Transit Service Guidelines

Revised May 2023

Santa Clara Valley Transportation Authority

Solutions that move you

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https://www.vta.org/transit-service-guidelines

1 BACKGROUND

This Transit Service Guidelines document guides the provision of VTA's transit service by establishing:

- A framework to objectively design, monitor, and evaluate VTA's transit services.
- A process to develop service change recommendations for the VTA Board of Directors to consider that are based on best practices in the transit industry.
- Objective measures to guide service planning decisions that are equitable, systematic, timely, and move VTA toward achieving the goal of providing Faster Frequent Reliable Transit from the VTA Strategic Plan.

2 RIDERSHIP AND COVERAGE BALANCE

VTA's Next Network, implemented in 2019, adopted a new framework for designing and operating transit service, and that change is reflected in this document. Under this new framework, transit routes are classified by their primary purpose: ridership or coverage. These objectives are inherently contradictory. The ridership objective leads agencies to design networks with few routes, but where routes are frequent, direct, and serve transit-supportive areas. The coverage objective leads agencies to maximize access by designing routes that travel to as many places as possible regardless of the level of transit demand. A purely ridership-oriented network would have the highest ridership, while a purely coverage-oriented network would have the lowest ridership.

While the overall transit network is a mix of the two competing goals, each VTA transit route exists somewhere along this ridership-coverage spectrum and is evaluated according to whether it is achieving its intended purpose. Ridership-oriented routes are held to ridership-purposed expectations such as productivity, simplicity, and directness, and less to coverage-purposed expectations such as geographic coverage or service to special need facilities. At the same time, coverage-oriented routes are held to coverage-purposed expectations such as geographic coverage, service to vulnerable groups, and service for specific communities, and less to ridership-purposed expectations such as productivity or speed. Accordingly, the Transit Service Guidelines policy establishes guidelines to design and evaluate transit service based on each route's purpose on the ridership-coverage spectrum.

By Board policy beginning with the Next Network, VTA's transit network allocates 90% of VTA's operating budget to ridership-oriented service and the remaining 10% to coverage-oriented service. Subsequent service changes and annual Transit Service Plans will maintain this balance unless otherwise directed by the VTA Board of Directors. Staff monitor and report changes to this balance over time.

3 THE RIDERSHIP RECIPE

High ridership transit requires three things that are often referred to as transit's three-legged stool, or the "ridership recipe." While this document focuses on the one ingredient within VTA's control, transit corridors require all three ingredients to generate high ridership*:*

1. Attractive Transit Service. For transit to generate high ridership, the service itself must be attractive; this is the ingredient within VTA's control. For transit to generate high ridership, it must exhibit the route design guidelines outlined in Section 5. Most importantly, high ridership transit must be frequent, fast, easy to understand and use, reliable, safe, and part of an integrated transit network.
2. Dense and Transit-Supportive Land Uses. The homes, schools, theaters, workplaces, shopping centers, and other places people travel to and from as part of daily life are the sources of demand for transit trips. The density and type of land uses along a transit corridor are directly related to transit's usefulness. Low-density land uses like single-story employment campuses, parks, or single-family home neighborhoods do not generate sufficient demand for high ridership transit. Similarly, auto-oriented land uses like drive-through food joints, big box retail centers, and practically any land use surrounded by free parking lots do not generate sufficient demand for high ridership transit. A transit corridor requires high-density land uses that are transit-supportive to generate high ridership.
3. Pedestrian-Oriented Street Design. Because nearly all transit riders are pedestrians on at least one end of their trip, high ridership transit service requires streets that are designed to prioritize the pedestrian, not the car. This means high ridership transit streets have ample sidewalks, are easy to cross, are not too wide, have pedestrian-scale lighting, are accessible for users with mobility devices, are free of physical barriers, feel safe, and have slow traffic speeds. Streets designed to maximize traffic throughput and speed, such as expressways and highways, are terrible places for pedestrians and therefore do not generate high ridership for transit.

The ridership recipe prescribes what is necessary for a corridor to have high transit ridership, which guides the planning of ridership-oriented routes. However, ridership is not the only goal of transit. Coverage-oriented routes need not exhibit these qualities because ridership is not the primary measure of their success. In order to properly assess each route's performance against its actual purpose, the Next Network established a new family of transit services to clearly define the orientation and goals of every transit route.

