1.0 Purpose:

As outlined in Title VI Circular 4702.1B and Environmental Justice Circular 4703.1, the Federal Transit Administration (FTA) requires that all fixed route transit providers establish and monitor a set of service standards and policies that can be used to measure system performance and ensure that transit services are being provided in a fair and equitable manner. The purpose of this document is to establish the new Title VI standards and policies that will be used by the Santa Clara Valley Transportation Authority (VTA) and submitted to the FTA as part of the triennial Title VI Program.

2.0 Scope:

These standards and policies apply to all VTA transit service and passenger facilities.

3.0 Responsibilities:

General oversight for the following Title VI policies is performed by VTA's Office of Civil Rights. The Service & Operations Planning Department is responsible for the ongoing implementation and execution of these policies.

4.0 Policy:

In accordance with FTA Title VI requirements, VTA shall regularly monitor the performance of its fixed bus and light rail routes relative to system-wide service standards for the following indicators to ensure that minority and non-minority routes are being operated in a fair and equitable manner.

- Vehicle Load;
- Vehicle Headways;
- On-Time Performance;
- Service Availability; and
- Ridership Productivity

Any significant service deficiencies identified through this process must be evaluated further to determine the extent to which minorities are affected. If the negative effect on minority persons is proportionally higher than the effect on non-minority persons, additional steps may be necessary to address the discrepancy.

VTA shall also monitor its *vehicle assignments* and the distribution of *transit amenities* based on the policies outlined in this document to prevent discriminatory practices.

A. Route Categories

In order to develop appropriate standards for the different types of VTA transit service, each route is classified as belonging to one of the six categories listed below. These classifications are used to identify service standards which are specific to each route category.

1. **Core.** Core bus routes provide high-frequency service with extended service spans to some of the busiest corridors in the region. The routes are longer and serve major trip generators such as universities, regional shopping malls, and high-density housing and employment areas.
2. **Local.** Local bus service usually operates on medium-length corridors and offers slightly lower levels of service. These routes will often serve smaller trip generators such as schools, hospitals, small shopping centers, and medium-density housing and employment sites.
3. **Community Bus/Shuttles**. Community bus routes are typically shorter and operate with less frequent service. These routes tend to operate within specific neighborhoods and connect smaller trip generators with light rail stations, transit centers, and other nearby destinations. Shuttles which are operated or managed by VTA are included in this category.
4. **Express/Limited Stop**. Express and Limited Stop bus routes provide quicker, more direct service along major corridors and to large employment centers. These routes are designed for commuters and typically only operate during weekday peak periods.
5. **Bus Rapid Transit.** BRT routes provide enhanced, rapid, high-frequency service in major transit corridors. VTA plans to introduce the first of its two planned BRT routes in 2015.
6. **Light Rail.** Light rail trains operate on dedicated tracks in San Jose, Campbell, Santa Clara, Milpitas, Mountain View and Sunnyvale.

B. System-wide Service Standards

The following sections outline the five primary service indicators that will be used to monitor VTA bus and light rail lines and draw comparisons between minority and non-minority routes. Each standard is set based on the six service categories listed above and the specified time periods. VTA defines weekday peak periods as 5:00 to 9:00 AM and 3:00 to 7:00 PM.

The data samples used to compare route performance to these standards should be collected over a representative time period to ensure that they provide an accurate snapshot of each route. To ensure consistency, VTA typically uses data from March, April, September or October, which represent the busiest months of the year in terms of ridership. These months also serve as good comparison points because schools are in session and few major holidays are observed. Data collection time periods may also fluctuate based on data availability.

Vehicle Loads

The FTA Title VI Circular describes vehicle loads as follows:

Vehicle load can be expressed as the ratio of passengers to the total number of seats on a vehicle. For example, on a 40-seat bus, a vehicle load of 1.3 means all seats are filled and there are approximately 12 standees. A vehicle load standard is generally expressed in terms of peak and off-peak times. Transit providers that operate multiple modes of transit must describe the specific vehicle load standards for peak and off-peak times for each mode of fixed route transit service (i.e., bus, express bus, bus rapid transit, light rail, heavy rail, commuter rail, passenger ferry, etc., as applicable), as the standard may differ by mode.

