Fort Worth Transportation Authority

Service Standards

December, 2013

Table of Contents

Introduction

This document is intended to outline Service Standards for service that is operated by the Fort Worth Transportation Authority (The T).

The T's mission is to provide quality public transportation service that respond innovatively to the diverse and changing mobility needs of our community. The Service Standards lay out a framework for achieving this mission; they also provide a framework for a consistent and fair evaluation of both existing and proposed services.

By constructing an evaluation framework, the T will be able to analyze the productivity of transit services. Service changes and requests can then be made based on data collected and reviewed according to established policy measures. These service standards are the performance goals and measures set by the T that defines where transit service is performing at inadequate, adequate, or superb levels. By comparing the performance of individual routes to appropriate service standards, T staff can determine if a route is performing adequately or inadequately in some dimension of the service. This document is organized into the following sections:

- Definition of Service Categories
  - Radial
  - Crosstown
  - Feeder
  - Lifeline
  - Express
  - Rider Request
  - Commuter Rail

- Service Availability
  - Transit Needs Index
  - Bus Stop Placement

- Distribution of Amenities Standards
  - Bench & Shelter Placement

- Service Quality:
  - Vehicle Load Standards
  - Vehicle Assignment
  - Service Frequency
  - On-time Performance

- Service Standards Monitoring Methods:
  - On-going Monitoring Procedures
  - Route Performance Index (RPI)

- Service Change Process
  - Major Service Change Policy
  - Disparate Impact Policy
  - Disproportionate Burden Policy

- Appendix A – Transit Needs Index calculation methodology

Definition of Service Categories

T fixed route bus service includes local fixed route, express route, and rider request routes. T also operates commuter rail service.

Local fixed route service is oriented toward traditional transit users and/or transit dependent populations. It is defined as bus service that runs within shared public right of way along a specified path on a specified frequency. (The frequency varies from 15 minutes to 60 minutes.) Local fixed route service can also be classified into one of five categories.

- *Radial service* is oriented toward a common transfer point (usually the Intermodal Transportation Center in Downtown Fort Worth). The result is that several routes (spokes) connect at one point (hub).

- *Crosstown routes* are oriented toward providing a direct east-west connection between communities and employment centers. Although transfers are possible along these routes, they do not serve downtown.

- *Feeder Routes* are focused on transit centers and rail stations to facilitate transfers and to feed and distribute riders to/from other routes.

- *Circulator Routes* provide circulating service on a fixed weekday schedule. These routes usually provide access to niche/specific markets such as universities, shopping, entertainment, business parks, CBD population centers or other attractions and typically contain variable and flexible service based on demand.

- *"Lifeline" service* is defined as a fixed route that is the only service within 1/4 of a mile of one or more of the following: public housing, public social service facilities, public medical facilities or public post-secondary school for low income residents. These routes also provide the only access from transit dependent neighborhoods to essential shopping or medical facilities.

Additionally, the T provides express and rider request service on rubber-wheeled vehicles.

- *Express service* typically attracts riders who prefer the modal transit option to a daily commute by automobile. It provides service with a limited number of stops and generally operates to and from downtown.

- *Rider Request service* was developed to serve transit needs in areas that are new to the service area, or where the mobility needs do not warrant a fixed route service. Rider request areas are designated as special zones within the service area, where vehicles are made available to pick up and drop off passengers within that zone, at the rider's request. Trips are "booked" through phone calls made to the T customer service line.

The T jointly operates commuter rail service with Dallas Area Rapid Transit (DART) under

contract with Herzog. This service is known as Trinity Railway Express (TRE). Commuter rail is a mode of passenger transportation using vehicles with steel wheels on steel rails using tracks that are part of a general rail network.

Service Standards

The standards for the level and quality of service is developed using the following key components:

- Service Availability & Distribution of Transit Amenities
  - Route Spacing
  - Bus Stop & Distribution of Transit Amenities Standards
- Service Quality
  - Vehicle load factors
  - Vehicle Assignment
  - Service Frequency

The following details how these components are put to use.

SERVICE AVAILABILITY

Adequate service availability is determined by two important elements: access to bus routes and access to bus stops. Additionally, the items of comfort and convenience available to the general riding public such as benches and shelters must be conveniently and equally distributed.

Route Spacing

Route spacing is the average distance between parallel routes. Good accessibility to nearby routes will enhance the attractiveness of transit. Service should be designed to provide all segments of the population with reasonable accessibility from residential areas to employment shopping, medical, education, and recreation centers. A good measure of accessibility is the distance between transit routes or route spacing. Factors that affect route spacing include geographical conditions, population concentrations, and trip generators. Route performance is also considered when determining route spacing.

