



VIRGINIA RAILWAY EXPRESS
OPERATIONS BOARD

Agenda Item 7-A
Action Item

To: Chair Bennett-Parker and the VRE Operations Board

From: Rich Dalton

Date: March 19, 2021

Re: Acceptance of Title VI Service Standards and Policies Monitoring Results

Recommendation:

The VRE Operations Board is asked to accept the results of the Title VI Service Standards and Policies Monitoring and forward them to the Potomac and Rappahannock Transportation Commission (PRTC) for inclusion in PRTC's Title VI submittal.

Summary:

To safeguard against service design and operations that discriminate on the basis of race, color, or national origin, the Federal Transit Administration (FTA) requires transit systems to monitor and analyze the performance of their systems every three years relative to their system-wide service standards. **VRE service meets or exceeds its standards for vehicle load, vehicle headway, service availability, and distribution of transit amenities and vehicle assignments. VRE did not meet its on-time performance goal on either line for the period monitored (FY20), but because the standard was not met on both lines there was no disparate impact on any particular protected class.**

Background:

As prescribed in FTA Circular 4702.1B, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients," FTA requires transit providers to monitor the performance of their transit system relative to their system-wide service standards and service policies (e.g. vehicle load, vehicle assignment, transit amenities, etc.) every three years.



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Potomac and Rappahannock
Transportation Commission
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The results of VRE's Service Standards and Policies Monitoring must be submitted as part of PRTC's Title VI submittal to the FTA that is due in April 2021.

VRE staff has conducted the required monitoring, the results of which are attached along with the VRE Title VI Service Standards and Policies.

Fiscal Impact:

There is no fiscal impact to this action.

**Virginia Railway Express
Operations Board Resolution**

7A-03-2021

Acceptance of Title VI Service Standards and Policies Monitoring Results

WHEREAS, the Federal Transit Administration requires transit providers to monitor the performance of their transit system relative to their system-wide service standards and service policies; and,

WHEREAS, VRE must submit results of the monitoring of its system-wide service standards and service policies to the Potomac and Rappahannock Transportation Commission (PRTC) for inclusion in PRTC's Title VI submittal to the FTA;

NOW, THEREFORE, BE IT RESOLVED THAT, the VRE Operations Board does hereby accept the results of the system-wide service standards and service policies monitoring; and,

BE IT FURTHER RESOLVED THAT, the results of the system-wide service standards and service policies monitoring shall be forwarded to the Potomac and Rappahannock Transportation Commission for inclusion in their Title VI submittal.

Approved this 19th day of March 2021

Elizabeth Bennett-Parker
Chair

James Walkinshaw
Secretary

VRE SYSTEM-WIDE SERVICE STANDARDS AND POLICIES

The Virginia Railway Express (VRE) System-Wide Service Standards and Policies address how service is distributed across the system and ensures services provided are fairly accessible to users. Service policies also ensure that service design and operations practices do not result in discrimination on the basis of race, color, or national origin.

These standards and policies are required by Federal law, as described in Federal Transit Administration (FTA) Circular 4702.1B, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients", which became effective October 1, 2012. The Circular requires any FTA recipient that operates 50 or more fixed route vehicles in peak service located in urbanized areas (UZA) of 200,000 or more people to develop service standards and policies that monitor performance of service every three years. The service standards and policies, as well as evidence of service monitoring, will become a portion of the Title VI Plan which is submitted to FTA every three years.

Required quantitative standards are compiled for vehicle load, vehicle headway, on-time performance, and service availability. Required service policies are composed for distribution of transit amenities and vehicle assignments. Additional standards or policies may be developed as appropriate.

SERVICE STANDARDS

A. Vehicle Load

Vehicle load or load factor is expressed as the ratio of passengers per vehicle or the ratio of passengers to the number of seats on a vehicle at the vehicle's maximum load point. It is used to determine the extent of likely overcrowding, to assign equipment (e.g., number/type of rail cars), and to make subsequent adjustments by lengthening or shortening trains.

VRE's goal is to not exceed the total number of seats available, plus allow no more than 15 standees per coach for the midweek average on any single train traveling through the maximum load point in the peak direction and hour. A maximum capacity factor of 1.11 per train has been designated to allow for up to 15 standees per passenger coach on VRE trains based on typical train sets currently being operated (Table 1).