VTA service planners monitor load factor data on all routes to prevent overcrowding and determine when additional service is needed. The load factor for each route is calculated based on the average maximum load of each trip on a route during the peak and midday weekday periods. Load factors are not typically a major influence on weekend service planning decisions so no weekend load data is included.

The following table outlines the vehicle load factor standards, which are based upon historical data, industry practices, and staff analyses. If a route exceeds its respective load factor standard, VTA staff will review the service to determine if additional capacity should be provided. Express and Limited Stop routes are subject to a reduced load factor standard of to ensure passenger safety on routes that operate on highways.

Table 1 – Vehicle Load Factor Standards

Category	Seated Capacity	Peak		Midday	
		Load Factor	Passengers	Load Factor	Passengers
Core	37	1.2	44.4	1.0	37.0
Local	37	1.2	44.4	1.0	37.0
Community Bus	25	1.2	30.0	1.0	25.0
Express/Limited Stop	39	1.0	39.0	1.0	39.0
Bus Rapid Transit	49	1.2	58.8	1.0	49.0
Light Rail	65	1.2	78.0	1.0	65.0

Vehicle Headways

The FTA Title VI Circular describes vehicle headways as follows:

Vehicle headway is the amount of time between two vehicles traveling in the same direction on a given line or combination of

lines. A shorter headway corresponds to more frequent service. Vehicle headways are measured in minutes (e.g., every 15 minutes); service frequency is measured in vehicles per hour (e.g., 4 buses per hour). Headways and frequency of service are general indications of the level of service provided along a route. Vehicle headway is one component of the amount of travel time expended by a passenger to reach his/her destination. A vehicle headway standard is generally expressed for peak and off-peak service as an increment of time (e.g., peak: every 15 minutes; and off peak: every 30 minutes). Transit providers may set different vehicle headway standards for different modes of transit service. A vehicle headway standard might establish a minimum frequency of service by area based on population density. For example, service at 15-minute peak headways and 30-minute off-peak headways might be the standard for routes serving the most densely populated portions of the service area, whereas 30-minute peak headways and 45-minute off-peak headways might be the standard in less densely populated areas. Headway standards are also typically related to vehicle load. For example, a service standard might state that vehicle headways will be improved first on routes that exceed the load factor standard or on routes with the highest load factors.

Vehicle headways are largely determined by ridership demand and vary widely by route, time and day. Based on changes in ridership levels, headways may be adjusted during the quarterly schedule change process by agency staff.

Table 2 –Vehicle Headway Standards

Category	Peak	Off-Peak
Core	15	60
Local	60	60
Community Bus	60	60
Express/Limited Stop	*	*
Bus Rapid Transit	15	15
Light Rail	15	60

**Most Express and Limited Stop routes provide one-way service and are only available during peak commuting periods. These lines often operate with fewer than 10 trips each day and are scheduled based on passenger surveys to maximize ridership. As a result, the headways for Express and Limited Stop routes vary based on ridership demand and are not specified.*

VTA calculates headways as the average length of time between the scheduled arrival times of subsequent vehicles on a specific route. The preceding table outlines the vehicle headway standards by route category and time of day. These standards represent typical headways for each route category; however, many routes operate with more frequent service based on ridership demand.

