

# SUN TRAN SERVICE STANDARDS AND WARRANTS

2024

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## Overview

Service standards within Sun Tran encompass a comprehensive set of evaluation metrics. They are a management tool, enabling service efficiency, effectiveness, and quality assessment. These standards also set benchmarks crucial for informed decision-making regarding present and future services. A small section of the Title VI Program from August 2022 includes service standards.

By adhering to these service standards, Sun Tran ensures that its services cater to the travel requirements of passengers and taxpayers while maintaining cost-effectiveness for Sun Tran. These standards serve as guiding principles for all modifications and investments in service, aligning with Tucson's evolving mobility needs.

This set of standards is fundamental to Sun Tran's operational framework and comprises five essential components tailored to the transit service:

1. **Service Classifications:** These define the tiers of service Sun Tran offers, encompassing the unique characteristics and roles within the transit network. It outlines the distinct service tiers, their attributes, and network responsibilities.
2. **Service Warrants:** Determining the areas that warrant fixed-route service coverage within the Sun Tran service area is the primary focus of this component. It establishes criteria for identifying and justifying specific areas for fixed-route service provision.
3. **Service Design Standards:** This component delineates the guidelines governing Sun Tran services' design and operation, encompassing existing and new service offerings. It establishes the protocols and criteria for the operation and design of transit services.
4. **Service Performance Standards:** Sun Tran's expectations concerning service performance in terms of effectiveness, efficiency, and quality for customers are articulated here. It sets benchmarks for measuring and ensuring the quality and efficiency of the services provided.
5. **Service Evaluation:** This section presents a comprehensive process for analyzing, updating, and communicating service plans. It ensures the sustainability of services by continually evaluating their performance, addressing financial viability, and meeting the evolving mobility needs of county residents, employees, and visitors.

These standards collectively form the cornerstone of Sun Tran's service delivery, guiding the planning, execution, evaluation, and continuous improvement of transit services to effectively meet the community's diverse needs.

## Service Classifications

Route classifications are pivotal in determining the nature of the service provided. Sun Tran categorizes its fixed route services into five distinct categories: Sun Tran, Sun Express, Sun Shuttle, Sun Link, and Sun OnDemand.

- **Sun Tran:** Local fixed route bus service in the Greater Tucson region. This is the core network service.
- **Sun Shuttle:** A neighborhood connector serving suburban and more rural communities. Sun Shuttle connects North Oracle and Catalina, Thornydale and Dove Mountain, Marana, Green Valley, and Town of Sahuarita, Tucson Estates, San Xavier District of the Tohono O’odham Nation, and Southeast Tucson and Rita Ranch to Sun Tran routes. Sun Shuttle is a service that is managed and funded by PAG/RTA.
- **Sun Express:** Routes provide limited-stop service designed to transport commuters to and from employment sites and provide connections to service outside of the City of Tucson. These buses use the freeway system to provide faster service and operate during peak commute periods.
- **Sun Link:** High-capacity streetcar rail line, serving downtown City of Tucson and the University of Arizona Campus.
- **Sun On Demand:** Provides curb-to-curb access to and from any address within specified zones. Riders can make reservations one to seven days in advance, and same-day when possible. Reservations are accepted on a first come first serve basis. If a rider’s trip extends outside of the zone, they can be dropped off at one of the transfer bus stops inside the zone to make their trip elsewhere.

Effectively employed, these route classifications establish a well-rounded service framework for the community. The current route list and assigned classifications are included in the appendix.

## Service Warrants

Sun Tran operates a network of bus routes covering various parts of the region. The routes cover major areas, including downtown, residential neighborhoods, business districts, and educational institutions. Establishing a clear set of criteria for determining areas deserving of service enables Sun Tran to respond proactively to future community requests for new service coverage expansions. This process of defining service warrants considers the needs and opportunities inherent to the residents of Tucson.

**Financial Viability:** Any new services should project performance that meets or surpasses the system's average to ensure financial stability. Planning routes in alignment with these criteria becomes instrumental in guaranteeing the successful operation of new routes.

