

City of Tucson Frequent Transit Network Policy

February 6, 2017

- A. The Purpose of a Frequent Transit Network (FTN) Policy is to support the long-term goal of developing and maintaining a frequent service grid as a basis for providing high quality transit services in the densely populated areas of Tucson where transit demand is strong.
1. A FTN in the densely populated areas makes most efficient use of the community's resources by making transit a truly viable option for a large portion of the population.
 2. The first phase of the FTN allows for the riders to experience the enhanced transit opportunity, and then support its future improvement and growth. Routes currently in the FTN must remain at FTN service levels for a minimum for four years in order for the network's full impact on land use and therefore on transit demand to unfold.
 3. New routes may be added if they meet the criteria listed in Appendix D. Routes may be considered for inclusion based on other factors such as increased density in underserved areas or the need to improve connections between existing FTN routes.
- B. Criteria for Routes within the FTN.
1. To qualify for inclusion in the FTN based current performance, a route must meet the following Performance Measures:
 - a. The route has had a regular occurrence and/or consistent overcrowding throughout the day on weekdays.
 - b. The route runs on a corridor of the city with at least one of the following characteristics:
 1. High traffic volumes that exceed 20,000 vehicles : Source: PAG Traffic Count Map:
<http://www.pagnet.org/documents/rdc/gis/maptrafficcount2012.pdf>
 2. Strong land-use mix of commercial, office, public services, retail and residential (determined via land-use maps) Source:
https://www.tucsonaz.gov/files/integrated-planning/Plan_Tucson_Complete_Doc_11-13-13.pdf
(11/13/13, Chapter 3, Exhibit LT-3, Existing Land Uses)
 3. The route serves major trip generators.
 - c. The route has a grade of at least "M" in 3 of 5 "Performance Indicators" described in Appendix D & E.
 2. Requirements and process for changes to the FTN
 - a. All routes are to be reviewed annually according to Performance Indicators listed in Appendix E.
 - b. Routes Graded with "M" or better in 3 of 5 Performance Indicators are deemed to be meeting expectations.

Exhibit 1 to Resolution 22737

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- c. Routes not meeting expectations will be considered “under review” and will be given three years to meet expectations.
 - 1. After three years of not meeting expectations, routes will either be augmented to improve the route or extended one more year.
 - 2. If still failing to meet FTN expectations after four years, the route may be reduced in frequency to reflect demand.
- d. Routes not currently in the FTN can transition to the FTN after the annual review if they meet the required criteria.

C. Public Outreach for the FTN.

- 1. The current FTN will be marketed to the public as the routes that meet or exceed the following service objectives:
 - a. Frequency: Interval of 15 minutes or less between buses.
 - b. Hours of Service: 6:00 a.m. to 6:00 p.m. Monday through Friday.

Note: Routes in the FTN may operate at varying frequencies outside the 6 am to 6 pm hours of service and on weekends.

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Appendix A: Criteria for Expanding Frequency and Span

The objective of the FTN is to create a cost-effective, high-ridership fixed-route transit network by improving frequency and span of service. Analysis of the current FTN (Appendix B) reveals how FTN routes can be viewed in three different tiers, based on the following features, and how incremental improvements can be made:

1. Weekday daytime service: Features 1 & 2.
2. Weekday evening service; Feature 3 & 4.
3. Saturday daytime service: Features 5, 6 & 7.
4. Saturday evening service: Features 8, 9 & 10.
5. Sunday daytime service: Features 11, 12 & 13.
6. Sunday evening service: Features 14, 15 & 16.

In the interest of developing the overall utility of the routes in the FTN and thus of the whole transit network, evening and weekend service is emphasized alongside Monday through Friday daytime frequency in defining the tiers of frequent service.

This approach leaves room to upgrade a route within the FTN by improving its evening or weekend frequency or span, as well as to expand the FTN, either by upgrading existing routes to FTN status or by extending the FTN service level area covered by existing FTN routes.