One reasonable way to estimate route spacing requirements is to use a **Transit Need Index** (TNI). The TNI helps to identify areas most likely to have captive riders, or those who have no choice but to use transit and include a "minority persons" component to allow consideration of impacts on minority populations. The methodology for calculating the TNI is illustrated in Appendix A.

When planning route spacing, the T considers both coverage-based goals and productivity-based goals. Coverage-based route spacing goals attempts to provide service to all areas however it may produce a low-quality service, especially in high transit demand areas. The additional use of productivity-based goals leads to more efficient use of resources. Productivity-based route planning will lead to higher levels of service to areas demonstrating the strongest demand. To assure that routes critical to transit dependent groups are not negatively impacted by productivity-based route planning, the use of "lifeline" route classification may be applied to protect the route from elimination.

The following are the T's "coverage-based" goals for radial routes:

Very high transit need	80% of population within ¼ mile of bus route
High transit need	60% of population within ¼ mile of bus route

Average transit need	50% of population within ¼ mile of bus route
Low transit need	as demand indicates

The use of coverage-based route planning is a good first step when evaluating route spacing. Ultimately, the use of productivity-based measures—such as Route Performance Index—as described on page 16, will also be used to determine route spacing.

If any bus service, regardless of frequency, is provided along a given street, then all residents within ¼ mile of that street are considered to have access to service.

Bus Stop Spacing

In general, bus stops should be located in the vicinity of demonstrated or potential ridership generators where this can be accomplished safely.

A requested location that has a projection of a minimum of 10 boardings per day should be considered as a candidate for a bus stop. This is determined by considering the land use of the area and/or identifying if there are key ridership generators.

To maintain an efficient flow of bus travel, spacing of bus stops is an important point to consider. In general, the land use development is the primary factor in determining the number of bus stops placed per given area. The following are general rules of thumb for spacing of bus stops:

Environment	Spacing Range	Typical Spacing
Central Core Areas of CBD's	300 to 1000 feet	600 feet
Urban Areas	500 to 1200 feet	750 feet
Suburban Areas	600 to 2500 feet	1000 feet

Station spacing

Station spacing is important for efficient running time of the commuter rail which, as opposed to light rail technology, has longer acceleration and deceleration times. The average spacing along the TRE Commuter Rail line is 3.6 miles apart. Currently, there are 10 stops along the line.

According to the RAILTRAN Corridor Planning and Implementation Study (Final Report, June 11, 1992), the historical placement of the stations were based upon base ridership projections, site's development suitability (high density, mixed use, industrial and low density), transit access and linkage potential, timing for joint development, availability and strength of joint venture partner and ridership increase from joint venture partner. Each proposed station was evaluated according to a rating and weighting system determined on these factors.

The following are the existing spacing between the stations:

No.	Stations	Distance between Stations (in miles)
1	T&P Building to ITC Terminal	0.75
2	ITC Terminal to Richland Hills	7.10
3	Richland Hills to Hurst-Bell	3.96
4	Hurst-Bell to Centerport	6.16
5	Centerport to West Irving	2.56
6	West Irving to South Irving	3.50
7	South Irving to Medical/Market Center	6.30
8	Medical/Market Center to Victory	0.94
9	Victory to Union Station	1.35
	Average Distance between Stations	**3.62**
	Total Distance on Tracks	**32.62**

DISTRIBUTION OF AMENITIES

Bench Placement

The T provides benches for the added convenience of its passengers. Benches are recommended at frequently used stops where the numbers of daily passenger boardings is generally higher than at locations with stand alone bus stops. An overall goal is to have benches placed strategically to allow equal availability throughout the system. In the initial assessment for bench placements, **ridership should be at a minimum of 25 boardings per day**. Other criteria such as the presence of "sensitive" facilities—such as adjacent hospitals, senior citizen housing, schools, social service facilities, or apartments—may be considered if the minimum boarding requirement is only partially met.

Shelter Placement

Passenger shelters provide seating and protection from bad weather for customers and are particularly important to senior citizens, parents with small children, and persons with disabilities. Although shelters are a popular amenity option at bus stops, the associated cost of placement and maintenance allows only a limited amount of shelters possible throughout the service area. To identify locations and calculate a fair distribution method, a point system was established to prioritize and rank locations.

All shelter requests will be ranked using the following points scoring. The qualification factors and corresponding points are listed below.

Qualification Categories	Points
Accessibility (ADA)	
Boardings	1 point for each boarding, Minimum of 50 Boarding req.
Major activity/employment center	25
Hospital or Social Service Agency	25
Apartment complex	20
Local Community Request	20
Schools	20
Minor Activity Center	15
Transfer Point	15
Joint participation (public/private)	15
Customer Request	1 per request
Limited Headway (midday greater than 55 minutes)	10
Non-customer request	1 per request

All locations that generate a score of 80 or more points qualify for the placement of a shelter, pending a safe, specific site can be identified. In the initial assessment for shelter placements, **ridership should be at a minimum of 50 boardings per day**. Sties qualifying for a shelter shall be made ADA Accessible".