4 VTA'S FAMILY OF SERVICES

For people to use transit, they must be able to easily understand the transit system and how to use it, so it is important for VTA to provide clear and concise information on the family of services. Accordingly,

VTA's Next Network adopted a hierarchy of transit services, where routes are classified into five classes of service that reflect and convey the functional, operational, and ridership-coverage characteristics of the service in each class (see Table 1). Through this new family of services, potential riders will be able to better understand VTA's network at a glance. For example, the color red and term "Frequent" are used throughout the system to indicate VTA's core "show up and go" routes with 15-minute or better headways from at least 6:30 am to 6:30 pm on weekdays. The service classes convey several important characteristics such as:

- Frequency. Ridership-oriented services offer service every 15 minutes or better on weekdays (every 20 minutes or better on weekends) because frequency is a key determinant of ridership due to its direct relationship with usefulness. Coverage-oriented services offer less frequent service.
- Days of Service. Ridership-oriented services offer service 7 days a week in order to provide attractive service to a broad array of users and travel patterns, while coverage-oriented services offer service on weekdays only to focus resources on critical-need travel patterns (such as medical appointments, school trips, and job commutes).
- Stop Spacing. Ridership-oriented services stop less often in order to maximize transit speed and ridership, while coverage-oriented services can stop more often to minimize walking distances. Long-distance Express services travel non-stop on freeways.
- Capital Investments. In alignment with VTA's Transit Passenger Environment Plan, ridership-oriented services receive more significant investments such as upgraded stops/stations, added stop/station amenities, ticketing machines, dedicated rights of way, transit information signage, and real-time information displays.

TABLE 1: VTA'S FAMILY OF SERVICES

	Light Rail	Rapid	Frequent	Local	Express
Primary Purpose	ridership	ridership	ridership	varies	coverage
Color Brand	BGO	red	red	blue	green
Typical Frequency	15 min	15 min	15 min	30-60 min	n/a
Days per Week	7 days	7 days	7 days	5-7 days	5 days
Stop Spacing	wide	wide	local	local	non-stop
Capital Investments	significant	significant	moderate	low	low
	VTA's Frequent Network				

This framework of service classes and characteristics also forms the basis by which services are developed, evaluated, and modified as described in the Service Planning Process section. Ridership-oriented services are held to a more strict productivity standard, reflecting their primary objective, while coverage-oriented services are evaluated by how well they achieve coverage goals.

OTHER SERVICES

- VTA may offer (or partner to offer) dynamic transit services to provide first/last-mile connections to VTA's core transit network. These coverage-oriented services are evaluated under specialized criteria developed specifically for each service to reflect its unique design and goals.
- VTA operates Express bus routes with funding from employers through the VTA Express Bus Partnership Program, adopted in 2020. These partnerships lower VTA's cost to operate Express bus service, enable employers to influence the schedules and path of travel of the routes they financially support, and empower employers to provide free Express bus service to its employees through the VTA SmartPass Program.
- VTA provides supplemental service for major local events such as sports games, concerts, festivals, and community events. Special event service is not subject to the service guidelines in this document. Special event services are provided per VTA's Special Event Service policy, adopted in mid-2017.
- In addition, VTA provides supplemental service at school bell times on several routes. In some cases, this involves adding extra vehicles to the schedule to alleviate overcrowding, while in other cases it involves specialized routing and schedule adjustments to accommodate school travel patterns. Due to their unique service design, VTA's school-oriented (200-series) routes are evaluated on a case-by-case basis using specialized criteria appropriate for each route.

5 ROUTE DESIGN GUIDELINES

A well-designed transit route is simple, easy to understand, coordinated, reliable, attractive, and easy to use. This section provides guidelines for the design of a transit route that are generally accepted best practices across the transit industry. These design guidelines are meant to:

1. Improve and maintain the attractiveness of VTA's transit services
2. Ensure consistency of VTA's route structure for existing and new services
3. Provide objective and consistent criteria for making service changes

The following service design guidelines are general best practices for all transit types of transit services, though they are most critical in the design of ridership-oriented services. As such, these guidelines are intended to improve the service design of all VTA routes, though more exceptions to these guidelines will likely occur for coverage-oriented routes.

ROUTES SHOULD BE SIMPLE AND CONSISTENT

Transit should be easy to understand and use. The way service is designed influences how easy it is for people to understand the transportation options available to take them where and when they want to go. Accordingly, transit routes should strive for simplicity and operate along consistent and simple alignments, at regular intervals (headways), have consistent schedules. People can easily remember simple and repeating patterns but have difficulty remembering complex and irregular ones. For example, routes that provide four trips an hour should depart from their terminals every 15 minutes.