Table 1: VRE Passenger Capacity by Train as of July 2020 (reduced service due to pandemic)

Fredericksburg Line

Train Pair	Total # of Seats
300 / 305	1045
302 / 309	910
306 / 307	1045
310 / 313	780
314 / 301	780

Manassas Line

Train Pair	Total # of Seats
324/331	780
328/327	1040
330/325	1040
332/335	780

Usually, VRE operates its trains in sets of four to eight cars to accommodate the level of ridership on each train. An eight-car train is the largest train set that VRE currently utilizes due to storage limitations in VRE storage yards. Train sets typically include a cab car and three to seven trailer coaches and at least one coach includes a bathroom. During the pandemic VRE reduced service to our “S” schedule, and later to the “S” schedule plus an additional train on each line with sets of six to eight cars allowing for better social distancing. This new schedule is known as “S” Plus.

Reviews and adjustment of train sizes are considered when passenger capacity exceeds or falls below established volume points. Adjustments are also made to train length when a typical ridership is expected prior to a holiday, impending weather event or other special circumstance. Capacity guidelines may be relaxed during temporary surges in demand or for special event trains.

B. Vehicle Headway

Vehicle headway measures the amount of time between two successive vehicles traveling in the same direction on a given line or combination of lines. It is a general indicator of the level of service provided along a line or route. A shorter headway corresponds to more frequent service.

VRE peak headways are generally about 30 minutes for each line. VRE schedules peak service and determines vehicle headway based upon an analysis of ridership, commuter demand, the operating windows and slots allowed in the operating contract with its host railroads (i.e. Norfolk Southern for the Manassas Line, CSX Transportation (CSXT) for the Fredericksburg Line, the shared line between Alexandria and Washington, D.C. Union Station, and Amtrak for access to D.C. Union Station). Since VRE operates within a mixed traffic environment and shares the tracks with freight and Amtrak trains, the amount of time between any two trains is based on how those trains fit into the overall schedule. Train schedules also consider the merging of the Fredericksburg and Manassas Line trains, as well as other trains on the railroad, into one line at Alexandria.

VRE’s operating agreements also limit the ability of VRE to add service at will and/or expand its operating territory. The host railroad must approve any service additions or changes in schedule before they can be implemented. Currently, VRE trains operate primarily during the morning and evening peak travel periods in the peak direction of travel. The Manassas Line has some limited reverse-flow service that primarily serves to position equipment for subsequent peak service. Each line has one mid-day train departing the Washington, D.C. central business district.

C. On-Time Performance

On-time performance (OTP) is the measure of trips completed as scheduled. VRE’s OTP standard is that trains shall arrive at their final destination at or within five minutes of their scheduled arrival time and no revenue train is allowed to leave an intermediate station before it is scheduled to depart, unless noted otherwise on passenger timetables.

VRE’s fiscal year (FY) 2020 target for OTP is greater than 90%. VRE sets an annual target for OTP as part of its budget process. Factors considered in setting the target include operational safety, preventive maintenance scheduled for the right of way provided by the host railroad, ability to meet the current schedule factoring in VRE rolling stock reliability and efficiency testing, and projected impact on service because of weather or other variables.

VRE calculates OTP for each line and for the system as a whole. OTP is calculated as a percentage of on-time trains divided by the total scheduled revenue trains. Trains cancelled or annulled due to force majeure events (e.g., flooded right-of-way, government shutdown, etc.) are excluded from the calculation of OTP.

D. Service Availability

Service availability is a general measure of the distribution of routes within a transit provider's service area. For a commuter rail agency, service availability can be defined as the number or density of residents who are potential riders within a certain driving distance of the stations.

VRE's service area encompasses the nine Virginia jurisdictions that are served under the VRE Master Agreement: Arlington County, City of Alexandria, Fairfax County, Prince William County, City of Manassas, City of Manassas Park, Stafford County, City of Fredericksburg, and Spotsylvania County.