Park and Ride & Rail Facilities

Stand alone Park-and-Ride and rail facilities are treated with similar passenger amenities including canopies, benches/seating and trash receptacles.

Commuter Rail Facilities

There are 10 rail stations along the single TRE commuter rail corridor. All stations have low-level boarding with high-blocks for mobility-impaired passengers. The stations at a minimum can accommodate four passenger cars. Other key features of stations are:

- Platform with 24 inch wide textured warning strip at edge;
- High-block platform with ramps at east end of each platform to permit high-level boarding by wheelchair users and mobility-impaired passenger;
- Ticket vending machines;
- Arched canopies;
- Pedestrian track crosswalks;
- Landscaping features such as planters and trees;
- Telephones;
- Kiss-and-ride facilities;
- Park-and-ride facilities at all stations excluding Downtown Fort Worth ITC and Medical Market stations which are "destination" locations.

SERVICE QUALITY

The T will evaluate the level of service and quality of service by analyzing vehicle loads, considering vehicle assignments and reviewing service frequencies. TRE service indicators are addressed in the Herzog Operations and Maintenance contract.

Vehicle Loads

The expectation of scheduled transit service is to operate buses with a full seated load of passengers (100% of vehicle seated capacity). During peak periods, when demand is greatest, it is acceptable to have standees. In such instances, the load factors (expressed as a percentage of seated capacity for a given bus) for fixed route service should not exceed the following guidelines:

Route Type	Peak Hours	Off-Peak Hours
Radial	125%	100%
Crosstown	125%	100%
Express	100%	100%
Circulator	125%	100%
Feeder	125%	100%
Rider Request	125%	100%
Commuter Rail[1]	100%	100%

Vehicle Assignments -

It is The T's policy to comply with 49 CFR Section 21.5(b)(2) and 49 CFR Section 21.5(b)(7), Appendix C to 49 CFR part 21 regarding Title VI compliancy in our assignment of vehicles.
In that regard, The T considers the several factors when assigning vehicles or commuter rail to service. For fixed route buses it includes spare ratio, load factors, service frequency, type of service, and vehicle fuel capacity. There is no disparity regarding the amenities of T vehicles.

Assignment of Fixed Route Buses:

All buses are wheelchair equipped, CNG fueled and air-conditioning equipped. The size of the peak load in relation to frequency help to determine what size vehicle is assigned to the route. The vehicles are assigned using the following criteria as a general consideration:

[1] According to the TRE ILA between The T and DART, the "goal" for commuter rail load capacity is a seat for every passenger. However, because of the physical car-length restrictions at the stations and capacity constraints on the operating corridor, standees are allowed for short durations during peak period trips and special event-type service. Service levels will be reviewed when individual trips exceed the standard loading factor for a period of greater than six consecutive months.

Frequency	Load Factor (Ave Pass per hour)	Vehicle Assignment
60 min	≦15	30'
60 min	>15	35’
45 min	≦15	30'
45 min	>15	35’
15-30 min	≦15	30'
15-30 min	>15, ≦20	35'
15-30 min	>20	40'
15 min	>30	60’

Other criteria impacting vehicle assignments:

- Spare Ratio (for all vehicle categories) – The T operates a fleet of six different categories of vehicles when considering size and style. The T utilizes a minimum of a 10% spare ratio of vehicles per category to ensure service continuity and passenger capacity. Scheduling must maintain the 10% minimum to ensure available spares within the category to maintain customer satisfaction.

- *Fuel Capacity* – The T operates a CNG fueled fleet that restricts range in some of the fleet. Bus assignment is governed by length of run, range of vehicle and refueling requirements. Vehicles are assigned as follows: runs of less than 8 hours; any vehicle based upon load factors. Runs of over 8 hours; 35’-40’ buses based upon load factors. Runs of over 12 hours and load factors of > than 20 are assigned 40’ buses.

- *Type of Service* - The type of service is another factor in determining assignments when load factor, frequency or fuel capacity is not issues in service delivery. Limited stop service, (express), flex route service, (demand), or circulator service utilize all types of vehicles available that does not compromise the availability of vehicles needed to accommodate load factors on other routes while maintaining the 10% minimum spare ratio per category. Service provided by rubber-wheeled trolley typically consists of fluctuating passenger loads. These routes are inspected by supervisors and are addressed by adding additional vehicles based on visual demand.

Assignment of Commuter Rail vehicles:

The T provides modern, reliable and comfortable coaches, equipped with full climate control, air-conditioning and other amenities for its commuter rail facility. All are accessible to passengers with disabilities.