Limited exceptions can be made where necessary, such as in cases where demand spikes during a short period to reduce crowding on individual trips.

ROUTES SHOULD BE FAST

Transit service should be fast, with transit vehicles given priority to move quickly along city streets. Faster transit service will attract more riders, reduce operating costs, allow for more frequent service, and better support dense and walkable developments. Routes should be designed to maximize the speed of service through strategies such as minimizing turning movements, reducing dwell delay through bus stop consolidation and rapid fare collection methods, reducing traffic delay with transit lanes, minimizing merging delays with bulb-out stops, and minimizing red-light delay with transit signal priority and queue jumps.

ROUTES SHOULD OPERATE ALONG A DIRECT PATH

People generally prefer to travel in straight lines, as directly as possible from their origin to their destination, and transit should provide the same. In addition, turning movements are often a major source of transit delay. Special attention should be placed on designing routes to operate as directly as possible to maximize speed for the bus and minimize travel time for passengers. Routes should not deviate from the most direct alignment unless there is a compelling reason to do so. Directness is of particular importance for longer routes, where the cumulative impacts of turning delay can be significant.

ROUTE DEVIATIONS SHOULD BE MINIMIZED

Consistent with the idea that transit service should be as direct as possible, the use of route deviations (traveling off the most direct route) should be minimized. There are, however, instances when the deviation of service from the most direct route is appropriate, for example to avoid a bottleneck or to provide service to major shopping centers, employment sites, schools, etc. In these cases, the benefits of operating the route off the most direct path must be weighed against the inconvenience caused to passengers already on board that would have to ride through the deviation. Route deviations should be considered only if all the following three conditions would be true:

- ✓ The deviation would result in an increase in overall route productivity.
- ✓ The number of new passengers that would be served is greater than the number of passengers who would be riding through the deviation.
- ✓ The deviation would not interfere with the provision of regular service frequencies and/or coordinated service with other routes operating in the same corridor.

In most cases, where route deviations are provided, they should be provided on an all-day basis for rider simplicity. Exceptions may be during times when the sites that the deviation serves have no activity, such as shopping centers and schools.

RAPID AND FREQUENT ROUTES SHOULD OPERATE ALONG ARTERIALS

Rapid and Frequent routes should operate on major roadways and should avoid deviations for local circulation. Riders and potential riders typically have a general knowledge of an area's arterial road system and use that knowledge for geographic points of reference. The operation of bus service along arterials makes transit service faster and easier for riders to understand and use.

ROUTES SHOULD BE SYMMETRICAL

Routes should operate along the same alignment in both directions to make it easy for riders to know how to return to their trip origin location. For example, if a route serves West San Carlos Street into downtown San Jose, it should serve West San Carlos Street on the reverse trip out of downtown San Jose. Exceptions can be made in cases where such operation is not possible due to one-way streets or turn restrictions. In those cases, routes should be designed so that the opposite directions parallel each other as closely as possible.

ROUTES SHOULD BE COORDINATED

When multiple routes operate through the same corridor but to different destinations, service should be coordinated to maximize its utility and minimize redundancy. To avoid bunching of buses and to balance loads, major routes of the same route type that serve the same corridor should be scheduled to operate at the same frequency and should alternate trips at even intervals as much as possible.

Most routes intersect with other routes at transit centers, rail stations, and street intersections. At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times for the predominant transfer flows, particularly for connections with Caltrain, BART, and light rail service.

STOPS SHOULD BE SPACED APPROPRIATELY

The distance between stops is a key concern for effective transit service. More closely-spaced stops provide customers with more convenient access, as they are likely to experience a shorter walk to the nearest bus stop. However, transit stops are also a chief reason that transit service is slower than general traffic, since each additional stop requires the bus to decelerate, come to a complete stop, load and unload riders, collect fares, and then accelerate and re-merge into traffic. Therefore, the number and location of stops is a balancing act between faster service and shorter walking distances.

The different classes of transit service are tailored toward serving different types of trips and needs. In general, services that emphasize ridership and speed (Rapid and Frequent routes with a ridership purpose) should have fewer stops, while services that emphasize coverage over productivity (Local routes with a coverage purpose) should have more stops. Guidelines for ideal stop spacing are shown in Table 2.