VRE operates trains along two lines that run within existing railroad rights-of-way. Currently, there are six origin stations along the Manassas line and nine origin stations along the Fredericksburg line. Origin stations are located two to 11 miles apart. The population of the catchment areas for the origin stations varies from 100,000 – 150,000 on the Manassas Line, and 50,000 – 125,000 on the Fredericksburg Line. System-wide, there are five destination stations. The destination stations are co-located with Metrorail stations providing VRE riders with access to the greater Washington, D.C. metro area.

VRE's operating agreements with the host railroads, CSXT and Norfolk Southern, affect VRE's ability to add service at will and/or expand its operating territory, including adding stations to a line or extending a Line. New stations or extensions are undertaken in cooperation and coordination with the local jurisdiction where the station or extension will be located. New stations or service extensions must be approved by the host railroad before they can be implemented.

Factors considered in determining service availability of new infill stations or service extensions include:

- Transit Demand/Ridership Potential
- Proximity to existing stations, both VRE and other regional transit hubs
- Operational Feasibility Passenger Transit Access
- Parking Availability
- Capital Funding Availability Community Impact Environmental Impact

SERVICE POLICIES

A. Vehicle Assignment

Vehicle assignment refers to the process by which transit vehicles are assigned to either line on the VRE system.

VRE's locomotive fleet consists solely of standard four-axle diesel-electric locomotives with similar horsepower ratings, tractive effort, and appearance. As none of VRE's territory is electrified using overhead catenary wire, there is no difference in propulsion power requirements throughout the system. All VRE locomotives were put into service in 2011 and are uniformly compatible with VRE's passenger coach fleet. Locomotives are distributed based on need and positioning for service.

VRE's passenger coach fleet consists of two types of coaches as indicated in Table 2. None of the passenger coaches are self-propelled. Coaches are not assigned to trains or routes specifically but are assigned as needed to the Manassas or Fredericksburg lines depending on demand/required seating capacity, routine and non-routine maintenance needs, and inspection cycles. The typical September 2020 ('S' Plus schedule) vehicle assignment is shown in Tables 2 and 3.

Table 2: Typical Fredericksburg Line Consists (September 2020)

Train Pair	1	2	3	4	5	6	7	8
300 / 305	GC	G	G	G	G	G	G	G
302 / 309	GC	G	G	G	G	G	G	
306 / 307	GC	G	G	G	G	G	G	G
310 / 313	GC	G	G	G	G	G		
314 / 301	GC	G	G	G	G	G		

GC = Gallery Cab G = Gallery Coach

Table 3: Typical Manassas Line Consists (September 2020)

Train Pair	1	2	3	4	5	6	7	8
324 / 331	GC	G	G	G	G	G		
328/327	GC	G	G	G	G	G	G	G
330 / 325	GC	G	G	G	G	G	G	G
332/335	GC	G	G	G	G	G		

GC = Gallery Cab G = Gallery Coach

B. Distribution of Transit Amenities

Transit amenities are items of comfort, convenience, and safety made available to VRE passengers making use of VRE trains and passenger stations.

All VRE coaches are equipped with onboard amenities such as heating and air conditioning; interior lighting; baggage racks; and public-address systems.

The U.S. Department of Transportation requires that transportation vehicles and transportation facilities be readily accessible and useable by individuals with disabilities consistent with the requirements of the Americans with Disabilities Act (ADA) and that access for individuals with disabilities is provided in the most integrated manner possible. That includes providing individuals who use wheelchairs access to all cars available in each train. All coaches purchased in the future will include onboard lifts.

All cab cars and approximately a third of the trailer coaches have bathrooms. Coaches are deployed among trains so that there is a minimum of one cab car and one trailer coach with a bathroom on each consist. Planned coach purchases to complete the fleet replacement program or expand the fleet will include bathrooms.

Amenities available at VRE stations include but are not limited to: benches; covered structures and/or platform canopies; informational amenities such as system maps, schedules/timetables, and public-address systems; intelligent transportation systems (e.g., electronic fare payment equipment and variable message/vehicle arrival information displays); elevators and escalators; waste containers; public telephones; and park-and-ride facilities.