Following are the description of the cars or coaches that are assigned and their key service standards:

- *Types of Cars* – There are two types of cars that are run on the commuter rail facility.
  - 13 Rail Diesel Cars (RDC), having 96 seats per car, built in 1954 and refurbished by DART in 1995-96. The maximum speed that these cars could attain is 60 miles per hour.
  - 17 Bi-Level cars, having a seating capacity of 120 to 142 seats per car. The built dates of these cars range from 1976 to 2000 and the average age of these cars is 15.76 years. The maximum speed that these cars could attain is 79 miles per hour.

Capacity is the primary determination of which type of car is utilized. The bulk of the operation relies on the Double Decker cars. The RDC cars are used when passenger load demand are low.

Vehicle Headway

Headway or time between buses on a given route should be developed to provide a sufficient number of vehicles at the maximum load point to accommodate the passenger demand. Minimum headways are recommended to allow baseline accessibility to service. Whenever possible, frequencies should be set at regular clock-face intervals such as every 15, 30, or 60 minutes to improve transfer movements.

Minimum and maximum service headways by route category are recommended as follows:

Route Type	Peak Min/Max	Base Min/Max	Night Max	Saturday Min/Max	Sunday Max
Radial	15/60	15/60	60	15/90	90
Crosstown	30/60	30/60	60	30/60	60
Feeder	30/60	30/60	60	30/60	60
Circulator	Demand	Demand	Demand	Demand	Demand
Express	Demand	Demand	Demand	Demand	Demand
Commuter Rail[2]	--/60	--/90	--/60	--/120	Demand

Operational Peak = 6-9am & 3-6pm
Base = 9am – 3pm
Night = 6pm until end of operation day

Service Span

The time between the first and last trip operated on a route is the span of service on that route. It is the T's goal to have a consistent span of service for all routes to maximize the opportunities for passengers to avail themselves of the connectivity of the T's bus service.

The standard for span of service for each type of T fixed-route service is illustrated by the following chart, which illustrates the recommended latest start time and earliest stop time:

[2] Excludes Victory Station which is a special events station.

Route Type	Weekday First Trip/Last Trip (departures)	Saturday First Trip/Last Trip (departures)	Sunday First Trip/Last Trip (departures)
Radial	5:40am to 10:15pm	7:15am to 7:15pm	8:15am to 6:15pm
Crosstown	4:35am to 8:00pm	5:35am to 7:00pm	6:31am to 6:00pm
Feeder	7am to 8pm	7am to 7pm	8am to 6pm
Circulator	Demand Based	Demand Based	Demand Based
Express	Demand Based	Demand Based	Demand Based
Rider Request	Demand Based	Demand Based	Demand Based
Commuter Rail Service Span			
Route Directions	**Weekday** **First Trip/Last Trip (departures)**	**Saturday** **First Trip/Last Trip (departures)**	**Sunday** **First Trip/Last Trip (departures)**
Westbound Trip from Union	5:30am/11:06pm	8:50am/11:05pm	Demand
Eastbound Trip from T&P	5:00am/9:42pm	8:50am/9:50pm	Demand

Service span maybe extend beyond our normal service period under special circumstances. Significant extensions would go through the public input process and be presented to the Board of Directors for approval prior to implementation.

On-time Performance

On-time performance (OTP) is a measure of runs completed as scheduled. The T's definition of "on-time" is any bus that arrives within five-minutes of posted time point. Additionally, the TRE's definition of "on-time" is any train arrival within five-minutes of the posted time on the schedule.

Transit Security

The Fort Worth Transportation Authority, The T, currently operates its transit security policy through the implementation of a **System Security and Emergency Preparedness Plan (SSEP)**. The SSEP outlines roles and responsibilities of all agency employees, as well as contracted security personnel. In addition to contracted physical security at the agency's critical facilities, off-duty Fort Worth and Richland Hills police officers are hired to provide security at our transportation/transfer centers, on buses, and on the agency's commuter rail line.

The agency also provides 24-hour video surveillance at all commuter rail stations and at The T's administration building. Primary duties of off-duty police officers are to provide police presence, respond to criminal activity or disturbances as needed, and target areas with higher levels of criminal activity. Contracted physical security provided at certain facilities and is used as an on-site deterrent; respond to incidents as needed, monitor video surveillance system, as well as assisting passengers with transportation inquiries.

Security training programs have been implemented during new-hire orientations, as well as annual refresher training for all employees. Security awareness information is available to our

passengers on all fixed route buses, and at all major transportation facilities. The training programs and awareness information serves to educate all employees and passengers on observing, documenting, and reporting suspicious behavior or activity.