TABLE 2: STOP SPACING GUIDELINES

	Light Rail	Rapid	Frequent	Local	Express
Ideal Stop Spacing					
	1-2 stops/mile (2,640'–5,280')	1-2 stops/mile (2,640'–5,280')	4 stops/mile (1,320')	5 stops/mile (1,056')	n/a n/a

Though the stop spacing guidelines provide a general target for stop spacing along transit routes, the placement of transit stops will necessarily vary due to localized conditions along the transit corridor. Conditions that may impact the placement of transit stops and justify more or fewer stops per mile include:

- Ridership Demand. Transit stops should maintain sufficient ridership activity to justify the stop.
- Major Trip Generators. Certain places of interest generate significant demand for transit and warrant a stop nearby. These places can include shopping centers, libraries, grocery stores, and social service centers.
- Places of Community Interest. Although they may not generate high ridership, some places of interest warrant a nearby stop because they are important destinations for certain populations and the community interest. Such places can include medical offices, senior centers, and veteran facilities.
- Street Grid. The street grid along a transit corridor will impact the placement of transit stops. For example, a street with long distances between intersections (such as an Expressway) will necessarily have fewer transit stops, as stops are ideally placed at intersections.
- Pedestrian Environment. Because transit users are pedestrians, the street environment around a bus stop must be amenable to pedestrians, accessible for all users, and free of barriers. Intersections that are more walkable and oriented towards the pedestrian are more appropriate for bus stops than intersections with a focus on auto traffic.
- Land Use Density. The density of developments surrounding a transit stop is a major driver of ridership demand at the stop. Areas with lower land use density would have fewer stops, whereas areas with higher land use density would have more stops.
- Passengers Onboard Transit Vehicles. The typical number of riders onboard transit vehicles through an area will impact the tradeoff between more stops for coverage and fewer stops for faster transit. More priority should be given to limiting bus stops in areas where transit vehicles are more full, in order to provide fast service for the greatest number of people.

6 SERVICE LEVEL GUIDELINES

Setting guidelines for the amount of service provided creates structure to guide service planning decisions, helps potential riders understand the transit network, and communicates to stakeholders how service will be provided. Combined with service productivity guidelines, service level guidelines set the framework for service investment. Service level guidelines are established for three aspects of service design:

1. Service span
2. Service frequency
3. Passenger loads

The guidelines listed in this section are used to determine minimum service levels for each transit route, by route class. They set guidelines for the minimum service span and minimum service frequency, as well as passenger loads.

Generally, service levels should be consistent for the entire length of a route to provide consistency and improve service simplicity. However, in cases where ridership demand varies considerably along a route's length, the service level can change over its length, where different segments of the route have a different level of service. In such cases where demand warrants uneven service levels on a route, the guidelines in this section apply to the route's predominant segment with the higher service level.

SERVICE SPAN

A route's start and end time, or span of service, and the days of week that it operates are directly related to the usefulness for potential riders. Passenger demand and VTA's financial capacity are key considerations in setting service spans and days of service. VTA's service classes provide a consistent structure to establish minimum service spans.

The minimum span of service guidelines define the minimum period of time that routes in the different service classes should operate (see Table 3). However, service can start earlier and/or end later if demand warrants.

TABLE 3: SERVICE SPAN GUIDELINES

	Light Rail	Rapid	Frequent	Local	Express
Weekdays					
Begin no later than	5:00 AM	6:00 AM	5:30 AM	6:30 AM	*
End no earlier than	12:00 AM	11:00 PM	12:00 AM	7:00 PM	*
Saturdays					
Begin no later than	6:00 AM	6:30 AM	6:30 AM	*Saturday service where appropriate*	
End no earlier than	12:00 AM	11:00 PM	12:00 AM		
Sundays					
Begin no later than	6:00 AM	6:30 AM	6:30 AM	*Sunday service where appropriate*	
End no earlier than	12:00 AM	10:00 PM	11:00 PM		

**Express service typically operates a few trips during each weekday peak period*

SERVICE FREQUENCY

Service frequency, or headway, refers to the time interval between two vehicles traveling in the same direction on the same route. Frequency has a major influence on transit usefulness and its ridership; high frequency service is a fundamental requirement for attractive service. At the same time, frequency has a significant impact on operating costs, and service resource requirements increase with improvements in service frequency.

