


FORT BEND COUNTY

WSP, USA INC.

KP George, County Judge



Authorized Agent- Signature

James Caughorn
Authorized Agent- Printed Name

ATTEST:

Vice President
Title

Laura Richard, County Clerk

9/8/2020
Date

Reviewed By:

Perri D'Armond, Public Transportation Director

AUDITOR'S CERTIFICATE

I hereby certify that funds are available in the amount of \$_____ to accomplish and pay the obligation of Fort Bend County under this contract.

Robert Ed Sturdivant, County Auditor

Exhibit A

Scope of Work



SCOPE OF WORK

Fort Bend County Public Transportation Planning Service

National Transit Database Sampling Plan

Fort Bend County (FBC) Public Transportation has asked WSP and Nancy R. Edmonson to develop a sampling plan for its National Transit Database (NTD) to calculate reporting of boardings and passenger miles of its fixed-route service and assisting them as needed with NTD reporting requirements for all modes.

Background

Transit agencies that receive federal assistance are required by the Federal Transit Administration (FTA) to report certain data, including passenger boardings and passenger miles travelled, each year to the National Transit Database (NTD). The data must be reported by mode. Because the number of passenger miles carried by an agency is part of the formula used to apportion FTA Section 5307 grant funds to urbanized areas, the FTA requires that each agency's estimation of annual passenger miles by mode (e.g., fixed-route bus, demand-response bus) reach a specified accuracy level: +/- 10% precision at the 95 percent confidence level.

A passenger boarding - also called an unlinked passenger trip - occurs every time one person boards the transit vehicle, regardless of whether that boarding represents a new trip or transfer. Passenger miles are the cumulative sum of distance ridden by all passengers; it can also be calculated by multiplying passenger boardings by the average trip length ridden.

The FTA's NTD Policy Manual allows transit properties to use one of three data collection techniques for the collection of passenger statistics:

100 percent count (census)

One of the Federal Transit Administration's (FTA's) suggested sampling techniques

An alternative sampling technique

NTD Sampling Plan

Scope of Work

August 5, 2020

The 100 percent count entails “counting every passenger each time he/she boards a vehicle.” The data collection technique allows for a maximum of 2% missing data. The NTD manual notes that this is generally applicable to smaller transit systems.

If 100% counts are not available, the agency must use either a sampling plan laid out by the FTA or an alternative sampling plan for annual total data all modes and types of service that meets the following statistical accuracy:

- Minimum confidence of 95%
- Minimum precision level of $\pm 10\%$

Transit agencies may use any other procedure to sample boardings and passenger mile data, as long as the procedure meets FTA confidence intervals and is approved by a qualified statistician. Transit agencies may use different sampling techniques for each mode and type of service. The NTD refers to sampling plans created by agencies or statisticians as alternative sampling methods. The FTA does not review or approve alternative sampling techniques. A qualified statistician must design the sampling technique to meet FTA confidence and precision levels.

For fixed-route services, most agencies rely on farebox or operator counts to calculate boardings (100% count method). They then calculate passenger miles by multiplying those boardings by the average passenger trip length (sampling method). The average passenger trip length is based on a random sampling of trips wherein each passenger boarding and alighting is counted by stop, usually by a surveyor but sometimes by the bus operator. The sampling is generally spread across the entire fiscal year but may be executed over a shorter time frame if needed and justified by the statistician.

Once the distance between stops is added, the average distance traveled by a passenger can be calculated. Agencies under a certain size that use a sampling technique to calculate average trip length (and hence passenger miles) are required to execute a sample only once every three years. Larger agencies must sample annually.

For demand-response service, the boardings and passenger miles are actuals drawn from the agency’s scheduling software or manifests (100% count method).

Temporary Suspension

NTD Sampling Plan

Scope of Work

August 5, 2020

In March 2020, the FTA suspended in-person sampling activities until further notice. Because of the suspension, the FTA will waive the trip length sampling requirement for 2020 for those systems that had planned to use in-person sampling in 2020. To complete the 2020 NTD report, agencies can use the average passenger trip length from their most recent mandatory sample year.

Fort Bend County Situation

For its demand-response service, Fort Bend County reports boardings and passenger miles using the 100% count method, drawing its data from the Trapeze scheduling system.

For the fixed-route (commuter) service, Fort Bend County reports boardings using the 100% count method (operator counts). For the average passenger trip length, it has used a three-year sampling cycle. The last mandatory sampling year was FY2017, but FBC has no documentation on how the last sample was developed or executed three years ago. For FY2019, FTA questioned the average trip length used to calculate passenger miles, but since it was the last year of the sampling cycle, FTA accepted a sampling method waiver.

Fort Bend County was due to execute a new sample from which to calculate average passenger trip length in FY 2020, but did not do so. But due to the suspension of in-person sampling and the decision of the FTA to accept average passenger trip lengths from the past mandatory sampling year, Fort Bend County has the trip length data it needs for FY 2020 NTD reporting.

Task 1 – Determine Data Collection Requirements for FY 2021

Contact the NTD validation analyst for guidance with respect to FY 2021 sampling for guidance on sampling and data collection in FY 2021.

Review methodology with FBC staff for counting and compiling boardings on fixed-route service.

Schedule: August 2020

Task 2 – Develop Sample Plan for FY 2021

NTD Sampling Plan

Scope of Work

August 5, 2020

Assuming the FTA does not direct otherwise, develop a random sampling plan that complies with the NTD requirement for 95% confidence in +/-5% accuracy for the average trip length for fixed-route service.

Sometimes, alternate plans that require less data collection can be developed for park and ride services that require less data collection than the pre-approved sample plans that the FTA includes in its sampling manual. If the sample plan is not one of the pre-approved sample plans laid out by the FTA, write a certification report that shows that the sample plan meets the statistical requirements.

Develop instructions for FBC staff on how to execute the sample and compile the annual boardings and passenger mile data for each mode. Included in these instructions would be ways to alter the sample plan as needed, if data collection cannot begin at the start of the fiscal year due to FTA restrictions on in-person sampling.

Schedule: September 2020

Task 3 – FY 2020 NTD Reporting Support (as needed)

Provide support to FBC staff, if needed, with Fort Bend County's FY 2020 NTD reporting, particularly related to ridership and service data.

Exhibit B
Cost Proposal

NTD Sampling Plan

Cost Proposal

August 5, 2020

Cost Proposal

	Hourly Rate	Task 1	Task 2	Task 3	Total
<i>Nancy R. Edmonson</i>					
Nancy Edmonson	\$150.00	6	24	16	46
Ross Griffey	\$65.00	3	8	8	19
Subtotal		\$1,095.00	\$4,120.00	\$2,920.00	\$8,135.00
<i>WSP</i>					
Bin Wang	\$149.15	1	1	1	3
Joseph Boateng	\$101.18	1	1	1	3
Subtotal		\$250.33	\$250.33	\$250.33	\$750.99
Total Cost					\$8,885.99