The T will comply with 49 CFR Section 21.5(b)(2) and 49 CFR Section 21.5(b)(7), Appendix C to 49 CFR part 21 to supply a transit policy leading to secure and safe transit system without regard to race, color, or national origin. Security deployment of Transit Security Officers (off-duty FW and R.H. police) generally details randomly riding the commuter rail line throughout operation, patrolling all transportation/transfer centers, and responding to calls for assistance - on buses or at bus stops- received through the bus operations communication center. Our deployment of these officers also entails addressing specific areas with higher levels of criminal activity. This is determined through incident reports received from bus operators and supervisors. Targeting specific areas will sometimes increase security presence at the intended area, while decreasing a presence at other areas with little or no activity.

Contracted security personnel are permanently assigned to two of our five commuter rail stations. The ITC and T&P stations provide an array of business amenities (public events, food services, other transportation needs, etc.) and, therefore, are more likely to be a greater terrorist risk than the other three stations which provide 'park-n-ride' only services. As a result, physical security at these locations are operated full time, 24-hours a day.

Service Standards Monitoring Methods

The T's service standard policies are monitored using the following key components:

- On-going Service Standards Monitoring Procedures
- Route Performance Index

ON-GOING SERVICE STANDARDS MONITORING PROCEDURES

Various T Departments and TRE Staff are responsible for monitoring and evaluating the quality and level of service on an on-going basis to assess adherence to documented service standards. These procedures will be undertaken by the following techniques:

Fixed Route Monitoring -

Performance Report

A Monthly Performance Report will be generated by the Accounting department using data obtained from fare boxes and. This report identifies ridership levels for all modes and reports Key Performance Indicators (KPI), including Subsidy per Passenger, Passengers per Hour, Passengers per Mile and On-time Performance. T staff, including Planning, Operations and Accounting departments, review this information to help determine general route performance and to identify routes which are developing vehicle loading concerns in need of more thorough investigation.

Customer Comments

T customer service representatives will record and track comments and suggestions which will be forwarded to appropriate department for response or resolution. Title VI complaints will be forwarded to the Title VI compliance officer. Comments such as vehicle loading complaints or

on-time performance will be forwarded to the Operation department. Complaints regarding vehicle condition are to be forwarded to the Maintenance department. Route spacing, service frequencies or stop requests will be forwarded to the Planning department.

Field Checks

The T's Ride Check Program encourages Management staff to become proactive in riding The T's buses. This Program helps key decision makers to interact with transit users and operators and therefore creating a better understanding of our customer's experiences and conditions. The Program also improves communications between management staff and operators. Each member of management staff is required to ride at least one route each quarter and provide a report of his or her observations.

As operational concerns surface—through information from the Performance Report, customer comments or visual inspections—a supervisor field check will be conducted. For example, if vehicle loads are being identified at excessive, an operations supervisor will be requested to conduct a load check and/or On-Time Performance to inspect the quality of operating service. Excessively over loaded routes will be relieved by placing a larger capacity bus on the route and eventually by increasing service frequency.

Boarding and Alighting Study

A Boarding and Alighting Study will be periodically conducted by a private contractor which will provide a comprehensive and systematic review of the T's passenger loads and a stop-by-stop review of the T's system. The following information will be determined as part of Boarding and Alighting Study: Maximum load point, location of major alighting/boarding points and schedule adherence. Findings in any of these areas may warrant consideration of service changes or headway modifications as a general rule. Any recommended changes must be analyzed to determine the impacts on minority communities and minority transit users and must go through a public hearing process. Our goal is to complete this study every three (3) years.

Public Input

The planning and marketing staff utilizes public outreach such as public meetings, community meetings, neighborhood association meetings and open forums to gather comments on the existing service or recommended improvements. The T also uses a public comment line where customers can leave messages providing recommendations or comment. Additionally, the T conducts periodic customer surveys to ascertain public input.

Commuter Rail -

The TRE Commuter rail experiences continuous monitoring through the following methods:

- Daily on-time reports
- Daily ridership reports
- TRE management quality assurance inspections
- Contractor oversight of employees for quality service
- Customer comments
- General reports/comments from agency employees that use the service

ROUTE PERFORMANCE INDEX

A Route Performance Index is calculated quarterly for the purpose of providing an objective, quantifiable method of measuring the performance of bus routes and identifying those poorly performing routes which should be addressed to improve performance or eliminated because of uncorrectable poor performance. The Route Performance Index can also be used as straightforward method to conduct "before and after" comparisons of a route that has been physically changed or has had service level modifications. This will allow the evaluator to determine if a route modification was efficient and/or effective.

The T uses subsidy per passenger, passengers per hour and passengers per mile, among other variables, as part of its Key Performance Indicators (KPI). These measures provide the agency with detailed information relating to utilization of service capacity, utilization of resources and fiscal responsibility, however, sole use of the KPI does not allow individual routes to be evaluated in comparison to their peer routes.

Additionally, evaluating bus performance simply by reviewing total ridership does not provide a true measure of how well a route is performing if there have been changes in the level of resources used for the route, such as miles and hours increases or decreases.