There are two types of stations maintained by VRE: Autonomous VRE stations and Joint Use stations (see Table 4). Autonomous VRE stations were constructed by VRE for the primary purpose and use of accessing VRE train service. Generally, all autonomous VRE stations are provided the same set of amenities.

Joint-use stations also provide access to Amtrak service. Generally, joint-use stations existed prior to the formation of VRE and may contain amenities available to passengers that are not installed within

autonomous VRE stations. In many cases, VRE has added amenities to the joint-use stations for VRE passengers to use through separate agreements.

While all VRE stations are ADA-compliant, for the purposes of ADA, the following VRE stations are designated key stations:

Washington Union Station
 L'Enfant
 Crystal City
 Alexandria
 Woodbridge
 Fredericksburg
 Burke Centre
 Broad Run/Airport
 Spotsylvania

Table 4: VRE Station Amenities (as of September 2020)

Station	Line	Joint Use	Benches/Exterior Seating	Waiting Room	Rest room	Elevator	Ped. Under/overpass	Shelters	Platform Canopy	Signage/System Maps	Public Address System	Variable Messaging	Ticket Vending	Waste Receptacle	Public Phone	Parking Lots	Bike Racks	Bike Lockers
Spotsylvania	FBG		x	x	x				x	x	x	x	x			x	x	
Fredericksburg	FBG	J	x			x	x	x	x	x	x	x	x	x	x	x	x	
Leeland Road	FBG		x					x	x	x	x	x	x	x	x	x	x	
Brooke	FBG		x					x	x	x	x	x	x	x	x	x	x	
Quantico	FBG	J	x	x	x				x	x	x	x	x	x	x	x	x	
Rippon	FBG		x			x	x	x	x	x	x	x	x			x	x	
Woodbridge	FBG	J	x	x	x	x	x	x	x	x	x	x	x			x	x	
Lorton	FBG		x					x	x	x	x	x	x			x	x	
Franc/Springfield	FBG		x			x	x	x	x	x	x	x	x			x	x	
Broad Run	MSS		x					x	x	x	x	x	x	x	x	x	x	
Manassas	MSS	J	x	x	x	x			x	x	x	x	x			x	x	x
Manassas Park	MSS		x					x	x	x	x	x	x			x	x	
Burke Centre	MSS	J	x			x		x	x	x	x	x	x	x	x	x	x	x
Rolling Road	MSS		x					x	x	x	x	x	x			x	x	
Backlick Road	MSS		x					x	x	x	x	x	x			x	x	x
Alexandria	Both	J	x	x	x		x	x	x	x	x	x	x				x	
Crystal City	Both		x					x	x	x	x	x	x					
L'Enfant	Both	J	x					x	x	x	x	x	x					
Wash. Union Station	Both	J	x	x	x	x	x		x	x	x	x	x	x	x	x	x	

RESULTS OF THE MONITORING PROGRAM

Per the Federal Transit Administration (FTA) Circular 4702.1B, VRE is required to monitor its performance using the quantitative Service Standards and qualitative Service Policies established for the VRE system. Monitoring and assessment of service is intended to compare service provided in areas with a percentage of minority population that exceeds the percentage of minority population in the service area, or “minority routes”, to service provided in areas with a percentage of minority populations that is below the percentage of minority population in the service area, or “non-minority routes”. However, since VRE only has two routes, i.e. the Fredericksburg Line and the Manassas Line, it is not possible to designate minority and non-minority routes. Monitoring was conducted for each route and for the system as a whole.

SERVICE STANDARDS

A. Vehicle Load

The maximum capacity factor designated for VRE trains is 1.11 under normal circumstances. During the pandemic, VRE is following guidance that allows approximately 45 seats to be used per 130 seats (the per car avg.). The tables below show the capacity factors for the VRE trains on four mid-week days in September 2020 using the 45 seat guidance. These capacity factors indicated there were seats for all passengers onboard that train.