**Network Role:** Evaluation of new services within the broader transit network is vital. Each new route assumes a unique role, be it enabling transfers with existing services, extending coverage to recent developments, or facilitating connections between routes and major destinations. While integration with existing services is vital, redundancy or competition for passengers with current services should be avoided.

**Unmet Needs / Market Opportunities:** Service performance is closely tied to population and employment densities. Areas with higher populations, mixed-use neighborhoods, and transit-friendly demographics such as students, seniors, and low-income groups should be prioritized. Focusing on urbanized regions with transit-supportive development is crucial to addressing demonstrated needs based on demographics.

If a new route is approved and established, its performance will be evaluated during the first two years of service to determine whether it meets the standards included in this document. If a route fails to perform up to standards after the first two years, it may be discontinued.

## Service Design Standards

### Network Design

The design of a route network defines the overall success of the system. How routes interact with one another greatly impacts the ease with which passengers can travel throughout the network.

### Network Structure

The Sun Tran network is primarily designed as a grid. In a true grid design, riders can access any part of the network with one transfer, using one route to travel north-south and another to travel east-west. Anticipating a heavy reliance on transfers, Sun Tran should work to maintain bus stop quality at major transfer points and invest in frequency on its routes to minimize transfer wait times. Where possible, Sun Tran should work to maintain the grid design of its network, deviating only for major destinations and in areas where the street network does not support a grid.

Sun Tran's service area is comprised of varying levels of population and employment densities. In downtown and around the University of Arizona campus, densities are highest. Outside of the city densities decrease, making fixed route bus service less effective. Sun Tran serves areas with a variety of mobility needs and service warrants: some areas are supportive of transit lifestyle service while others warrant infrequent lifeline service. Working within a constraint of limited resources, Sun Tran must strive to match resource investment to mobility needs to ensure maximized gains from ridership and long-term sustainability.

### Regional Connectivity

Sun Tran should continue to work with PAG/RTA to ensure that residents have access to transit between Pima County and the City of Tucson. This includes transit service terminals, schedules, and transfer mechanisms. Improving regional connections will help make transit a more attractive option to the automobile, increasing transit ridership and reducing automobile use which will positively impact our environment and instill stronger community connections.

### Route Design

Route design encompasses route alignment, route spacing and placement, bus stop spacing and placement, and service characteristics such as frequencies and spans.

### Route Alignment

Sun Tran routes should be designed to serve origins and destinations via direct pathways, minimizing out-of-direction movements. This provides a faster trip to attract more customers and fare revenue, while minimizing the operating cost to provide service. Deviations which serve high volumes of passengers may occasionally be warranted. An acceptable delay threshold for an out-of-direction deviation is five minutes or less for through-riders per passenger gained along the deviation.

### Route Spacing and Placement

Wherever feasible and appropriate, bus routes should serve major arterial streets with a strong pedestrian environment, avoiding smaller neighborhood streets. Routes should be spaced no closer than half a mile

apart. Industry surveys of consumer behavior have found that people will walk further with better frequency, extending the effective service walk access area for a bus from a quarter mile to a half mile. This means that frequent routes spaced more widely apart will attract more ridership (and farebox revenue) than less frequent service spaced closer together. Routes spaced too close together compete for ridership and use resources that could be more effective if placed elsewhere.

**Stop and Spacing and Placement**

Bus stop spacing has an impact on average speed of service. The more stops a bus makes along a route, the lower the average speed of travel. Conversely, the farther apart stops are placed, the farther riders have to travel to access service. Bus stop spacing in Sun Tran’s urbanized areas, served by Sun Tran, Sun Link, and Sun Link usually averages about 0.25 to 0.5 miles. Much of the City of Tucson is laid out on grid with major intersections every half mile. Based on the stop spacing standards, Sun Tran should strive to have no more than one stop between the major intersections in order to average a quarter-mile spacing. Stops should not be placed closer than a quarter-mile apart unless the route serves a dense area with a concentration of key destinations, such as in Downtown Tucson. For Sun Shuttle routes in more suburban and rural areas, bus stop spacing may be limited to locations with accessible curbs, gutters, and sidewalks suitable for ADA compliance and should only be placed where demand is present. Stops can be spaced farther apart if the route is traveling through undeveloped areas. To prioritize speed on Sun Express routes, stops should be limited to major Park & Ride locations, transit centers, and employment destinations. Sun Express routes should not make local stops on arterial streets.