The concept of an RPI will be used to objectively measure the performance of a route relative to other routes within the same service classification and will be used in conjunction with the T Board of Director approved KPI to internally evaluate bus routes.

The method of establishing the Route Performance Index includes the following:

- A standard for each performance measure in each route category (Radial, Crosstown and Express) is set based on the previous fiscal year's resulting average subsidy per passenger, passengers per hour and passengers per mile.
- The performance measurement index for each route is calculated relative to the route category standard.
- Once the indices for each performance measure are calculated relative to each individual route, all values are normalized to a value of one (1).

Method for Calculating the Route Performance Index -

The RPI value for the subsidy per passenger, passengers per hour and passengers per mile measures is a normalized number whereas the individual performance of route is divided by the set standard for its route category. The standard will be the past Fiscal Year's average. The mathematical relationship for the subsidy per passenger measure is an inverse one: the lower the value the better the performance. Because of the inverse relationship, the index value for subsidy per passenger is calculated by dividing the standard by the individual route's performance.

The mathematical explanation of the RPI calculation is as follows:

$$\text{Route Performance Index} = \frac{\text{Index Passenger Per Mile} + \text{Index Passenger Per Hour} + \text{Index Subsidy Per Passenger}}{3}$$

where:

$$\text{Index Passenger Per Mile} = \frac{\text{daily passengers per revenue mile}}{\text{previous FY passenger per mile average (standard)}}$$

$$\text{Index Passenger Per Hour} = \frac{\text{daily passengers per revenue hour}}{\text{previous FY passenger per hour average (standard)}}$$

$$\text{Index Subsidy Per Passenger} = \frac{\text{previous FY subsidy per passenger average (standard)}}{\text{daily subsidy per passenger}}$$

An index resulting in a value of "1" or greater states that a route is performing satisfactory or at standard. Routes with an index number between 0.4 and 0.9 meet the minimum expectations but will be monitored to assure trends are not negative. Routes with an index number of 0.3 or below need improvement and are candidates for immediate corrective action if they have been in existence greater the 18 months.

Calculating the standard deviation of RPIs in the established base year of 2002 identified the use of 0.4 as the minimum expectation threshold. Standard deviation is a measure of the range of values in a set of numbers (in this case, the RPI). It is a statistic used as a measure of the dispersion or variation in a distribution, equal to the square root of the arithmetic mean of the squares of the deviations from the arithmetic mean.

Those routes that perform below minimum expectations of 0.4 RPI will be targeted for action directed toward improving performance. A detailed improvement plan shall be developed and implemented.

Route Improvement Plan

The following are possible actions to be included in a Route Improvement Plan on targeted low performing routes:

- Targeted marketing
- Service frequency changes
- Service period and service day adjustments
- Rerouting
- Rescheduling
- Elimination nonproductive route segments
- Consolidation of segments into other routes

After implementation of a Route Improvement Plan, the route will be given twelve (12) months to move toward meeting minimal expectations. Any routes that do not achieve this performance

shall be targeted for additional curtailment or elimination. In some instances, positive ridership growth trends will be sufficient to classify the route as meeting improved performance requirements. The exception will be those routes classified as “Lifeline Routes”.

SERVICE CHANGE PROCESS

In order to comply with 49 CFR Section 21.5(b)(2), 49 CFR Section 21.5(b)(7) and Appendix C to 49 CFR part 21, The T shall evaluate significant system-wide service changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact.

In order to assure consistency and proper planning for changes within the service area, the following steps are utilized for fixed-route service changes at the T. Each service change takes approximately three months to complete.

1) Planning Review Proposals for Changes
    a. Planning Dept. reviews input from operations, community, and customers throughout the year. At this stage of the process each request will be evaluated as to feasibility, efficiency, and necessity. In order to complete this analysis, demographic information will be considered along with field testing of the street infrastructure and trip generators.
2) Conduct evaluating the impacts of major service changes on compliance of Title VI *(See description of process below)*
3) Prepare Final Proposals
    a. Planning Dept. finalizes maps and listing of initial proposals.
4) Prepare initial costing for changes
    a. Planning completes initial analysis to provide rough costs for changes
5) Interdepartmental Staff Coordination Meeting
    a. Operations, Planning, Scheduling, Graphics meet to review proposals
6) Senior Management Overview Meeting
    a. Planning presents initial proposals with costing to senior management to receive input regarding final proposals.
7) Field Checks
    a. Planning conducts safety checks on proposed routes to insure that all turns are feasible.
8) Hold Community and, or Public Hearings, if necessary
9) Board Approval, if necessary
10) Runtime Verification
    a. Planning completed runtime verification according to the runtime verification process.
11) Finalize Schedules
    a. Scheduling builds schedules in scheduling software.
12) Bus Stop Placement/Removal Procedures initiated
13) Operator Route Guides updated
14) Brief Operations of Changes
15) Operator Sign Up
    a. This includes cutting runs, hanging runs, and signing runs. This process is completed over a six-week period.
16) Operator Training initiated
17) Route Implementation Orders distributed six weeks before implementation date
18) Communicate to the community
19) Brief Customer Service Representatives
20) Bus stop Blitz

