

Addendum to the Community Funding Area Program Management Plan's (CFA PMP) Appendix B: Justification for the Addition of Complementary ADA/Paratransit Funding to the CFA Program Allocation in the Annual Wake Transit Work Plan

Introduction:

When the Wake Transit Community Funding Area Program Management Plan (CFA PMP) was adopted by its relevant governing bodies in November 2018, it included a white paper on program funding in its Appendix B. This white paper provided an overview of and justification for possible funding allocations for planning/technical assistance, capital, and operating projects under the Community Funding Area Program (CFAP). The selected funding option was based on a plan to implement six (6) community circulators, two Transportation Demand Management (TDM) programs, four (4) subsidy programs, and six (6) capital projects in CFAP communities by the close of fiscal year 2027. What this funding plan did not include was an assumption of funding for the additional cost of operating required complementary paratransit services that must be provided when fixed-route services are operated¹.

The purpose of this addendum to the white paper in Appendix B is to document the process taken by Capital Area Metropolitan Planning Organization (CAMPO) staff and members of the Transit Planning Advisory Committee (TPAC) subcommittees to revisit and rectify this funding oversight. This process included the development of a methodology for estimating paratransit ridership and cost in new transit markets, presenting those estimations to the relevant committees, and incorporating the decision made by those bodies on necessary funding assumptions into the current FY21 Wake Transit Work Plan's multi-year operating and capital programs.

Methodology:

CAMPO staff employed two methodologies for estimating annual paratransit ridership and service cost in the Community Funding Area markets. First, staff used the sketch planning model built for the Transit Cooperative Research Program (TCRP), as described in the 2007 article, "Improving ADA Complementary Paratransit Demand Estimation".² The ridership estimations from the sketch planning model appeared higher than anticipated when compared to local historic paratransit ridership when adjusted for service area population. Therefore, CAMPO staff developed a second set of ridership and cost estimations based upon the available local paratransit ridership data. Staff presented both pairs of estimates to the TPAC Planning & Prioritization and Budget & Finance Subcommittees at a joint meeting on December 5, 2019.

TCRP developed its sketch modeling process by considering data on trips, fares, service reliability, program eligibility, fixed-route service use, and market area population (including density, disability, and snowfall) from 28 representative transit providers in 2005. This process produced a regression model with five statistically significant independent variables: paratransit base fare; percent of applicants for ADA paratransit found to be conditionally eligible; whether a system uses conditional trip determination; percent of the population under the poverty line; and effective on-time window for ADA paratransit.

¹ Required for all day fixed route service by the Americans with Disabilities Act (ADA) of 1990

² National Academies of Sciences, Engineering, and Medicine 2007. *Improving ADA Complementary Paratransit Demand Estimation*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/23146>.

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Considering local trends in provider/municipal partnerships, CAMPO staff paired each Community Funding Area Program (CFAP) community with its most likely partnered transit provider, inputted the five local independent variables, and calculated each community’s annual paratransit ridership coefficient and margin of error at a statistical confidence level of 90 percent. Staff multiplied these coefficients by the community’s municipal or service area population to calculate the estimated annual complementary paratransit ridership. Staff then multiplied that ridership estimate by the cost per paratransit trip as given by the service providers. All the described estimations can be seen in Table 1: TCRP Model Annual CFAP Paratransit Ridership and Cost Estimations. Cost estimations for the towns of Knightdale, Rolesville, Wendell, and Zebulon were not included because the original assumptions of the white paper, as noted in this addendum’s introduction, only called for the completion of six (6) community circulators/shuttles in the most populous CFA-eligible municipalities.