*Table 1: Recommended Stop Spacing Ranges by Route*

<b>Recommended Stop Spacing Ranges by Route</b>	
<b>Route Class</b>	<b>Stop Spacing</b>
Sun Tran	0.25 to 0.5 miles
Frequent Transit Network	0.25 to 0.5 miles
Sun Express	Limited stop spacing
Sun Shuttle	0.25 to 1 mile
Sun Link	0.25 to 0.5 miles
Sun On Demand	–

Stops should be placed on the far side of intersections wherever possible. Far-side stop placement improves bus speed by minimizing time spent at traffic signals and improves pedestrian and bicycle safety as passengers do not cross in front of the bus. It also maintains a larger amount of curb space available for parking than near-side stop placement.

**Distribution of Transit Amenities**

The distribution of amenities will follow the City of Tucson and Sun Tran’s Strategic Bus Stop Policy. Sun Tran will prioritize the installation of amenities near major ridership generators, as well as in low-income and/or minority census tracts if it is determined necessary by the most recent Title VI Program Update.

## Service Levels

Service level design standards refer to the frequency and span of service operated by the various service tiers.

### Headways

Service headways are the intervals between bus trips and define how long customers wait for bus service depending on how they arrive at the stop. Some riders plan their arrivals at the stop minutes before the trip time on the route schedule. Others behave more spontaneously and just walk to the stop when they are ready to travel without consulting the route timetable. Depending on the service frequency, the customer experience can vary significantly for these two groups with the former (“the trip planner”) having an experience that does not vary significantly with the frequency, while the latter (“on-demand traveler”) will only have a good experience if the service operates frequently – the average wait for a random arrival is half the interval between trips. Market research has found there are far more potential transit customers who want to travel “on-demand” than “plan” their trips, making frequent transit service highly desirable in increasing ridership and productivity. At 15-minute service, roughly half the riders plan their arrivals while the other half show up spontaneously.

The following are minimum frequency targets by service tier. Frequencies can and should exceed these minimums when warranted by rider demand.

*Table 2: Service Frequency by Route Classification*

Service Frequency by Route Classification		
Service Classification	Weekday Frequency	Weekend Frequency
Frequent Transit Network	20 min	30 min
Sun Tran	30 min	60 min
Sun Express	Peak-only trippers	No service
Sun Shuttle	60 min	60 min
Sun Link	15 min	15 min
Sun OnDemand	60 min response time	60 min response time

Whenever possible, headways should be designed as “clock-face” where the same times repeat each hour (i.e., headways that divide into 60, where service operates every 10, 12, 15, 20, or 30 minutes) at key timepoints. This makes the service easier for customers to remember and use without consulting schedules and makes it easier to coordinate timed transfers. Exceptions are permitted where a route (usually with longer headways) will be operationally inefficient (e.g., require an additional vehicle resource) with a clock-face headway.

### Span of Service

The span of service, the hours of operation, refers to the start and end time of a route. Depending on the route classification (e.g., Sun Tran, Sun Shuttle, Sun Express, Sun Link, and Sun OnDemand), the span of service will vary depending on the demand in the community. In denser, more urbanized areas, bus service is expected to start earlier and end later in the day, whereas, for Sun Shuttle routes, the demand for earlier

and later service may not be present. The days of operation also contribute to when bus service will be provided.