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Appendix B: FTN Tier Levels and Features

Tier One routes have 7 or more features	FTN Route Number:											
Tier Two routes have 4 to 6 features												
Tier Three routes have 1 to 3 features												
FTN Features:	4	6	7	8	9	11	12	15	16	18	34	700
1. Weekday, daytime service, from 6:00 am to 6:00 pm, at 15 minute frequency.	X	X	X	X	X	X	X	X	X	X	X	X
2. Weekday, daytime service, from 6:00 am to 6:00 pm, with better than 15 minute frequency.	X			X					X	X		X
3. Weekday, evening service, from 6:00 pm to 12:00 am, at 30 minute frequency.	X			X			X		X	X		X
4. Weekday, evening service, from 6:00 pm to 12:00 am, at 15 minute frequency.												
5. Saturday, daytime service, from 8:00 am to 4:00 pm, at 30 minute frequency.	X	X		X		X	X		X	X		X
6. Saturday, daytime service, from 8:00 am to 4:00 pm, better than 30 minute frequency.				X					X	X		X
7. Saturday, daytime service, from 8:00 am to 4:00 pm, at 15 minute frequency.												
8. Saturday, evening service, from 4:00 pm to 10:00 pm, at 30 minute frequency.												
9. Saturday, evening service, from 4:00 pm to 10:00 pm, better than 30 minute frequency.												
10. Saturday, evening service, from 4:00 pm to 10:00 pm, at 15 minute frequency.												X
11. Sunday, daytime service, from 8:00 am to 4:00 pm at 30 minute frequency.	X			X		X	X		X	X		X
12. Sunday, daytime service, from 8:00 am to 4:00 pm, better than 30 minute frequency.				X					X	X		X
13. Sunday, daytime service, from 8:00 am to 4:00 pm, at 15 minute frequency.												
14. Sunday, evening service, from 4:00 pm to 8:00 pm, at 30 minute frequency.	X			X		X	X		X	X		X
15. Sunday, evening service, from 4:00 pm to 8:00 pm, better than 30 minute frequency.												
16. Sunday, evening service, from 4:00 pm to 8:00 pm, at 15 minute frequency.												
Total 'X'	6	2	1	8	1	4	5	1	8	8	1	8

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Appendix C: FTN Tier Levels and Features Explained

1. Tier One FTN route offers the following service level:
 - a. Weekday frequency of 15 min or better from at least 6:00 am to 6:00 pm; 30 min or better from 5:00 am.
 - b. Weekday evening frequency of 30 min or better until midnight (i.e., two scheduled bus runs in the 11:00 pm hour).
 - c. Saturday frequency of 15 min or better from at least 8:00 am to 5:00 pm (i.e., four scheduled bus runs in the 4:00 pm hour); 30 min or better from at least 6:00 am to 8:00 pm.
 - d. Sunday frequency of 20 min or better from at least 8:00 am to 5:00 pm (i.e., three scheduled bus runs in the 6:00 pm hour); 30 min or better from at least 6:00 am to 8:00 pm.

Currently the criteria for Tier One are met or exceeded by Routes 8 (Broadway), 16 (Oracle/Ina), 18 (S. 6th Avenue), and 700 (Sun Link Streetcar).

2. Tier Two FTN route offers the following service level:
 - a. Weekday frequency of 15 min or better from at least 6:00 am to 6:00 pm
 - b. Weekday evening frequency of 30 min or better until at least 7:00 pm.
Saturday frequency of 30 min or better from at least 6:00 am to 8:00 pm.
 - c. Sunday frequency of 30 min or better from at least 7:00 am to 8:00 pm.

Currently the criteria for Tier Two are met or exceeded by Routes 4 (Speedway), 11 (Alvernon), and 12 (10th/12th Avenue) in addition to the Tier One routes.