Table 1: TCRP Model Annual CFAP Annual Paratransit Ridership and Cost Estimations

CFAP Partner	Wake Forest ³	Apex	Morrisville	Fuquay-Varina	Garner	Holly-Springs	Knightdale	Rolesville	Wendell	Zebulon
Per Capita Annual Ridership Coefficient	0.41	0.77	1.02	0.73	0.29	0.89	0.46	0.55	0.35	0.36
Annual Ridership (90% Confidence Margin of Error)	~10,444 (6,311-17,284)	~18,482 (11,168-30,586)	~25,064 (15,145-41,478)	~17,516 (10,585-28,988)	~8,104 (4,897-13,411)	~28,114 (16,987-46,522)	~6,566 (3,968-10,866)	~3,489 (2,108-5,774)	~2,228 (1,347-3,688)	~1,765 (1,067-2,921)
Estimated Cost Per Trip Range⁴	\$10.97 - \$21.00	\$15.64 – \$31.28	\$15.64 – \$31.28	\$15.64 – \$31.28	\$10.97 - \$21.00	\$15.64 – \$31.28	N/A	N/A	N/A	N/A
Annual Cost (Low Estimate)	\$114,571	\$289,058	\$392,001	\$273,950	\$88,901	\$439,703	N/A	N/A	N/A	N/A
Annual Cost (High Estimate)	\$219,324	\$578,117	\$784,002	\$547,900	\$170,184	\$879,406	N/A	N/A	N/A	N/A

When CAMPO staff followed the methodology laid out in the TCRP model, it became clear that even the ridership estimate’s lower limits were higher than the historical data produced by the service providers. This was made particularly evident by the Town of Wake Forest, whose paratransit service operated by the City of Raleigh, produced only 2,734 rides in 2018 at a cost of \$29,992 (less than the TCRP model estimate by approximately a factor of four).

There are several vectors that could be contributing to the unusually high estimates. The TCRP model does not consider proximity of population to fixed-route transit, nor does it consider the integration of taxis into paratransit service or any recent cultural/technological trends such as the use of Transportation Network Companies (TNC) like Uber or Lyft. To give greater context to the TCRP model estimates, CAMPO staff used the Town of Wake Forest’s 2018 ridership per trip coefficient (Actual Ridership divided by Service Area Population) of 0.1075 as a plumb line to estimate ridership and service costs for the other five municipalities as seen in Table 2.

³ Town of Wake Forest: Actual Annual ADA Ridership = 2,734; Actual Annual Cost = \$29,992

⁴ Cost estimation only for municipalities assumed to produce a fixed-route circulator service or a service of equivalent cost.

Table 2: Historically Based CFAP Annual Paratransit Ridership and Cost Estimations

CFAP Partner	Wake Forest	Apex	Morrisville	Fuquay-Varina	Garner	Holly-Springs
Reference (2018 Town of Wake Forest) Ridership Coefficient	0.1075	0.1075	0.1075	0.1075	0.1075	0.1075
Transit Service Area Population or Municipal Population	25,414	24,059	24,691	24,156	27,750	31,646
Annual Ridership Estimation	2,734	2,588	2,656	2,599	2,985	3,404
Estimated Cost Per Trip Range	\$10.97 - \$21.00	\$15.64 – \$31.28	\$15.64 – \$31.28	\$15.64 – \$31.28	\$10.97 - \$21.00	\$15.64 – \$31.28
Annual Cost (Low Estimate)	\$29,992	\$40,476	\$41,540	\$40,648	\$32,745	\$53,238
Annual Cost (High Estimate)	\$57,414	\$80,953	\$83,080	\$81,297	\$83,685	\$106,477

One reality that applies to both ADA/Paratransit planning and the paratransit planning for Wake County is the fact that there are future CFAP paratransit service areas that will overlap with existing paratransit service areas operated by the City of Raleigh, the Town of Cary, and GoTriangle. Therefore, it was recommended that CAMPO staff determine how many people in the Town of Apex and the Town of Garner (the two qualifying municipalities closest to implementing a local all-day fixed route service) are not currently served by existing paratransit service. Using ESRI's ArcGIS platform with block group-level population data from the US Census Bureau's 2017 American Community Survey, staff determined that approximately 16,213 people are currently not covered by paratransit service operating in the Town of Garner, and approximately 16,379 people are currently not being served by said service in the Town of Apex.

These estimates were presented to the TPAC Planning & Prioritization and Budget & Finance Subcommittees at a joint meeting on December 5, 2019, to yield a recommendation to the TPAC for additional CFAP funding allocations based on the need to provide complementary paratransit service.