Table 5

Tuesday September 1, 2020									
Fredericksburg Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor	Manassas Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor
300	1045	360	101	0.28	324	780	270	88	0.33
301	780	270	40	0.15	325	1040	360	24	0.07
302	910	315	59	0.19	328	1040	360	78	0.22
305	1045	360	180	0.50	327	1040	360	72	0.20
306	1045	360	100	0.28	330	1040	360	38	0.11
307	1045	360	68	0.19	331	780	270	65	0.24
309	910	316	113	0.36	332	780	270	27	0.10
310	780	270	133	0.49	335	780	270	24	0.09
313	780	270	61	0.23					
314	780	270	44	0.16					

Table 6

Wednesday September 16, 2020									
Fredericksburg Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor	Manassas Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor
300	1045	360	119	0.33	324	780	270	90	0.33
301	780	270	43	0.16	325	1040	360	23	0.06
302	910	315	45	0.14	328	1040	360	97	0.27
305	1045	360	139	0.39	327	1040	360	110	0.31
306	1045	360	100	0.28	330	1040	360	51	0.14
307	1045	360	86	0.24	331	780	270	89	0.33
309	910	316	107	0.34	332	780	270	23	0.09
310	780	270	145	0.54	335	780	270	30	0.11
313	780	270	71	0.26					
314	780	270	53	0.20					

Table 7

Tuesday September 23, 2020									
Fredericksburg Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor	Manassas Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor
300	1045	360	121	0.34	324	780	270	90	0.33
301	780	270	45	0.17	325	1040	360	22	0.06
302	910	315	54	0.17	328	1040	360	96	0.27
305	1045	360	177	0.49	327	1040	360	94	0.26
306	1045	360	116	0.32	330	1040	360	43	0.12
307	1045	360	83	0.23	331	780	270	100	0.37
309	910	316	129	0.41	332	780	270	32	0.12
310	780	270	134	0.50	335	780	270	34	0.13
313	780	270	69	0.26					
314	780	270	55	0.20					

Table 8

Thursday September 24, 2020									
Fredericksburg Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor	Manassas Line Train	Seats	Pandemic Guidance Seats	Ridership	Pandemic Load Factor
300	1045	360	97	0.27	324	780	270	89	0.33
301	780	270	54	0.20	325	1040	360	33	0.09
302	910	315	54	0.17	328	1040	360	70	0.19
305	1045	360	160	0.44	327	1040	360	73	0.20
306	1045	360	103	0.29	330	1040	360	41	0.11
307	1045	360	71	0.20	331	780	270	88	0.33
309	910	316	110	0.35	332	780	270	20	0.07
310	780	270	140	0.52	335	780	270	32	0.12
313	780	270	66	0.24					
314	780	270	46	0.17					

B. Vehicle Headways

VRE peak headways were about 30 minutes for each Line. The current schedules are shown below and are available online at vre.org.

Due to the COVID-19 pandemic, VRE is operating at a reduced service level. Effective July 2020 the “S” schedule level is supplemented with Train 300 for the northbound commute and Train 307 for the southbound commute.