   a. T Staff will distribute information to customers at key boarding locations Friday before service change and Monday following service change. Service Changes are generally implemented on Sunday
21) Implement Service Change
22) Supervisor Debriefing
   a. Field Supervisors will relay safety concerns, customer comments or suggestions to planning and scheduling staff

Major Service Change Policy

This policy establishes a threshold for when a proposed service increase or decrease is "major," and thus must be subject to a Title VI Equity Analysis. In addition, this threshold meets the requirements of the Memorandum of Understanding and Agreement effective on January 1, 2013 between the City of Fort Worth and The T[3].

The T defines a major service change as:

1. An increase or decrease of 25% or more of the number of transit route miles of a transit route.
2. An increase or decrease of 25% or more of the number of transit revenue vehicle miles of a transit route, computed daily, for the day of the week for which the change is made.
3. The establishment of a new transit route.

Disparate Impact Policy

The Disparate Impact Policy establishes a threshold for determining whether proposed fare or major service changes have a disproportionally adverse effect on minority populations relative to non-minority populations on the basis of race, ethnicity or national origin.

The threshold is the difference between the burdens borne by, or benefits experienced by, minority populations compared to non-minority populations. Exceeding the threshold means either that a fare or major service change negatively impacts minority populations more than non-minority populations or that the change benefits non-minority populations more than minority populations. A change with disparate impacts that exceed the threshold can only be adopted (a) if there is substantial legitimate justification for the change, and (b) if no other alternatives exist that would serve the same legitimate objectives but with less disproportionate effects on the basis of race, color or national origin.

The T establishes that a fare change, major service change or other policy has a disparate impact if the minority populations will experience 20% more of the cumulative burden, or experience 20% less of the cumulative benefit, relative to the non-minority populations, unless (a) there is substantial legitimate justification for the change, and (b) no other alternatives exist that would serve the same legitimate objectives but with less disproportionate effects on the basis of race, color or national origin.

[3] *The Memorandum of Understanding and Agreement effective on January 1, 2013 between the City of Fort Worth and The T regarding improved program assessments and transparency.*

Disproportionate Burden Policy

The Disproportionate Burden Policy establishes a threshold for determining whether proposed fare or major service changes have a disproportionately adverse effect on low-income populations relative to non-low-income populations.

The threshold is the difference between the burdens borne by, and benefits experienced by, low-income populations compared to non-low-income populations. Exceeding the threshold means either that a fare or service change negatively impacts low-income populations, or that the change benefits non-low-income populations more than low-income populations. If the threshold is exceeded, The T must avoid, minimize or mitigate impacts where practicable.

The T establishes that a fare change, major service change or other policy has a disproportionate burden if low-income populations will experience 20% more of the cumulative burden, or experience 20% less of the cumulative benefit, relative to non-low-income populations unless the disproportionate effects are mitigated.

PUBLIC INPUT

BACKGROUND

Public input is a requirement of the Federal Transit Administration (FTA) for all fare increases or major service reductions. Grantees must have a written process for how public comment is solicited and considered prior to raising fares or implementing major service reductions. This section shall serve as the written process for the Fort Worth Transportation Authority (The T).

PROCESS

The public will have the opportunity to make verbal or written comments anytime The T proposes a fare increase or major service reduction. Minimally, The T will hold one public hearing in order to meet this requirement. In addition to holding a hearing, The T will also notify the public of an address to which written comments may be submitted, along with other agency contact information, such as an e-mail address or phone number to be used for making a public comment. Public comment periods will commence at the time it is advertised and will be at least 15 days in length. Copies of public advertisements will be retained as part of a record of the public input process.

PUBLIC HEARING[4]

At 20 days before the date of a public hearing under the paragraph below, provide notice to the governing body of each municipality and the commissioners court of each county affected by the subject of the public hearing by depositing properly addressed notice in the United States mail with postage paid.

Hold a public hearing on (i) any fare change; (ii) a service change involving (A) 25 percent or more of the number of transit route miles of a transit route; or (B) 25 percent or more of the number of transit revenue miles of a transit route, computed daily, for the day of the week for which the change is made; or (iii) the establishment of a new transit route.

[4] This process meets the requirements of the Memorandum of Understanding and Agreement effective on January 1, 2013 between the City of Fort Worth and The T

When the number of changes of a type described in the preceding paragraph in a fiscal year would equal the percentage applicable in that paragraph, the public hearing must be held before the change that would equal or exceed the percentage.