The frequency on a route is determined by demand and policy. Routes with higher ridership demand warrant higher frequency service (more buses per hour, where vehicles come more often), while routes with lower ridership demand warrant lower frequency service (fewer buses per hour, where vehicles come less often). Also, the delineation of minimum service frequencies is a policy decision that gives long-term consistency to the system and helps riders better understand and use the system. The service frequency minimums are used to balance passenger convenience, resources, and costs (see Table 4).

- Minimum headway guidelines are often used to specify a minimum level of service that should be operated on low ridership lines or during off-peak periods. Service frequency could be higher on heavy ridership lines where the level of service operated is more a function of passenger demand and vehicle loading guidelines.
- No route should operate at a lower frequency than every 60 minutes at any time (i.e. buses or light rail vehicles should come at least once every hour).
- Frequencies between 10 and 60 minutes should operate on clock-face headways. A clock-face headway is any frequency that is evenly divisible into 60 minutes: 10, 12, 15, 20, 30, or 60 minutes. Although sometimes necessary due to operational scheduling constraints, 45-minute frequencies should be avoided because they are more complicated and difficult for riders making trips involving a transfer.
- For routes with mixed service levels, the service frequency guidelines apply to the route's predominant segment with the higher service level, though ideally all segments have consistent service levels for simplicity.
- Express bus services, due to their unique service design and partnership model, are not held to specific frequency guidelines, however service should operate a minimum of three trips per direction if possible.

TABLE 4: SERVICE FREQUENCY GUIDELINES

	Light Rail	Rapid	Frequent	Local	Express
Weekday Minimum Headways (minutes between vehicles)					
Peak Periods	15	15	15	60	n/a
Midday	15	15	15	60	n/a
Saturday Minimum Headways (minutes between vehicles)					
Daytime	20	15	20	*Saturday service where appropriate*	
Sunday Minimum Headways (minutes between vehicles)					
Daytime	20	15	20	*Sunday service where appropriate*	

PASSENGER LOADS

Passenger load guidelines specify the average number of passengers riding on a transit vehicle that is considered acceptable. As with the other guidelines in this document, the guidelines as shown in Table 5 are general guidelines, not strict standards. These guidelines are used for developing service levels that best meet the needs of VTA's current and future riders and to ensure that riders are not discouraged by overcrowding. These guidelines are based on VTA vehicle capacities and transit industry standards, and are designed to balance safety, passenger comfort, and operating efficiency.

Passenger loads are measured by computing the load factor, which is the number of passengers onboard a vehicle divided by the seated capacity of the vehicle. For example, a transit vehicle carrying a full seated load with no standees has a load factor of 100%. The vehicle load standard is calculated as an average for both the peak and off-peak periods, at the busiest point on the route during the busiest hour. For instance, if a service operates at a 15-minute frequency, then 4 buses would pass the busiest point in an hour. The average number of passengers for these 4 buses must fall within the service standards, even though any one bus may be more crowded than the average. If the standard is consistently exceeded, VTA should evaluate options to alleviate overcrowding. However, the standards are designed to allow standees during peak periods on a regular basis.

If these guidelines are consistently exceeded for a route, two different techniques are used to increase capacity and keep passenger loads within acceptable levels. The first is to adjust vehicle sizes or train consists to match ridership levels (by using a larger bus type or adding a car to light rail trains). The second method is to provide more frequent service to better match demand. (In limited cases, capacity can also be added by operating some buses in tandem, which is referred to as "double-heading.")

TABLE 5: PASSENGER LOAD GUIDELINES

	Light Rail[1]	Rapid	Frequent	Local	Express
Average Passenger Load Maximum (percent of seated capacity)					
Peak Weekday	120%	120%	120%	120%	100%
All Other Times	100%	100%	100%	100%	100%

For reference, the seated capacity, standing capacity, and maximum passenger loads (seated plus standing) for VTA's current fleet of transit vehicles are shown in Table 6.

TABLE 6: TRANSIT VEHICLE CAPACITIES

	Light Rail	60-Foot Articulated	40-Foot	30-Foot	40-Foot
Seated Capacity	65	57	37	26	39
Standing Capacity	150	45	24	10	12
Max Load	215	102	61	36	51

[1] Light rail train consists may also be adjusted as necessary to accommodate trips with high bicycle ridership, which can reduce rider capacity.

7 SERVICE PRODUCTIVITY GUIDELINES

This section establishes service productivity guidelines, VTA's primary criteria for guiding transit investments. These guidelines set minimum productivity levels to ensure that operating dollars are being invested effectively.