On-Time Performance

The FTA Title VI Circular describes on-time performance as follows:

> *On-time performance is a measure of runs completed as scheduled. This criterion first must define what is considered to be "on time." For example, a transit provider may consider it acceptable if a vehicle completes a scheduled run between zero and five minutes late in comparison to the established schedule. On-time performance can be measured against route origins and destinations only, or against origins and destinations as well as specified time points along the route. Some transit providers set an on-time performance standard that prohibits vehicles from running early (i.e., ahead of schedule) while others allow vehicles to run early within a specified window of time (e.g., up to five minutes ahead of schedule). An acceptable level of performance must be defined (expressed as a percentage). The percentage of runs completed system-wide or on a particular route or line within the standard must be calculated and measured against the level of performance for the system. For example, a transit provider might define on-time performance as 95 percent of all runs system-wide or on a particular route or line completed within the allowed "on-time" window.*

VTA regularly monitors on-time performance to increase service reliability and determine if running time changes are needed. As part of the quarterly schedule update process, running times on each route are reviewed and adjusted as warranted by changing traffic conditions.

VTA has previously established an on-time performance goal of 95 percent for all modes. For bus routes, "on time" is defined as arriving no more than three minutes before or five minutes after the scheduled arrival time. Light rail trips are considered to be "on time" if the train arrives less than one minute before or five minutes after the scheduled arrival time. This 95 percent goal continues to apply as the weekday on-time performance standard for all six route categories.

Table 3 – On-Time Performance Standards

Category	OTP
Core	95.0%
Local	95.0%
Community Bus	95.0%
Express/Limited Stop	95.0%
Bus Rapid Transit	95.0%
Light Rail	95.0%

Service Availability

The FTA Title VI Circular describes service availability as follows:

> *Service availability is a general measure of the distribution of routes within a transit provider's service area. For example, a transit provider might set a service standard to distribute routes such that a specified percentage of all residents in the service area are within a one-quarter mile walk of bus service or a one-half mile walk of rail service. A standard might also indicate the maximum distance between stops or stations. These measures related to coverage and stop/station distances might also vary by population density. For example, in more densely populated areas, the standard for bus stop distance might be a shorter distance than it would be in less densely populated areas, and the percentage of the total population within a one-quarter mile walk of routes or lines might be higher in more densely populated areas than it would be in less densely populated areas. Commuter rail service or passenger ferry service availability standards might include a threshold of residents within a certain driving distance as well as within walking distance of the stations or access to the terminal.*

The VTA approach to service availability is shaped largely by the *VTA Transit Sustainability Policy*. This policy mandates the use of a market-based approach in determining when and where transit service will be operated. More specifically, it "provides a framework for the efficient and effective expenditure of transit funds, and for realizing the highest return on investment in terms of public good and ridership productivity." Therefore, instead of requiring VTA to make service available to a larger geographic region, these guidelines enable VTA to provide frequent, high-quality service to the areas with the highest ridership demand. This approach has proven to be

particularly effective at fulfilling the transit needs of Santa Clara County's minority and low income populations.

Table 4 – Service Availability Standards

Category	Stop Spacing (mi)
Core	0.25
Local	0.25
Community Bus	0.25
Express	*
Limited Stop	0.50
Bus Rapid Transit	0.75
Light Rail	0.66

**Average stop spacing on VTA Express routes varies significantly between lines. Express Lines typically serve 4-6 pick-up stops in residential areas before traveling long distances to drop-off locations in major employment areas. Due to these large variations, no Express route stop spacing standards are specified.*

Although VTA utilizes this ridership-based approach to service availability, the agency has developed stop-spacing standards for each of the route categories. These standards are based on the current average distance between stops for all of the routes for each category. Distances between individual stops vary significantly based on nearby land uses, development densities, geographic characteristics, ridership demand and other local conditions.

Ridership Productivity

The VTA *Transit Sustainability Policy* identifies a series of ridership-based standards that are used to monitor and evaluate route performance. Based on historical ridership and staff analyses, the primary standard for measuring service performance is boardings per revenue hour. For evaluation purposes, a specific standard is applied to each route category and day. This standard is recalibrated each quarter based on the average boardings per revenue hour for each route category with a minimum standard of 15 boardings per revenue hour. Bus routes that consistently operate below their respective thresholds and are unresponsive to marketing, restructuring, and operational refinements are subject to discontinuation.

