view/dot/76942

From the abstract: " Public transportation plays a fundamental role in the livability of communities of all sizes. The Rural Transit Fact Book provides information on transit service availability and cost to help the transit industry in the United States provide efficient and effective service to meet rural community mobility needs. Financial and operating statistics can be used by agency managers, local decision makers, state directors, the Federal Transit Administration (FTA), and lawmakers to assist in policy making, planning, managing operations, and evaluating performance. The Rural Transit Fact Book serves as a national resource for statistics and information on rural transit in America. This publication includes rural demographic and travel behavior data as well as financial and operating statistics for agencies receiving Section 5311 funding. In addition to national-level data, statistics are presented by state, FTA region, tribe, and mode, as well as other agency characteristics."

Mohr, R., Deller, S., & Halstead, J. (2010). *Alternative Methods of Service Delivery in Small and Rural Municipalities*. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-6210.2010.02221.x

From the abstract " Data from approximately 1,000 small, mostly rural municipalities in Illinois, New Hampshire, and Wisconsin address local choices on production and contracting arrangements for a wide range of services. The results suggest that the use of both for-profit contractors and cooperative agreements with other governments correlate negatively with population size. Small municipalities are less likely to use competitive bidding processes, compare costs between production options, or report

that privatization produces savings. Median income, rural geography, and ideology show statistically significant associations with contracting decisions. Respondents generally consider themselves "satisfied" with services provided by contract, although satisfaction levels are lower than those associated with self-provision of the same services. Citizen satisfaction associated with services delivered by other governments is lower than those provided by private contractors, suggesting that no trade-off in service quality is directly attributable to for-profit contractors."

Pulipati, S. B., Mattingly, S. P., & Casey, C. (2017). Evaluating state level transportation revenue alternatives. *Case Studies on Transport Policy*, *5*(3), 467–482. https://doi.org/10.1016/j.cstp.2017.06.002

From the abstract: "Numerous studies have investigated the state of transportation funding in US states and forecasted a significant funding deficiency. Reasons for this include the lack of political will to increase the rates of fuel taxes, the loss in purchasing power of the fuel tax due to inflation, and the reduction in revenue due to increased use of alternative fuel vehicles. Possible options to generate the additional revenue to fill this funding gap range from modifying existing taxes and fees to implementing new revenue sources. However, determining what to do and offering policy recommendations can be challenging and may vary from jurisdiction to jurisdiction. The authors' critical review of the methods used by earlier studies that evaluate revenue generation strategies at the state level reveals a lack of systematic analysis. In response, the authors propose the use of a systematic multi-criteria analysis (MCA) as a better decision support tool. The MCA is argued to be an improvement over current methods because the best funding strategy depends not only on revenue generation but also on other parameters such as fairness and ease of implementation. To support the argument, the authors conduct a comprehensive multi-criteria evaluation of transportation revenue generation alternatives for the State of Texas. The authors' criteria system provides a better platform for including the priorities of stakeholders and policy makers at different levels. Including an outranking method such as PROMETHEE and a scenario analysis, the evaluation becomes more objective and more transparent. This enables the decision makers to more effectively compare the competing objectives of different alternatives. The authors discuss the drawbacks of the recent transportation funding decisions made by the Texas Legislature and highlight how the systematic evaluation can improve decision making. The authors recommend that states follow the systematic evaluation of funding options described in this paper, which can provide policy makers and the public a better understanding of the pros and cons of the funding options thereby helping them to select the most suitable funding strategy."

Quarles, N., Kockelman, K. M., & Mohamed, M. (2020). Costs and Benefits of Electrifying and Automating Bus Transit Fleets. *Sustainability*, *12*(10), Article 10. https://doi.org/10.3390/su12103977