VTA's guideline to measure route productivity is boardings per total hour. This guideline is based on the most widely-used transit productivity metric throughout the industry, and reflects the average number of boardings per total hour of service (including layover/recovery, pull in/out, and deadhead time). VTA's categorical minimum productivity standard for all routes in the system is 15 boardings per total hour, as shown in Table 7.

TABLE 7: SERVICE PRODUCTIVITY GUIDELINES

	Weekdays	Saturdays	Sundays
Minimum Productivity (boardings per hour)	15	15	15

New transit service takes maturation time to become established and reach its full potential. Accordingly, new routes shall be given two years to reach their productivity guidelines, as shown in Table 8.

TABLE 8: NEW SERVICE PRODUCTIVITY

	6 months	12 months	24 months
Compliance with Productivity Guidelines	60%	75%	100%

Due to their service design featuring long distances and low turnover, a secondary measure is also used to measure Express route performance. This measure is the average peak load factor, which compares the number of seats on a bus to the number of passengers onboard at its busiest point, expressed as a percentage. For example, a peak load factor of 90% indicates that the average trip during the peak period is 90% full (35 riders on a vehicle with 39 seats). *This measure does not supersede an Express route's requirement to follow the minimum productivity measure of boardings per hour, established above. Rather, this measure is intended to provide additional information to help policymakers and managers better understand the performance of Express routes.*

In cases where routes do not meet minimum productivity guidelines, service changes should be made to improve route performance, such as modifying the route alignment, adjusting the span of service, eliminating unproductive segments, reducing service levels, or implementing a route marketing plan. If no changes can be identified, or service changes fail to improve productivity to meet the guidelines, service should be discontinued and the resources invested in more productive uses elsewhere in the system. Any bus route (ridership or coverage) that is not supported by a third-party funding source and consistently operates below the categorical minimum standard should be discontinued.

8 LIGHT RAIL EXPANSION

As shown in Table 9, this section identifies a set of performance thresholds needed to ensure that light rail routes and stations contribute to productive and efficient service.

The primary evaluation standard is boardings per revenue vehicle hour. This measures the number of boardings during a given revenue hour of vehicle service. It has served as VTA's long-established evaluation criteria to assess productivity of transit services. This indicator shows how well service is utilized given the hours of service provided. It also indicates whether the transit capacity offered is appropriate, and how well capital and operating resources are deployed to provide service.

The secondary evaluation standards are boardings per station and boardings per route mile. Boardings per station measures the average number of weekday boardings at a given station and gauges how well a station is being utilized. This is important given operating and maintenance costs associated with keeping a station operational. An underused station impacts light rail operating performance, as well as farebox recovery and cost efficiency. Boardings per route mile compares the number of daily boardings to the total length of a light rail route or the entire light rail network. This standard shows whether a route is effectively designed given its length. Furthermore, it can be used to identify route segments with higher demand, which allows the operator to be tailor service and capacity to service this ridership.

New light rail lines shall be evaluated according to all three standards, while existing light rail service shall be evaluated by the *boardings per station* standard only.

TABLE 9: RIDERSHIP STANDARDS FOR EXISTING & NEW LIGHT RAIL SERVICE

	Study Area	Existing Service	New Service
Performance Standard*			
Average Boardings per Revenue Hour	Line	n/a	87
Minimum Boardings per Station	Station	559	1,268
Average Boardings per Route Mile	Segment/Line	n/a	1,489

**All standards are based on existing VTA performance and those of similarly sized light rail systems and stations in cities with comparable land use patterns (Denver, Sacramento, St. Louis, Salt Lake City).*

9 SERVICE PLANNING PROCESS

This section describes the service planning process to design, monitor, evaluate, and develop service change recommendations for VTA's transit services. The intent of the service planning process is to iteratively make improvements to the transit network, route by route, so that the network is continually being updated and improved over time. The main components of the process are:

1. Regular performance monitoring of VTA's transit network
2. In-depth route evaluations to comprehensively assess individual routes
3. Development of service change recommendations
4. Development of an annual Transit Service Plan for each calendar year
5. Ongoing community engagement for service change recommendations

VTA's service delivery is structured by four service periods per year, as specified in the VTA-ATU Collective Bargaining Agreement. Service changes are made roughly quarterly, in January, April, August, and October of each year. As such, the transit service planning process is structured to follow and complement this structure, where service is evaluated for each period and service change recommendations are developed for subsequent service periods.