Presentations to Relevant Committees:

On December 5, 2019, in a joint meeting of the TPAC Budget & Finance and Planning & Prioritization Subcommittees, members were presented with the annual ridership and cost estimations described in the above methodology section. Specifically, this information was laid out in a series of scenarios showing different levels of programmatic participation. The first, "Long Term" scenario presented the cost estimates for providing complementary paratransit for six community circulator projects. This scenario would be considered a full build out of the CFAP. The second "Long Term" scenario assumed only half program participation, allowing for paratransit costs for three community circulators. These "Long Term" scenarios were presented with estimates from both the TCRP model and the historical data specific to Wake Forest.

Lastly, two "Short Term" scenarios were presented to the subcommittees. These scenarios described implementing service in the towns of Garner and Apex, which have both either completed or are completing a CFAP planning project for all-day fixed-route service. Using the population currently not served by paratransit service for both municipalities (16,213 and 16,379 respectively), annual ridership and service costs were estimated by staff using both the TCRP model and the historical data from the Town of Wake Forest. A discussion among the subcommittee participants ensued over (1) which estimation method should be considered most

reliable, and (2) how much program participation should be assumed. By the end of the joint subcommittee meeting, it was recommended that \$60,000 be added to the CFAP allocation for FY 2021 to account for the cost of providing complementary ADA service in the Town of Apex. The subcommittees also recommended that operating funding to account for complementary paratransit service for four (4) additional community circulators be added to the CFAP allocation at a rate of one (1) new community circulator per year from FY 2022 through FY 2025. Therefore, the additional funding assumes that the new funding can accommodate five (5) additional community circulators/shuttles in CFAP communities by FY 2025. Further increases to the ADA/paratransit operating budget after FY2025 would be at a rate of 2.5% to simply cover the cost of inflation.

In preparation for the April release of the Fiscal Year 2021 Recommended Wake Transit Work Plan, CAMPO staff presented to the TPAC on March 11, 2020, the recommended CFAP funding increases for paratransit services as discussed by the TPAC Planning & Prioritization and Budget & Finance Subcommittees. These specific increases are noted below in Table 3. These recommendations were accepted by the TPAC and eventually incorporated into the adopted FY21 Work Plan.

Table 3: CFAP Funding Allocations for FY21 Recommended Work Plan

	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
FY20 Wake Transit Work Plan CFAP Allocation	\$100,000	\$310,000	\$1,087,000	\$1,342,000	\$1,097,000	\$1,244,000	\$1,304,000	\$1,337,000	\$1,371,000
Additional CFAP Funding for Paratransit	\$0	\$0	\$103,000 ⁵	\$157,000	\$215,000	\$276,000	\$340,000	\$348,000	\$357,000
FY21 Wake Transit Work Plan CFAP Allocation	\$100,000	\$310,000	\$1,190,000	\$1,499,000	\$1,312,000	\$1,520,000	\$1,644,000	\$1,685,000	\$1,728,000

Conclusions and Further Recommendations:

For a program that requires a minimum of a 50 percent local match, it was determined to be necessary that additional funding be allocated to the CFAP to assist in covering the cost of providing paratransit service in a new market that does not benefit from either economies of scale or an established ridership market. It was recognized through this study that the TCRP's "sketch planning model" did not suffice in providing reliable estimates. The authors of the 2007 article described the model as a "first step in understanding the travel behavior of people with disabilities" in which the building of a disaggregate model would have been preferable if it were not for "the difficulty and expense of obtaining sufficient data for a disaggregate model".

In conducting further research, CAMPO staff discovered that the authors of the 2007 TCRP model did in fact build a disaggregate model for estimating paratransit ridership, and they describe that model in an updated 2012 article entitled, "Improving ADA Paratransit Demand Estimation: Regional Modeling". It is the recommendation of CAMPO staff that this methodology be considered for further estimation efforts. However, it does require locally specific data be collected, so it should be studied in tandem with a larger-scale CAMPO surveying project such as one that may be completed for a Metropolitan Transportation Plan update.

⁵ \$60,000 for paratransit services plus \$43,000 of funding that carried over from previous fiscal year fund balance.