3. Tier Three FTN route offers the following service level, which is the minimum service level for inclusion in the Frequent Transit Network:
 - a. Weekday frequency of 15 min or better from at least 6:00 am to 6:00 pm; 30 min or better until at least 7:00 pm.
 - b. Weekday evening frequency of 30 min or better until at least 7:00 pm.
 - c. Saturday frequency of 60 min or better from at least 7:00 am to 8:00 pm.
 - d. Sunday frequency of 60 min or better from at least 7:00 am to 8:00 pm.

Currently the criteria for Tier Three are met or exceeded by Routes 6 (Euclid/N. 1st Avenue), 7 (22nd Street), 9 (Grant), 15 (Campbell), and 34 (/Craycroft/ Ft. Lowell) in addition to the Tier One and Tier Two routes.

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Appendix D: FTN System Performance Metrics

Frequent Transit Network System Performance Metrics

Existing Frequent Transit Network Routes - 15 Minutes or Greater - YTD November 2015															
Route	Passengers	Total Hours	Total Miles	Passenger Revenue	Total Cost	Performance Indicators									
						Pass/Mile	Grade	Pass/Hour	Grade	Cost/Pass	Grade	Recovery	Grade	Sub/Pass	Grade
4	112,844	4,112	52,336	\$ 56,635	\$ 320,305	2.16	M	27.44	M	\$ 2.84	M	17.7%	M	\$ 2.34	M
8	126,000	4,159	51,880	62,045	321,193	2.43	M	30.30	M	\$ 2.55	M	19.3%	M	\$ 2.06	M
11	99,643	2,919	37,321	48,682	227,799	2.67	A	34.14	A	\$ 2.29	A	21.4%	A	\$ 1.80	A
12	44,704	1,840	19,063	18,790	131,928	2.35	M	24.30	M	\$ 2.95	M	14.2%	U	\$ 2.53	M
16	114,186	3,827	43,681	57,717	284,933	2.61	M	29.84	M	\$ 2.50	M	20.3%	A	\$ 1.99	M
18	106,922	2,421	23,866	42,439	170,404	4.48	A	44.17	A	\$ 1.59	A	24.9%	A	\$ 1.20	A
604,299		19,278	228,147	286,307	1,456,562	2.65		31.35		\$ 2.41		19.7%		\$ 1.94	

Base portions of the routes 4, 8, 11 and 16 are all considered frequent routes for weekdays.

Routes 8, 16 and 18 have a frequent service on both weekdays and weekends.

Potential Frequent Transit Network Routes - Currently Not 15 Minutes or Greater															
Route	Passengers	Total Hours	Total Miles	Passenger Revenue	Total Cost	Performance Indicators									
						Pass/Mile	Grade	Pass/Hour	Grade	Cost/Pass	Grade	Recovery	Grade	Sub/Pass	Grade
3	68,712	3,096	43,482	\$ 33,993	\$ 251,827	1.58	U	22.19	U	\$ 3.66	U	13.5%	U	\$ 3.17	U
6	48,935	1,659	15,415	24,541	114,297	3.17	A	29.51	M	\$ 2.34	A	21.5%	A	\$ 1.83	A
7	63,330	2,253	31,916	32,163	183,944	1.98	U	28.11	M	\$ 2.90	M	17.5%	M	\$ 2.40	M
9	51,790	2,039	23,644	24,794	152,782	2.19	M	25.40	M	\$ 2.95	M	16.2%	M	\$ 2.47	M
15	28,414	1,744	20,023	14,025	130,178	1.42	U	16.29	U	\$ 4.58	U	10.8%	U	\$ 4.09	U
34	48,213	1,952	22,681	25,499	146,373	2.13	M	24.70	M	\$ 3.04	M	17.4%	M	\$ 2.51	M
309,395		12,742	157,161	155,015	979,401	1.97		24.28		3.17		15.8%		2.66	

Based on the grades as defined below and the frequent route definition also shown below route six would be the next candidate to move to a frequent network