	FREDERICKSBURG LINE										MANASSAS LINE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	VRE Trains (M-F)										Amtrak Trains*										VRE Trains (M-F)										Amtrak Trains*																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
NORTHBOUND	TRAIN #	300	302	304	306	308	310	312	314	316	318	320	322	324	326	328	330	332	334	336	338	340	342	344	346	348	350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380	382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412	414	416	418	420	422	424	426	428	430	432	434	436	438	440	442	444	446	448	450	452	454	456	458	460	462	464	466	468	470	472	474	476	478	480	482	484	486	488	490	492	494	496	498	500	502	504	506	508	510	512	514	516	518	520	522	524	526	528	530	532	534	536	538	540	542	544	546	548	550	552	554	556	558	560	562	564	566	568	570	572	574	576	578	580	582	584	586	588	590	592	594	596	598	600	602	604	606	608	610	612	614	616	618	620	622	624	626	628	630	632	634	636	638	640	642	644	646	648	650	652	654	656	658	660	662	664	666	668	670	672	674	676	678	680	682	684	686	688	690	692	694	696	698	700	702	704	706	708	710	712	714	716	718	720	722	724	726	728	730	732	734	736	738	740	742	744	746	748	750	752	754	756	758	760	762	764	766	768	770	772	774	776	778	780	782	784	786	788	790	792	794	796	798	800	802	804	806	808	810	812	814	816	818	820	822	824	826	828	830	832	834	836	838	840	842	844	846	848	850	852	854	856	858	860	862	864	866	868	870	872	874	876	878	880	882	884	886	888	890	892	894	896	898	900	902	904	906	908	910	912	914	916	918	920	922	924	926	928	930	932	934	936	938	940	942	944	946	948	950	952	954	956	958	960	962	964	966	968	970	972	974	976	978	980	982	984	986	988	990	992	994	996	998	1000																																																																																																																																																																																																																																																																																																																												
	SPOTSVYLVANIA	4:54a	5:04a	5:20a	5:34a	5:48a	6:00a	6:20a	6:34a	6:48a	7:00a	7:16a	7:30a	7:44a	7:58a	8:10a	8:24a	8:38a	8:52a	9:06a	9:20a	9:34a	9:48a	10:02a	10:16a	10:30a	10:44a	10:58a	11:12a	11:26a	11:40a	11:54a	12:08a	12:22a	12:36a	12:50a	1:04a	1:18a	1:32a	1:46a	2:00a	2:14a	2:28a	2:42a	2:56a	3:10a	3:24a	3:38a	3:52a	4:06a	4:20a	4:34a	4:48a	5:02a	5:16a	5:30a	5:44a	5:58a	6:12a	6:26a	6:40a	6:54a	7:08a	7:22a	7:36a	7:50a	8:04a	8:18a	8:32a	8:46a	9:00a	9:14a	9:28a	9:42a	9:56a	10:10a	10:24a	10:38a	10:52a	11:06a	11:20a	11:34a	11:48a	12:02a	12:16a	12:30a	12:44a	12:58a	1:12a	1:26a	1:40a	1:54a	2:08a	2:22a	2:36a	2:50a	3:04a	3:18a	3:32a	3:46a	4:00a	4:14a	4:28a	4:42a	4:56a	5:10a	5:24a	5:38a	5:52a	6:06a	6:20a	6:34a	6:48a	7:02a	7:16a	7:30a	7:44a	7:58a	8:12a	8:26a	8:40a	8:54a	9:08a	9:22a	9:36a	9:50a	10:04a	10:18a	10:32a	10:46a	11:00a	11:14a	11:28a	11:42a	11:56a	12:10a	12:24a	12:38a	12:52a	1:06a	1:20a	1:34a	1:48a	2:02a	2:16a	2:30a	2:44a	2:58a	3:12a	3:26a	3:40a	3:54a	4:08a	4:22a	4:36a	4:50a	5:04a	5:18a	5:32a	5:46a	6:00a	6:14a	6:28a	6:42a	6:56a	7:10a	7:24a	7:38a	7:52a	8:06a	8:20a	8:34a	8:48a	9:02a	9:16a	9:30a	9:44a	9:58a	10:12a	10:26a	10:40a	10:54a	11:08a	