In Sun Tran’s transit system, all fixed routes are proposed to operate weekdays from at least 6:00 a.m. to 9:00 p.m. and, depending on ridership and land use patterns, can start as early as 4:00 a.m. and stay in service until 12:00 a.m. on weekdays.

The minimum service hours for Sun Tran services are described below as a range of the first and last trip start time for each service classification. Certain routes may have exceptions where they serve specific rider markets. For example, routes serving the University of Arizona may have later evening demand while routes serving Tucson International Airport may have demand starting earlier in the morning.

*Table 3: Service Spans by Route Classification*

<b>Service Spans by Route Classification</b>			
<b>Service Classification</b>	<b>Weekday Span</b>	<b>Saturday Span</b>	<b>Sunday Span</b>
Frequent Transit Network	4:00 AM – 11:00 PM	5:00 AM – 11:00 PM	5:00 AM – 10:00 PM
Sun Tran	5:00 AM – 8:00 PM	7:00 AM – 7:00 PM	8:00 AM – 6:00 PM
Sun Express	Peak Only	No Service	No Service
Sun Shuttle	6:00 AM – 5:00 PM	9:00 AM – 3:00 PM	7:00 AM – 7:00 PM
Sun Link	Mon-Wed: 7:00 AM – 10:00 PM	8:00 AM – 2:00 AM	8:00 AM – 8:00 PM
	Thurs-Fri: 7:00 AM – 12:00 AM		
Sun OnDemand	6:00 AM – 8:00 PM	8:00 AM – 7:00 PM	8:00 AM – 7:00 PM

Insights into regional travel demand data show that weekend trip volumes are comparable to weekday trip volumes. While transit agencies have historically focused on providing more service on weekdays, providing adequate weekend service is crucial for serving non-traditional work schedules and other mobility needs. Sun Tran should strive to increase service spans on weekends to match more closely those provided on weekdays, and Sunday spans should more closely match those provided on Saturdays.

Express routes operate on weekdays during peak hours in the morning and evening to accommodate commuters. The hours of operation are adjusted based on peak commute patterns to regional employment and education centers start and end times. Ridership can necessitate modifications to the peak hours in order to accommodate additional service demand, such as seasonal weekday and weekend trips or overflow capacities.

## Service Performance Standards

Service performance standards are necessary to ensure that all services are fulfilling their roles in the transit network and contributing to the overall financial sustainability of Sun Tran. Performance should be measured regularly to identify trends over time and to allow prompt changes to be enacted if necessary. Performance standards help ensure that Sun Tran services are useful to customers as well as cost-effective for Sun Tran. Service performance may be measured using several key performance indicators, taken from industry best practice. These fall into two distinct groups, the first focuses on efficiency and effectiveness, the second on service quality.

### Efficiency and Effectiveness Measures

#### Passenger Boardings per Revenue Hour (PPH)

This performance indicator measures service effectiveness or productivity based on ridership (unlinked boardings) generated for each hour of service operated. Service classifications should, on average, meet the stated average productivity standard. Looking at the classification as a whole acknowledges that routes will have varied performance based on their service area, level of demand, and service levels. As long as the classification overall meets the standard, individual routes should be compared against their classification average. Routes performing below 75% of their service classification average may be subject to corrective action while routes performing above 125% may be candidates for increased service investment. See the “Service Evaluation Process” section for more details. Any Sun Tran -route under five PPH should automatically be considered for elimination or significant restructuring in order to make more effective use of Sun Tran’s limited resources.

*Table 4: Productivity Standards by Service Classification*

Productivity Standards by Service Classification	
Service Classification	Average Productivity
Frequent Transit Network	25 pph
Sun Tran	20 pph
Sun Express	15 passengers/trip
Sun Shuttle	5 pph
Sun Link	60 pph
Sun On Demand	3 pph

#### Cost per Passenger Boarding

This indicator measures the cost of providing service on a per-passenger basis. The cost is driven by both hourly and mileage-based costs. Total marginal operating cost is equal to (revenue hours x cost per hour) + (revenue miles x cost per mile). This means that two routes with the same number of hours will have different costs if they operate at different speeds, covering a different number of miles per hour with varying fuel and maintenance costs. Similarly to productivity, service classifications should meet these average standards, and individual routes should be compared against the classification averages. Routes

with costs that are greater than 125% of the classification average should be revisited for potential corrective actions.

