SECTION 8.1 – SERVICE PERFORMANCE STANDARDS

This section includes excerpts from of *Connect Spokane: A Comprehensive Plan for Public Transportation* as adopted by the Board of Directors in September 2010. The service performance standards contained herein are directly related to the effectiveness and sustainability of STA's fixed-route system. They reflect a triple bottom line (TBL) approach that seeks to improve the system's performance as it relates to its riders, the environment, and taxpayers. The service performance standards are derived from a rational, transparent basis, irrespective of the race, color, or national origin of a particular route's ridership.

Fixed-Route Performance Standards

Standards imply accountability, comparison, and remediation in the event of non-compliance. Standards should be straight-forward and derived from a rational, transparent basis. The performance standards set forth herein are directly related to the effectiveness and sustainability of STA's fixed-route system. These performance standards reflect a triple bottom line (TBL) approach that seeks to improve the system's performance as it relates to its riders, the environment, and taxpayers. Literature on the subject of triple bottom line refers to People (social), Planet (environmental), and Profit (economic) as the primary metrics for evaluating agency performance.

1.1 Performance Standard 1: Ridership (Social)

Ridership is a basic indication of a transit route's effectiveness in serving people. There may be a great community dialogue about serving a particular facility, geography, or community, but if the result is a route that has little or no ridership, clearly this goal is not met. It may be that the service is designed poorly or that densities do not justify fixed-route bus service. Only by having a minimum performance standard can these routes be fairly evaluated and remediated.

Productivity is a measure of riders per revenue hour and is used as the framework for the ridership standard.

1.1.1 *Basic Routes Ridership Standard*

For Basic Fixed-Route Service in Spokane the best indicator of potential performance is a route's relation to the Central Business District (CBD). A route that ties into downtown has more connectivity than other routes. Furthermore, it must meet a higher expectation due to the fact that the downtown Plaza has a finite number of bus bays and overall capacity. Accordingly, it should be focused on routes with a higher level of effectiveness in terms of ridership. The annual performance standard is produced based on the most up-to-date actual annual riders per annual revenue hours figure. For routes traveling into the CBD, the performance standard is **one-half the standard deviation below** the average of the basic routes traveling into the CBD. For all other routes, the standard is precisely one-half this number. By necessity this standard will need to change after substantial changes to the system have been such that one-half the standard deviation is less than 10% of the average ridership productivity. At this time, routes traveling into the CBD that are **one standard below the standard deviation** will be considered inconsistent with this performance measure.

1.1.2 *HPTN Ridership Standard*

The High Performance Transit Network has only a slightly higher standard level since the increased frequency should result in greater frequency but may not necessarily rise to a productivity level significantly greater than the entire system. As a starting point, the high performance transit network routes should be **one-half standard deviation above** the average basic route productivity of similarly situated routes (i.e. that travel to the CBD). For routes that do not travel in the CBD, the standard is one-half the productivity rate for HPT routes that travel in the CBD.

1.1.3 *Commuter Peak Ridership Standard*

From a performance evaluation perspective, Commuter Peak Routes have the benefit of not being in operation in off-peak times when travel demand is lighter. However, peak routes are very capital consumptive in terms of rolling stock and facilities because they only operate six to seven hours per day, increasing the capital cost per passenger. A bus that carries passengers for 12 hours in a day amortizes the capital costs of that bus over more hours of service are spread to many customers over 12 years of such use. For this reason the productivity expectation for Commuter Peak routes should be equal to the HPTN. For routes that operate as a function of what would otherwise be out-of-service time on a route ("Commuter Peak Route – Subordinate") the standard is equal to one-third the productivity of other Commuter Peak Routes. This reflects the reality that a bus serving passengers in the opposite direction of peak demand will have lower ridership and yet is typically better than operating out of service and providing no transportation benefit.

The performance standards for 2007 and 2008 are illustrated below. Please note that the HPT standard is developed on system-wide data not yet applicable for 2007 and 2008 since no HPT service is in existence.