From the abstract: " Diesel-powered, human-driven buses currently dominate public transit options in most U.S. cities, yet they produce health, environmental, and cost concerns. Emerging technologies may improve fleet operations by cost-effectively reducing emissions. This study analyzes both battery-electric buses and self-driving (autonomous) buses from both cost and qualitative perspectives, using the Capital Metropolitan Transportation Authority's bus fleet in Austin, Texas. The study predicts battery-electric buses, including the required charging infrastructure, will become lifecycle cost-competitive in or before the year 2030 at existing U.S. fuel prices ($2.00/gallon), with the specific year depending on the actual rate of cost decline and the diesel bus purchase prices. Rising diesel prices would result in immediate cost savings before reaching $3.30 per gallon. Self-driving buses will reduce or eliminate the need for human drivers, one of the highest current operating costs of transit agencies. Finally, this study develops adoption schedules for these technologies. Recognizing bus lifespans and driver contracts, and assuming battery-electric bus adoption beginning in year-2020, cumulative break-even (neglecting extrinsic benefits, such as respiratory health) occurs somewhere between 2030 and

2037 depending on the rate of battery cost decline and diesel-bus purchase prices. This range changes to 2028 if self-driving technology is available for simultaneous adoption on new electric bus purchases beginning in 2020. The results inform fleet operators and manufacturers of the budgetary implications of converting a bus fleet to electric power, and what cost parameters allow electric buses to provide budgetary benefits over their diesel counterparts."

Twaddell, H., & Emerine, D. (2007). *Best Practices to Enhance the Transportation–Land Use Connection in the Rural United States*. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=20bfbf89e59050cde064dff569f931c0264578f6

From the abstract: "This report presents guidance on how best to integrate land use and transportation in rural communities. The study highlights programs and investment strategies that support community development and livability while providing adequate transportation capacity. The research consisted of an extensive review of current literature; a series of focus group discussions with community, tribal, and transportation agency staff and officials; and a survey aimed at a cross section of rural transportation planners. The research identified key principles for successful land use and transportation integration and outlines specific approaches suitable to a range of rural community types. This report will be useful to transportation planners and decisionmakers who deal with land use and transportation issues in rural communities."

Yang, H., Cherry, C. R., Zaretzki, R., Ryerson, M. S., Liu, X., & Fu, Z. (2016). A GIS-based method to identify cost-effective routes for rural deviated fixed route transit. *Journal of Advanced Transportation*, *50*(8), 1770–1784. https://doi.org/10.1002/atr.1428

From the abstract: " Deviated fixed route transit (DFRT) service connecting rural and urban areas is a growing transportation mode in the USA. Little research has been done to develop frameworks for route design. A methodology to explore the most cost-effective DFRT route is presented in this paper. The inputs include potential DFRT demand distribution and a road network. A heuristic is used to build possible routes by starting at urban cores and extending in all network directions in certain length increments. All the DFRT routes falling in the length range desired by the users are selected. The cost effectiveness of those routes, defined by operating cost per passenger trip, is compared. The most cost-effective route is selected and presented in a GIS map. A case study illustrates the methodology in several Tennessee metropolitan regions. The most cost-effective route length is case specific; some routes (e.g. those out of our Nashville case) are most cost effective when short, while others (e.g. those out of Memphis) are most cost effective when long. Government agencies could use the method to identify routes with the lowest operating cost per passenger given a route length or an operating cost budget."

<u>Global</u>

Börjesson, M., Fung, C. M., & Proost, S. (2020). How rural is too rural for transit? Optimal transit subsidies and supply in rural areas. *Journal of Transport Geography*, *88*, 102859. https://doi.org/10.1016/j.jtrangeo.2020.102859

From the abstract: "The optimal supply of rail and bus in low density areas is studied by calibrating a demand and supply model with three modes (car, bus and rail) to an existing low density corridor. Varying the length of the network, the frequencies and the size of the populations, allows to study the trade-off between the consumer surplus losses of the public transport users and the transit operation

and maintenance costs savings. We find that for an existing rail network, the optimization of frequency is the prime source of welfare gains. The rail network is marginally beneficial in the sense that keeping the network is welfare improving as long as there is no major repair or replacement investment needed. When population in the smaller towns decreases strongly, it becomes welfare improving to close the existing rail network but a bus service remains beneficial for at least part of the network."

Contacts

The author(s) engaged with the individuals below to gather information for this investigation.

Melissa Clark, Transportation Engineer, Caltrans