Table 5: Cost per Passenger Standards by Service Classification

Cost per Passenger Standards by Service Classification	
Service Classification	Average Cost per Passenger
Frequent Transit Network	\$5.00
Sun Tran	\$10.00
Sun Express	\$20.00
Sun Shuttle	\$20.00
Sun Link	\$3.00
Sun On Demand	\$20.00

## Service Quality Measures

### On-Time Performance

On-time performance, also known as schedule adherence reporting, is the deviation of actual arrival and departure time from the timetable or schedule. On-time performance standards vary in the industry depending on the size of the transit operator, generally the larger the size of operations the more stringent the standard (TCRP, 1995). Other factors such as density and route distances are also considered in setting an on-time standard.

Sun Tran requires that no bus shall leave a time point early and should arrive at a time point no later than five minutes after the scheduled arrival time. This five-minute window is appropriate for Sun Tran’s service area due to the average distance traveled by each route and the combined rural and urban areas.

Transit agencies typically set a standard in percentages of on-time arrivals that they desire to achieve as a measure of good service quality. Among medium size transit systems, the typical desired level of system-wide on-time performance is between 80 to 95 percent with an average of 85%. It is important to balance the service being on time and adding too much time to the schedule for occasional delays.

Table 6: On Time Performance

On Time Performance	
On-Time	0 to 5 minutes
Standard	92%

### Passenger Load Factor

The maximum vehicle loadings refer to the maximum number of passengers per bus, including standees. Depending on the bus, the maximum number of passengers should not exceed 150% of the seated capacity or the legal weight limit of the bus. This is subject to change based on changes to the fleet in the future. On routes that use the freeways for service, loads shall not exceed 100% of seated capacity. Sun Tran will monitor the load on all route classifications and consider adding service to mitigate trips with excessive loads. [00]

## Service Evaluation Process

The service evaluation process is conducted to ensure the continued performance of individual services, as well as the overall network. This evaluation is intended to improve service design and productivity within categories, which is important to ensure that Sun Tran offers a consistent system that is easy for customers to use and easy for Sun Tran to promote, manage, and administer.

### Data Needs for Service Evaluation Process

The performance measures discussed above require the regular collection and updating of the following data sources:

- **Ridership:** Total number of boardings and on-board load by route and day of the week will be consolidated monthly. Through regular collection of ridership data, trends over time can be examined as well as providing the detailed data needed to conduct in-depth analysis.
- **Resources:** The number of vehicles, revenue miles and revenue hours per route by day of the week will be collected from the Sun Tran scheduling system with each service change.
- **Costs:** The cost of providing service will be monitored monthly for each service type.
- **On-Time Performance:** Departure times at each timepoint (and arrival at final timepoint) are collected on a per trip basis and monitored through two software solutions, Vontas and Swiftly.
- **Community Considerations:** The locations of senior, disabled, minority, and lower-income populations are important to consider in transit service planning to ensure that these groups do not experience disparate or disproportionate impacts in access to and quality of mobility. Sun Tran should use its Remix License to access demographic data and the Title VI analysis tool to ensure that transit service is equitable in the Tucson Region. This information is also available via US Census or American Community Survey data. Census tracts with concentrations of minority or low-income populations above the service area average are covered by Title VI regulations. Likewise, the presence of medical facilities, nursing homes and other community services are given consideration to ensure that these facilities are connected with the communities they serve. This data will be collected through cooperation with local planning and development agencies.
- **Business Arrangements:** Existing or proposed arrangements with employers, educational institutions and government entities are considered when evaluating route performance.

## Service Evaluation Schedule

The table below provides a summary of the Service Standards and how often they should be evaluated and reported to the City Council or other stakeholders.