Route 19 - For Consideration (Example of application of metrics)															
Route	Passengers	Total Hours	Total Miles	Passenger Revenue	Total Cost	Performance Indicators									
						Pass/Mile	Grade	Pass/Hour	Grade	Cost/Pass	Grade	Recovery	Grade	Sub/Pass	Grade
19	32,712	1,001	9,464	16,155	69,410	3.46	A	32.68	A	2.12	A	23.3%	A	1.63	A

Route 19 would be candidate based on grades but not on the definition of High frequency based on the demand metric

Remaining Sun Tran Routes															
Route	Passengers	Total Hours	Total Miles	Passenger Revenue	Total Cost	Performance Indicators									
						Pass/Mile	Grade	Pass/Hour	Grade	Cost/Pass	Grade	Recovery	Grade	Sub/Pass	Grade
1	37,512	1,540	18,890	19,747	118,091	1.99	U	24.36	M	\$ 3.15	M	16.7%	M	\$ 2.62	U
2	24,740	1,453	19,580	12,676	116,010	1.26	U	17.03	U	\$ 4.69	U	10.9%	U	\$ 4.18	U
5	21,760	1,403	19,164	10,581	112,685	1.14	U	15.51	U	\$ 5.18	U	9.4%	U	\$ 4.69	U
10	29,085	1,154	14,342	14,836	88,969	2.03	M	25.21	M	\$ 3.06	M	16.7%	M	\$ 2.55	M
17	71,730	2,706	38,157	39,662	220,478	1.88	U	26.51	M	\$ 3.07	M	18.0%	M	\$ 2.52	M
20	8,560	606	7,699	4,398	47,163	1.11	U	14.13	U	\$ 5.51	U	9.3%	U	\$ 5.00	U
21	14,452	868	10,233	6,401	65,479	1.41	U	16.65	U	\$ 4.53	U	9.8%	U	\$ 4.09	U
22	14,278	773	9,982	6,489	60,566	1.43	U	18.48	U	\$ 4.24	U	10.7%	U	\$ 3.79	U
23	33,265	1,614	19,401	16,963	122,744	1.71	U	20.61	U	\$ 3.69	U	13.8%	U	\$ 3.18	U
24	14,654	586	7,155	7,721	44,848	2.05	M	25.01	M	\$ 3.06	M	17.2%	M	\$ 2.53	M
25	43,098	1,708	21,058	22,132	131,241	2.05	M	25.24	M	\$ 3.05	M	16.9%	M	\$ 2.53	M
26	22,294	976	16,255	12,442	86,025	1.37	U	22.85	U	\$ 3.86	U	14.5%	U	\$ 3.30	U
27	28,891	1,906	30,135	15,140	163,803	0.96	U	15.16	U	\$ 5.67	U	9.2%	U	\$ 5.15	U
29	37,129	1,566	20,030	21,771	122,239	1.85	U	23.71	M	\$ 3.29	U	17.8%	M	\$ 2.71	U
37	15,957	1,045	17,314	9,077	91,912	0.92	U	15.26	U	\$ 5.76	U	9.9%	U	\$ 5.19	U
50	8,275	641	5,872	4,364	43,950	1.41	U	12.91	U	\$ 5.31	U	9.9%	U	\$ 4.78	U
61	10,101	791	11,287	5,869	64,779	0.89	U	12.78	U	\$ 6.41	U	9.1%	U	\$ 5.83	U
435,781		21,333	286,553	230,268	1,700,982	1.52		20.43		\$ 3.90		13.5%		\$ 3.37	

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Appendix E: Performance Indicators and Grades Defined

Performance Indicators:

1. Passengers per Mile
2. Passengers per Hour
3. Fare Box Recovery

Grades Defined:

A = At or above the FTN average. (Above Performance)

M = 75% of the FTN average up to the average. (Meets Performance)

U = Below 75% of the FTN average. (Under Performance)

4. Cost per Passenger
5. Subsidy per Passenger

Grades Defined:

A = At or below the FTN average. (Above Performance)

M = From 133% of the FTN average down to the average. (Meets Performance)

U = Above 133% of the FTN average. (Under Performance)