Service Type	Grouping	2007	2008
Basic	Intersects CBD	22.08	25.45
Basic	No CBD intersection	11.04	12.73
HPTN	Intersects CBD	29.84	33.95
HPTN	No CBD intersection	14.92	16.97
Commuter Peak	Dominant	29.84	33.95
Commuter Peak	Subordinate	9.95	11.32

1.2 Performance Standard 2: Comperable Energy Consumption (Environmental)

Since the 1970s, there has been recognition of the value of mass transit as it pertains to environmental sustainability and energy conservation. Often missing from this recognition are any measurable outcomes other than car

trips avoided. Because they are larger and heavier, transit vehicles actually consume more energy per vehicle mile traveled than private automobiles. In order to reap any benefit as it pertains to energy consumption, looking at energy consumed per passenger mile is the easiest to obtain and likely the most effective in measuring outcomes. British Thermal Units (BTUs) are commonly used for similar metrics and will be used here.

A minimum standard for BTUs per passenger mile is useful in evaluating the performance of routes in a different way than the previous standard. While productivity measures gross riders, the "BTUs per passenger miles" metric speaks to the duration of passengers' time on the vehicle. BTUs per passenger miles speaks to energy consumed for a particular vehicle type given a particular trip pattern.

At the very minimum, a bus route should perform equally to the private automobile in terms of energy consumed per mile traveled for each passenger. Assuming a load factor of one person in an automobile and current fuel economy (http://cta.ornl.gov/data/download28.shtml), there are 5,500 BTUs consumed for every single-passenger mile traveled in a car. While routes will have trips that can exceed this consumption rate, no route should be worse than an automobile when judged from the cumulative service provided. Translating these consumption rates to buses by size of bus requires looking at average fuel consumption of each major vehicle type in STA's fixed-route fleet as opposed to actual consumption on a route-by-route basis.

The performance standard for energy expressed in passenger miles over platform miles is found below. The numbers are for diesel vehicles. The numbers below are established given fuel economy of the existing fleet and its comparison to private automobiles. Average load factor, or passenger miles divided by platform (vehicle) miles, provides information on how many people are served for every mile of travel. As new propulsion sources come online this table should be amended to reflect those sources. Carbon-based fuel sources have different concentrations of energy. Electrified systems use generally less energy and therefore may have a different ratio which would be a minimum standard in the event such vehicles are added to the STA fleet.

Vehicle Size	Basic	Commuter Peak (Dominant Only)	HPTN
Cutaways	2.84	4.45	4.45
30'	5.35	8.39	8.39
35'	5.16	8.10	8.10
40'	5.48	8.60	8.60
60'	6.65	10.45	10.45

1.3 Performance Standard 3: Fares (Economic)

As a minimum standard of performance, routes shall have a farebox recovery no less than one-half the system average.

An important performance indicator for medium- to large-sized transit systems is fare revenues. While small agencies often find that the cost of collecting fares is equal to or exceeds the fares potentially collected, STA collects millions of dollars annually from its riders for services rendered. Farebox recovery for this performance standard is the total fixed-route revenue collected as a percentage of the total fixed-route operating cost. It is valuable as a metric since both fares per passenger and cost per hour are not equal for every route. Two routes may have exactly the same ridership but have different farebox recoveries. Routes using larger vehicles traveling longer distances in an hour will cost more to operate. Without a corresponding increase in fares per passenger, farebox recovery is likely to be lower than the comparable route.

1.4 Performance Reporting

By April of each year, the Planning Department will report on both the performance of each route for the previous two years and the standards that applied for those years. New service will be evaluated following its development period, typically 18 to 24 months. Any route that falls below the minimum standard for any one of the three performance standards for two consecutive years will be considered out of compliance with the standards. A partial year of operation (e.g. if a route begins operation in September) will not be counted against a route's compliance with these standards. This provides for at least two and not more than three years for a route to mature before any corrective action is required.

The annual report will offer reasons why the route may be below standard and offer preliminary concepts for remediation.

1.5 Remediation

Remediation is not simply about eliminating poor performing routes, but instead considering both the route's relationship to the network and other possible network changes that could ultimately improve the entire network. Remedial actions should take place no more than 18 months following a performance report indicating non-compliance.

Non-compliance of routes with respect to performance standards is typically an indication of a route being designed inconsistent with the design principles or adopted service design policies. There may also be changes in land use (e.g. a major mall closes indefinitely) or changes in the network which unintentionally deteriorated service or demand. Remedial efforts should identify how proposed improvements will better align with design principles and adopted policy and provide a rough projection of the relationship to performance standards.

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