A public hearing must be advertised in a way that reaches the greatest number of affected parties, within reason. Examples would be postings on transit vehicles and transfer centers, mailers for services in which The T retains the addresses of users, and/or local newspaper advertisements.

For public hearings, the following procedures will be followed:

- The hearing will be recorded and transcribed by staff members of The T
- Participants will be greeted upon arrival and will be asked to provide name and contact information for the record
- The purpose of the meeting shall be stated at the beginning of the meeting
- Staff may supply further background on why the fare or service change is being considered
- Staff shall provide instructions on procedures for making a comment at the hearing as well as providing information on how comments will be provided to decision makers
- An adequate period shall be reserved to ensure participants a reasonable opportunity to make their comments heard
- Participants shall be reminded prior to the meeting conclusion on alternative means of commenting such as in writing or at other public hearings scheduled

CONSIDERATION

Prior to the consideration of a proposed fare increase or major service reduction, applicable decision makers shall receive a document listing all public comments received, whether written comments or verbal comments. These comments shall be considered in making a decision on the proposed fare increase or major service reduction. Additionally, Board members should be encouraged, though not required, to be in attendance at all public hearings or other public meetings addressing the topic. Finally, staff recommendations for raising fares or implementing a major service reduction should consider public comment received and—if feasible, reasonable and viable—be amended as a result.

FARE CHANGE EVALUATION PROCESS

In order to comply with 49 CFR Section 21.5(b)(2), 49 CFR Section 21.5(b)(7) and Appendix C to 49 CFR part 21, The T shall evaluate proposed fare changes at the planning and programming stages to determine whether those changes have a discriminatory impact.

In order to assure consistency and proper planning for changes within the service area, the following are the steps to be utilized for evaluating potential impacts to fare changes.

1) Describe the nature of the change, the bases or rationale for the change, the modes of service impacted, and the communities affected by the change.

2) Describe what are the impacts of the fare change on minority and/or low-income communities.

3) Describe what are the transit alternatives available for riders who would be impacted by proposed fare changes

4)
   a. Describe what, if any, measures The T will take to avoid, minimize, or mitigate any adverse effects of the fare change on minority populations and/or low-income populations?
   b. Describe what, if any, enhancements or offsetting benefits The T would implement in conjunction with the fare change

5) Determine if the proposed fare change will have a disproportionately high and adverse effect on minority populations and/or low-income populations.

6) Describe what steps The T will undertake to seek out and consider the viewpoints of minority and low-income populations in the course of conducting public outreach and involvement activities.

7) Determine if it is necessary to disseminate information on the fare increases that is accessible to Limited English Proficient persons. If so, describe what steps to provide information in languages other than English are proposed.

TITLE VI

The T is committed to ensuring that no person is excluded or denied benefits of services based on race, color or nation origin and, as such, The T's service standards meet the requirements of 49 CFR Section 21.5.
(DRAFT NOTE: The T's 'Title VI Program' is currently being developed).

Appendix A

Transit Needs Index calculation methodology

To provide an assessment of transit needs within the T's service area, a transit needs assessment is performed. The key element in the assessment is the creation of a Transit Needs Index (TNI). The follow describes the methodology for calculating the TNI.

The TNI uses select U.S. Census data to develop a composite measure for the purpose of assessing transit needs. The items used included:

- Household income under $15,000 annually,
- Occupied Housing Units with no private vehicle available,
- Persons with a Disability,
- Persons over 65 and between 10 and 19 years of age and
- Percentage of Minorities as percentage of total population.

The TNI helps to identify areas most likely to have captive riders, or those who have no choice but to use transit and includes a "minority persons" component to allow consideration of impacts on minority populations.

To construct the index, census demographic data is manipulated as needed. The index entries are assembled into tabular form by census tract level. Each entry is then ranked. The entry with the most preferable values for transit need receive a lower number and thus a higher rank value.

Higher ranks are given to tracts with lower household incomes, fewer private vehicles, greater percentages of disabled persons, and more people over 65, more people between 10 and 19 and with higher minority populations. Summing each ranked entry by census tract then creates a composite ranking. The median score of all composite rankings is then measured. The final transit index for the census tracts is then created by dividing the median score by each tract's composite ranking. Higher transit index scores indicate higher transit need.

The formula for the Transit Needs Index is as follows:

Transit Needs Index (Census Tract) =

Median score of Sum of Ranks/ Sum of Ranks

$$= \frac{Md_{\sum r}}{\sum r}$$

Where:

Md= Median score

$\sum$r= Sum of Ranks

r = Rank scores representing:

Household Income under $15,000

Housing Units with No Vehicle Available

Persons with a Disability

Persons over 65 and between 10 and 19

Percentage of Minorities