REGULAR PERFORMANCE MONITORING

The foundation of the service planning process is a solid understanding of transit performance, which can be measured by quantitative metrics like ridership and on-time performance, or qualitative metrics such as the rider experience and bus stop site conditions. Some metrics are monitored by staff continually, and others are assessed at the conclusion of each service period (roughly quarterly). Staff utilize a multifaceted approach to gain a holistic understanding of transit performance by gathering data such as:

- Rider feedback
- Transit vehicle location and on-time performance data
- Staff ride-alongs and audits
- Incident reports
- Operator and front-line worker feedback
- Bus stop, rail station, and transit center staff audits
- Boarding and alighting data
- Service data by route, stop, and service day
- Stakeholder and Boardmember input
- Schedule and performance data for connecting (neighboring) services
- Wheelchair ramp deployments

At the conclusion of each service period, staff publish a Transit Service Productivity Matrix that reports key quantitative performance data by route and service day. Staff use the Transit Service Productivity Matrix and other data sources to better understand transit performance and develop service change recommendations.

Transit performance informs service planning discussions at VTA's Safety, Security, and Transit Planning and Operations (SSTPO) committee as appropriate. Staff conduct discussions of system performance, individual routes of interest, and special topics as appropriate (such as school service, event service, interagency coordination, the ridership-coverage balance, system design, etc.).

Transit performance also provides valuable insights into what parts of the transit network are working well, what parts are underperforming, markets that are developing, and what needs further study through a route evaluation.

ROUTE EVALUATIONS

As performance dictates, staff determine which routes warrant a comprehensive route evaluation, typically conducted by a third-party transit service planning expert. Staff select routes for study based

on several factors, including low/high performance, heightened community interest, development activity, or nonconformance with service guidelines. The goal is to evaluate 2-3 routes per year, depending on staff capacity. These route evaluations form the basis for the development of service change recommendations. The route evaluation reports typically include the following elements:

- Description of the route's alignment, schedule, and other operating details
- Analysis of the route's market and purpose
- Analysis of the route's ridership over the course of a day
- Analysis of the route's ridership by stop
- Analysis of the route's speed of service
- Analysis of the route's compliance with each of the transit service guidelines established in this document (route design guidelines, service level guidelines, and service productivity guidelines)
- Service change recommendations

Evaluations may be conducted for any bus route, light rail route, or transit market, though options for improving light rail service are more limited due to the permanence of rail infrastructure investments such as stations, rights of way, way power & signal equipment, etc. Rail service is generally more fixed and there are fewer service planning decisions to be made, whereas bus service is much more flexible and there are ample opportunities to adjust service.

SERVICE CHANGE RECOMMENDATIONS

The findings from each route evaluation inform the development of a set of service change recommendations at the conclusion of the report. These service change recommendations may run a wide gamut of strategies designed to improve service, such as alignment changes, schedule changes, service level changes, infrastructure investments, service class changes, bus stop consolidation, service discontinuation, and service span adjustments, among others. In addition to service changes, there may be recommendations that involve targeted marketing and promotions to increase awareness and ridership.

Minor service changes and schedule adjustments can be implemented in short order, typically for the subsequent service periods beginning in January, April, August, and October. Major service changes (see inset) are typically considered annually and implemented as part of the calendar year's annual Transit Service Plan.

MAJOR SERVICE CHANGE POLICY

Proposed changes that meet any of the criteria listed below are considered "major" service changes and must be submitted to the VTA Board of Directors for review and approval, typically as part of the annual Transit Service Plan:

- The establishment of a new transit line or service
- The elimination of a transit line or service
- A route change that impacts 25% or more of a line's route miles
- Service span or frequency changes affecting 25% or more of a line's revenue vehicle hours
- A series of changes on a single route which are included in the annual Transit Service Plan and cumulatively meet any of the above criteria
- Proposed changes that are anticipated to be controversial with a particular community or interested parties based on public feedback
- A systemwide change concurrently affecting 5% or more of the total system revenue hours

Service change proposals that do not meet the above criteria are handled by VTA staff. These proposals are still subject to an appropriate level of public and community review and comment. The criteria for major service changes were adopted by VTA's Board of Directors in 2013 as part of the Title VI Systemwide Service Standards & Policies document.