Table 7: Service Evaluation Schedule

<b>Service Design</b>		
<b>Performance Standard</b>	<b>Goal</b>	<b>Frequency</b>
Headway	Varies by Service Classification	Annually
Service Span	Varies by Service Classification	Annually
<b>Service Performance: Efficiency and Effectiveness Measures</b>		
<b>Performance Standard</b>	<b>Goal</b>	<b>Frequency</b>
Passenger Boardings per Revenue Hour (PPH)	Routes performing below 75% of their service classification average may be subject to corrective action. Routes performing at 125% may be candidates for increased service investment. Sun Tran routes under 5 PPH should automatically be considered for elimination or significant restructuring	Before each service change
Cost per Passenger	Routes below 75% of their service classification average may be candidates for increased service investment. Routes performing at greater than 125% are subject to corrective action.	Before each service change
<b>Service Performance: Service Quality Measures</b>		
<b>Performance Standard</b>	<b>Goal</b>	<b>Frequency</b>
On-Time Performance	92% on-time measured as not leaving a time point early and should arriving at a time point no later than 5 minutes after the scheduled arrival time.	Monthly
Passenger Load Factor	Maximum number of passengers should not exceed 150% of the seating capacity or the legal weight limit of the bus.	Before each service change

## Route Evaluation and Potential Improvement Actions

Along with minimum performance standards, routes will also be evaluated in comparison with each other for service efficiency and effectiveness. Routes in the low and high categories may warrant more intensive actions, while routes towards the middle are adequately fulfilling their roles in the network and will generally only warrant action during regular systemwide reviews. Data from the last 12 months should be included when conducting the service analysis.

### High-Performing Service (125% or higher of tier passengers per revenue hour average)

Routes ranking in this category suggests the need for greater investment, as high performance may signal the presence of significant latent demand as well as crowding that may deter continued ridership growth. Actions for high-performing routes may include:

- Increase service levels: Highly productive routes may warrant increased frequency, even without excessive loading. Increasing frequency, span of service, or days of the week can help make service more attractive to a wider pool of potential customers, including those that currently drive. High frequencies provide dependable service with minimal waits, encouraging passengers to arrive randomly without consulting a schedule. To maintain a high quality of service, adding frequency is also often important to prevent significant crowding of vehicles for high-demand routes.
- Introduce additional service types (Bus Rapid Transit): High-performing corridors may warrant upgraded service quality to a limited or rapid service. Limited services provide faster speeds while still serving key destinations. Substantial time savings from reduced dwell delay help to increase ridership.
- Updated Transit-Operating Environment: High-performing routes can be further improved by providing enhanced, high-quality features along the route. Bus-only lanes, bus bulbs, and signal priority mechanisms are all methods for decreasing delay and travel time along a route. These methods make transit more attractive to potential riders as they give buses an advantage over automobile travel.

This category of routes constitutes the top-performing tier of the entire Sun Tran system. It is very important to maintain a high-quality level of service as well as to continue further investment. It is important to monitor these routes and make investments in key areas that are aimed at further improving overall service. Creating standards for high-performing service prioritizes investment in the core system. While creating new routes helps serve new markets and increases area coverage, upgrading high-performing lines directs investment where it will be most effective.

### Average-Performing Service (75 to 124% of tier average)

Services in this category are adequately fulfilling their roles in the transit network, and no corrective action is required. These routes will be monitored on an ongoing basis to determine whether their performance improves, decreases, or remains steady. While no particular action is necessary, ranking in this category does not preclude service adjustments at the discretion of Sun Tran and these services should be reviewed during the next systemwide review.

- Actions: Routes in this category perform well as a whole. Their average performance may point to conditions where performance is consistent equally throughout their length or conditions where there may be segments of very high and also low performance. Routes in this category should undergo a trip-by-trip or segment-level analysis to determine whether they are average overall or include trips or segments which fall into the more extreme categories. Segments which would be considered low or very high performers are subject to the actions detailed in those sections.