A complete summary of the minimum ridership productivity standards by service category is shown below.

Table 5 – Ridership Productivity Standards

Category	Weekday	Saturday	Sunday
Core	28.5	25.5	23.4
Local	24.8	18.4	18.4
Community Bus	17.2	15.0	15.0
Express/Limited Stop	23.4/15.0*	N/A	N/A
Bus Rapid Transit	28.5	25.5	23.4
Light Rail	77.4	66.7	52.3

**Ridership standard for Express buses (23.4 boardings per hour) based upon 60% peak load factor. Limited Stop standard based upon average boardings per hour and a minimum of 15 boardings per hour.*

C. System-wide Service Policies

These policies are intended to provide guidance and instruction to ensure that vehicle assignment and passenger amenity distribution practices do not result in discrimination on the basis of race, color or national origin.

Vehicle Assignment

The FTA Title VI Circular describes vehicle assignment as follows:

> *Vehicle assignment refers to the process by which transit vehicles are placed into service in depots and on routes throughout the transit provider's system. Policies for vehicle assignment may be based on the age of the vehicle, where age would be a proxy for condition. For example, a transit provider could set a policy to assign vehicles to depots so that the age of the vehicles at each depot does not exceed the system-wide average. The policy could also be based on the type of vehicle. For example, a transit provider may set a policy to assign vehicles with more capacity to routes with higher ridership and/or during peak periods. The policy could also be based on the type of service offered. For example, a transit provider may set a policy to assign specific types of vehicles to express or commuter service. Transit providers deploying vehicles equipped with technology designed to reduce emissions could choose to set a policy for how these vehicles will be deployed throughout the service area.*

The VTA bus fleet features over 400 active vehicles divided between three different bus divisions – Chaboya, North and Cerone. The bus fleet includes a mix of five different

vehicle types: standard 40-foot diesel buses, 30-foot gasoline community buses, 40-foot hybrid-powered buses, 40-foot hybrid-powered express buses and 60-foot articulated, diesel-powered buses. Buses are typically assigned to one of the three divisions based on the size of the yard, the operational or ridership characteristics of certain routes located near that division, and the geographical distribution of routes so that the total time required for the buses and operators to travel between the bus yard and the route is minimized as much as possible.

Currently, all articulated buses must operate out of the North Division for maintenance reasons, but staff is planning to move some of these vehicles to the Chaboya Division in the future. Express vehicles operate out of the Cerone Division due to their limited number, but will be redistributed when the next group of vehicles arrives.

VTA maintains extremely high safety standards and closely monitors the age and condition of its vehicles to determine when new buses are needed and to guarantee that buses are equitably distributed between the three bus divisions. As a general policy for vehicle assignment, staff will continue to monitor vehicle age data at each of the three divisions to ensure that the average vehicle age at each division is no more than six months above or below the average vehicle age of the active fleet.

The VTA light rail fleet is maintained at the Guadalupe Yard and includes 99 vehicles. All 99 light rail vehicles were acquired as part of the same series, are roughly the same age, and are distributed between the three light rail lines as needed. When light rail vehicles are replaced or added to the fleet in the future, the use of both new and older vehicles will be distributed equitably between all routes. Light rail trains range in length from one to three cars. The number of cars assigned to each train is determined based on operational and ridership demands.

Transit Amenities

The FTA Title VI Circular describes transit amenities as follows:

> *Transit amenities refer to items of comfort, convenience, and safety that are available to the general riding public. Fixed route transit providers must set a policy to ensure equitable distribution of transit amenities across the system. Transit providers may have different policies for the different modes of service that they provide. Policies in this area address how these amenities are distributed within a transit system, and the manner of their distribution determines whether transit users have equal access to these amenities. This... is not intended to impact funding decisions for transit amenities. Rather, this... applies after a transit provider has decided to fund an amenity.*

VTA provides a wide array of transit amenities which include bus shelters, benches, trash cans, lighting, and posted stop-specific schedule information. VTA is also in the process of implementing a real-time information system that will inform passengers when the next bus will arrive. These amenities are distributed throughout the service area based on ridership, staff analysis and customer requests. Light rail stations have unique amenities such as enhanced shelters, detailed system maps and schedules, and automated ticket vending machines. Similarly, future BRT stations will also feature enhanced waiting environments with additional transit amenities.