ANNUAL TRANSIT SERVICE PLAN

The service planning process culminates in the development of a new Transit Service Plan for each calendar year. By early summer each year, staff develop and release a draft Transit Service Plan proposal for the following calendar year. The Plan is based on feedback collective from Operators, riders, and other stakeholders throughout the year, as well as any service change recommendations from route evaluations. The draft Plan includes:

- A description of changes proposed to the transit network, by route
- Tables and charts outlining the service details for the proposed transit network
- A preliminary Title VI service equity analysis of the proposed service network's impact on disadvantaged communities
- A preliminary analysis on the impact to *VTA Access* ADA paratransit service

Based on feedback collected during community engagement efforts on the draft Transit Service Plan, staff make revisions and develop a final Transit Service Plan for consideration. The final Plan includes a full Title VI service equity analysis and a review of feedback received on the draft plan. Staff bring the action to adopt the final Transit Service Plan to the SSTPO committee and the Board of Directors in the fall of each year, for implementation beginning in January.

COMMUNITY ENGAGEMENT

The process to monitor, evaluate, and improve transit service through an ongoing service planning process is built on extensive community engagement:

- Regular service planning discussions of service performance, evaluations, and improvement plans occur in public SSTPO committee and Board meetings where community members can provide feedback and suggestions.
- Extensive community outreach is conducted each summer to solicit feedback on the draft Transit Service Plan. Outreach efforts could include community meetings, social media polling, webinar-style online meetings, direct engagement at transit centers and stations, and online engagement such as surveys and voting polls. Community engagement opportunities are advertised through a targeted marketing campaign (including advertisements at VTA bus stops and light rail stations).
- Staff welcome feedback through VTA's Customer Service team, which maintain a direct telephone line and email address for feedback and suggestions, which are all logged into a customer service database for consideration at the appropriate time. In addition, VTA regularly monitors social media for community suggestions regarding transit.

10 REVISIONS

The original version of this policy was adopted in April 2018. Minor revisions are made by staff periodically; the changes in each revision are described below.

REVISION 2: MAY 2023

- Added a description of Express bus service in the Other Services section
- Added bus stop spacing ranges in feet (Table 2)
- Replaced references to the 2019 New Transit Service Plan with Next Network for clarity
- Adjusted Rapid bus span guidelines from 5:00 AM start to 6:00 am start on weekdays, from 6:00 AM start to 6:30 AM start on Saturdays, and from 7:00 AM start to 6:30 AM start on Sundays (Table 3)
- Adjusted Frequent bus span guidelines from 7:30 AM start to 6:30 AM start on Sundays (Table 3)
- Adjusted Local bus span guidelines from 6:30 PM end to 7:00 PM end on weekdays (Table 3)
- Removed Express Bus from the guidelines in the Service Frequency section
- Simplified the Service Productivity guidelines and language to focus on the categorical minimum 15 boardings per hour guideline
- Modified the service signup period start dates throughout Section 9 to reflect the revised signup calendar per the April 2022 VTA-ATU Memorandum of Agreement titled “General and Quarterly Sign-Up and Bid Process”
- Revised the Regular Performance Monitoring section to reflect current practices
- Revised the Route Evaluations section to reflect current practices
- Moved the Major Service Change Policy to an inset box for ease of reference
- Revised the Annual Transit Service Plan section bullets to reflect current practices
- Removed the outdated text box explaining the suspension of some service planning activities leading up to the implementation of the 2019 New Transit Service Plan
- Removed the reference to a Service Planning dashboard to be created and maintained on vta.org
- Revised list of metrics included in the Transit Service Productivity Matrix
- Revised placement of advertisements for Community Engagement opportunities to VTA bus stops and light rail stations instead of onboard VTA transit vehicles
- Identified VTA’s Customer Service team (instead of Community Outreach) as the means for welcoming feedback

REVISION 1: SEPTEMBER 2019

- Updated VTA’s ridership-coverage balance to 90-10, per the 2019 Transit Service Plan
- Removed Purple Line references to reflect its discontinuation
- Updated Next Network transit plan references to the 2019 Transit Service Plan

- Incorporated Light Rail Expansion section from VTA's Transit Sustainability Policy, as adopted by the Board of Directors in 2007 and revised in 2009
- Revised the Annual Transit Service Plan development process to reflect service plans based on the calendar year instead of the fiscal year
- Revised the service planning process to reflect the revised service periods per the 2019 VTA/ATU Collective Bargaining Agreement