### **Low-Performing Service (74% or lower of tier average)**

Routes which rank within this category will be reviewed to determine their potential for improvement. Corrective actions may include any or all of the following based on the best judgment of Sun Tran. Routes in this category may still meet the expected minimum performance standards as identified earlier in the document – however, there may be room for improvement.

#### ***Analysis for Underperforming Routes***

- Targeted Marketing: Marketing tactics can help to raise the public awareness of a route in need of remedial action. Poor ridership may be a result of a lack of public knowledge of a route, and investing in marketing can reverse this trend, especially in concert with planned service adjustments. This is especially the case for concentrated market groups like employment centers, shopping districts, schools, hospitals, agencies, and other major destinations.
- Rider Outreach: Onboard surveys and rider interviews are methods for gaining valuable information on how a route can be improved. These methods can reveal information about popular destinations that a route may bypass, or other aspects of a service that may be holding back ridership growth.
- Segment Level Analysis: A segment level analysis of a low-performing service may highlight a specific portion of the route that significantly reduces the overall performance, causing it to perform below the standard for its service class. If a low-performing segment is identified, it can be modified to attempt to raise productivity for the route as a whole. If the results of a segment level analysis turn out to be inconclusive, however, modifications to the entire route should be considered.

#### ***Mitigation Tools for Underperforming Routes***

- Operational Improvements: Often the difference between meeting and failing minimum performance standards is inefficient use of vehicle resources. Creating more efficient cycle times can reduce resource requirements without reducing service. A decrease in revenue hours with no change in ridership will increase passengers per hour (productivity). More efficient cycle times can be achieved by streamlining route alignments, eliminating unnecessary delay caused by deviations or turning movements, and examining end-of-line layover/recovery time.
- Change in Service Levels: Adjusting the service levels of a low-performing route – by any combination of frequency, span, or day of week changes – may help to tailor the transit product to its market, and subsequently increase productivity. Some low-performing routes may not

warrant the frequencies currently scheduled, and reducing investment in the route may be an appropriate course of action.

- Cost Sharing: Exploring cost sharing or public-private partnerships can reduce the amount of subsidy required on low-performing services. This is applicable for routes which do not meet minimum performance standards yet serve a need identified by businesses, schools, attractions, or other organizations that may be willing to assist with funding operations in order to continue service. Routes which have cost-sharing relationships will likely become Average Performing or High Performing in the Cost per Passenger Boarding metric but will still need to meet least average performing standards on at least another metric in order to avoid further corrective actions.

## Appendix

Table 8: Routes by Service Classification

Classification	Route
Frequent Transit Network	4 - Speedway 6 - Euclid / N. 1st Ave 7 - 22nd St 8 - Broadway 11 - Alvernon / Ajo 12 - 10th / 12th Ave 16 - Oracle / S. 6th Ave 29 - Valencia 34 - Swan / Ft. Lowell
Sun Tran	1 - Glenn / Craycroft 2 - Pueblo Gardens 3 - 6th St / Wilmot 5 - Pima / W. Speedway 9 - Grant / Kolb 10 - Flowing Wells 15 - Campbell 17 - Country Club / 29th St 21 - W. Congress / Silverbell 23 - Mission 25 - S. Park Ave 26 - Benson Highway 27 - Midvale Park 37 - Pantano 62 - Oracle / Ina
Sun Express	101X - Golf Links - Downtown 105X - Foothills - Downtown 109X - Catalina Hwy - Downtown 110X - Rita Ranch - Downtown 124X - Northwest to Downtown 201X - Eastside - Aero Park 205X - Northwest to Raytheon
Sun Shuttle	61 - La Cholla 401 - N. Oracle / Catalina 412 - Thornydale / Orange Grove 413 - Marana / Casas Adobes 421 - Green Valley / Sahuarita 430 - Tucson Estates / Valencia West 440 - San Xavier 450 - SE Tucson / Rita Ranch 486 - Ajo
Sun Link	700 - Sun Link Streetcar