VTA has recently commissioned a Transit Passenger Environment (TPEP) Plan that will provide a comprehensive analysis of the system's transit amenities and provide specific guidelines for how amenities should be provided in the future. The recommendations from TPEP will form the basis of VTA's transit amenity distribution procedures. General policies for the distribution of bus shelters, benches, trash cans, lighting fixtures and posted schedule information are outlined below. VTA staff monitors the locations of all transit amenities to ensure that they are equitably distributed to minority and low income areas.

Bus Shelters
Bus shelters are provided at nearly 800 stops throughout the VTA system. The installation of bus shelters is generally based upon ridership and staff input. Spatial constraints may also limit where bus shelters can and cannot be installed.

Benches
Benches are provided at over 2,000 stops throughout the VTA system. The installation of benches is based upon ridership, customer requests and staff input. Stops located near medical and senior facilities are also furnished with benches as much as possible.

Trash Cans
Trash cans are installed and maintained at over 900 stops in the VTA system. The trash cans are distributed based on ridership, customer requests, maintenance considerations and staff input.

Lighting
As part of its focus on passenger safety, VTA installs lighting at many of its bus stop locations. Additional solar-powered lights have been added to stops throughout the service area to promote safety and energy-efficiency. The distribution of lighting fixtures is primarily based upon ridership, customer requests, safety considerations, and staff recommendations.

Posted Schedule Information
VTA currently features stop-specific "information signs" at over 150 bus stops. These information signs provide scheduled departure times for all trips departing from the stop. The installation of information signs is generally based upon ridership, transfer activity, and staff input. Signs are typically also provided for stops with common interagency transfers.

Real-Time Information Signs
VTA is in the process of implementing an extensive real-time information system that will provide up-to-the-minute information on bus and light rail arrival times. Passengers will be able to use computers or mobile devices to look up when the next bus is due to arrive at a specific bus stop. Every bus stop in the system will have a unique Real Time Stop ID which passengers can use to find out when the next bus is due to arrive.

As part of this project, VTA will also install approximately 80 Real Time Message Signs at various transit centers and bus stops throughout the system. The locations of these real-time signs will be determined based on ridership data, transfer activity, operational considerations, and staff recommendations.

5.0 Definitions:

5.1 Environmental Justice
The overarching objective of environmental justice is a fair distribution of the benefits or burdens associated with Federal programs, policies, and activities.

5.2 Fare Change
An increase or decrease in a transit provider's fare. All fare changes, except the following, are subject to a fare equity analysis:

- "Spare the air days" or other instances when a local municipality or transit agency has declared that all passengers ride free.
- Temporary fare reductions that are mitigating measures for other actions.
- Promotional fare reductions. If promotional or temporary fare reductions last longer than six months, then FTA considers the fare reduction permanent and the transit provider must conduct a fare equity analysis.

5.3 Low-income Population
Refers to any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed FTA program, policy, or activity.

5.4 Minority Population
Means a readily identifiable group of minority persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient populations (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity.

5.5 Title VI
Title VI of the Civil Rights Act of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participated in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

6.0 Summary of Changes:

Initial release of this policy. This policy was approved by the Board of Directors on November 7, 2013.

7.0 Approval Information:

Prepared by	*Reviewed by*	*Approved by*
Martin Barna Transit Service Development Specialist	Jim Unites Deputy Director, Operations	Michael T. Burns General Manager

11/18/13
Date Signed