11:22a	11:36a	11:50a	12:04a	12:18a	12:32a	12:46a	13:00a	13:14a	13:28a	13:42a	13:56a	14:10a	14:24a	14:38a	14:52a	15:06a	15:20a	15:34a	15:48a	16:02a	16:16a	16:30a	16:44a	16:58a	17:12a	17:26a	17:40a	17:54a	18:08a	18:22a	18:36a	18:50a	19:04a	19:18a	19:32a	19:46a	20:00a	20:14a	20:28a	20:42a	20:56a	21:10a	21:24a	21:38a	21:52a	22:06a	22:20a	22:34a	22:48a	23:02a	23:16a	23:30a	23:44a	23:58a	0:02a	0:16a	0:30a	0:44a	0:58a	1:12a	1:26a	1:40a	1:54a	2:08a	2:22a	2:36a	2:50a	3:04a	3:18a	3:32a	3:46a	4:00a	4:14a	4:28a	4:42a	4:56a	5:10a	5:24a	5:38a	5:52a	6:06a	6:20a	6:34a	6:48a	7:02a	7:16a	7:30a	7:44a	7:58a	8:12a	8:26a	8:40a	8:54a	9:08a	9:22a	9:36a	9:50a	10:04a	10:18a	10:32a	10:46a	11:00a	11:14a	11:28a	11:42a	11:56a	12:10a	12:24a	12:38a	12:52a	1:06a	1:20a	1:34a	1:48a	2:02a	2:16a	2:30a	2:44a	2:58a	3:12a	3:26a	3:40a	3:54a	4:08a	4:22a	4:36a	4:50a	5:04a	5:18a	5:32a	5:46a	6:00a	6:14a	6:28a	6:42a	6:56a	7:10a	7:24a	7:38a	7:52a	8:06a	8:20a	8:34a	8:48a	9:02a	9:16a	9:30a	9:44a	9:58a	10:12a	10:26a	10:40a	10:54a	11:08a	11:22a	11:36a	11:50a	12:04a	12:18a	12:32a	12:46a	13:00a	13:14a	13:28a	13:42a	13:56a	14:10a	14:24a	14:38a	14:52a	15:06a	15:20a	15:34a	15:48a	16:02a	16:16a	16:30a	16:44a	16:58a	17:12a	17:26a	17:40a	17:54a	18:08a	18:22a	18:36a	18:50a	19:04a	19:18a	19:32a	19:46a	20:00a	20:14a	20:28a	20:42a	20:56a	21:10a	21:24a	21:38a	21:52a	22:06a	22:20a	22:34a	22:48a	23:02a	23:16a	23:30a	23:44a	23:58a	0:02a	0:16a	0:30a	0:44a	0:58a	1:12a	1:26a	1:40a	1:54a	2:08a	2:22a	2:36a	2:50a	3:04a	3:18a	3:32a	3:46a	4:00a	4:14a	4:28a	4:42a	4:56a	5:10a	5:24a	5:38a	5:52a	6:06a	6:20a	6:34a	6:48a	7:02a	7:16a	7:30a	7:44a	7:58a	8:12a	8:26a	8:40a	8:54a	9:08a	9:22a	9:36a	9:50a	10:04a	10:18a	10:32a	10:46a	11:00a	11:14a	11:28a	11:42a	11:56a	12:10a	12:24a	12:38a	12:52a	1:06a	1:20a	1:34a	1:48a	2:02a	2:16a	2:30a	2:44a	2:58a	3:12a	3:26a	3:40a	3:54a	4:08a	4:22a	4:36a	4:50a	5:04a	5:18a	5:32a	5:46a	6:00a	6:14a	6:28a	6:42a	6:56a	7:10a	7:24a	7:38a	7:52a	8:06a	8:20a	8:34a	8:48a	9:02a	9:16a	9:30a	9:44a	9:58a	10:12a	10:26a	10:40a	10:54a	11:08a	11:22a	11:36a	11:50a	12:04a	12:18a	12:32a	12:46a	13:00a	13:14a	13:28a	13:42a	13:56a	14:10a	14:24a	14:38a	14:52a	15:06a	15:20a	15:34a	15:48a	16:02a	16:16a	16:30a	16:44a	16:58a	17:12a	17:26a	17:40a	17:54a	18:08a	18:22a	18:36a	18:50a	19:04a	19:18a	19:32a	19:46a	20:00a	20:14a	20:28a	20:42a	20:56a	21:10a	21:24a	21:38a	21:52a	22:06a	22:20a	22:34a	22:48a	23:02a	23:16a	23:30a	23:44a	23:58a	0:02a	0:16a	0:30a	0:44a	0:58a	1:12a	1:26a	1:40a	1:54a	2:08a	2:22a	2:36a	2:50a	3:04a	3:18a	3:32a	3:46a	4:00a	4:14a	4:28a	4:42a	4:56a	5:10a	5:24a	5:38a	5:52a	6:06a	6:20a	6:34a	6:48a	7:02a	7:16a	7:30a	7:44a	7:58a	8:12a	8:26a	8:40a	8:54a	9:08a	9:22a	9:36a	9:50a	10:04a	10:18a	10:32a	10:46a	11:00a	11:14a	11:28a	11:42a	11:56a	12:10a	12:24a	12:38a	12:52a	1:06a	1:20a	1:34a	1:48a	2:02a	2:16a	2:30a	2:44a	2:58a	3:12a	3:26a	3:40a	3:54a	4:08a	4:22a	4:36a	4:50a	5:04a	5:18a	5:32a	5:46a	6:00a	6:14a	6:28a	6:42a	6:56a	7:10a	7:24a	7:38a	7:52a	8:06a	8:20a	8:34a	8:48a	9:02a	9:16a	9:30a	9:44a	9:58a	10:12a	10:26a	10:40a	10:54a	11:08a	11:22a	11:36a	11:50a	12:04a	12:18a	12:32a	12:46a	13:00a	13:14a	13:28a	13:42a	13:56a	14:10a	14:24a	14:38a	14:52a	15:06a	15:20a	15:34a	15:

C. On-Time Performance

VRE's OTP for FY 2020 is shown by each line and for the system as a whole in Table 9. The system's Fiscal Year 2020 OTP was 82.54%, which was below the VRE Budget Goal of greater than 90%.

Table 9: On-Time Performance for Fiscal Year 2020

FY 2020 OTP	Fredericksburg Line			Manassas Line			Combined			Service Days
	Number of Trains Operated	Number of Trains Delayed	OTP	Number of Trains Operated	Number of Trains Delayed	OTP	Number of Trains Operated	Number of Trains Delayed	OTP	
Jul 2019	352	166	52.84%	350	106	69.71%	702	272	61.25%	22
Aug 2019	352	85	75.85%	352	65	81.53%	704	150	78.69%	22
Sep 2019	320	62	80.63%	318	73	77.04%	638	135	78.84%	20
Oct 2019	352	66	81.25%	352	81	76.99%	704	147	79.12%	22
Nov 2019	296	51	82.77%	292	74	74.66%	588	125	78.74%	19
Dec 2019	296	29	90.20%	296	58	80.41%	592	87	85.30%	21
Jan 2020	336	42	87.50%	336	58	82.74%	672	100	85.12%	21
Feb 2020	304	27	91.12%	304	33	89.14%	608	60	90.13%	19
Mar 2020	264	21	92.05%	264	15	94.32%	528	36	93.18%	22
Apr 2020	176	12	93.18%	176	8	95.45%	352	20	94.32%	22
May 2020	160	10	93.75%	160	12	92.50%	320	22	93.13%	20
Jun 2020	176	7	96.02%	176	19	89.20%	352	26	92.61%	22
YTD Average	3384	578	82.92%	3376	602	82.17%	6760	1180	82.54%	252

D. Service Availability

VRE has defined catchment areas for each origin station based on data collected through customer surveys on the home locations of riders. The populations of the catchment areas for VRE's origin stations, as well as the percentage of minority population, are shown in Table 10. Fredericksburg Line stations are shown in red and Manassas Line stations are shown in blue. While the overall population and minority percentage for each Line are similar, station catchment areas vary widely throughout the system.

Table 10: VRE Station Catchment Area Population Characteristics

Origin Station	Distance to Next Station (miles)	Catchment Area 2010 Population ²	Catchment Area Minority % ³	Difference from System Wide Average
Spotsylvania	Terminus			
Fredericksburg	7.0	121,643	32%	-14%
Leeland Road	3.8	67,626	32%	-14%
Brooke	4.8	72,573	35%	-12%
Quantico	10.7	80,766	48%	2%
Rippon	7.0	101,695	66%	20%
Woodbridge	3.2	104,861	61%	14%
Lorton	4.4	59,358	52%	6%
Broad Run	Terminus	132,107	42%	-5%
Manassas	3.1	149,312	51%	4%
Manassas Park	2.0	102,511	50%	4%
Burke Center	9.1	164,039	41%	-5%
Rolling Road	2.3	110,031	38%	-8%
Backlick Road	4.0	119,059	54%	7%
Fredericksburg Line Origins		608,522	46.6%	0.3%
Manassas Line Origins		777,059	45.9%	-0.4%
System Wide		1,385,581	46.3%	

² Based on Metropolitan Washington Council of Governments Round 8.2 Land Use Forecasts

³ Based on U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

E. Vehicle Assignment

VRE does not assign locomotives or coaches to trains or routes specifically. Equipment is assigned as needed to the Manassas or Fredericksburg lines depending on demand/required seating capacity, routine and non-routine maintenance needs, and inspection cycles. Consists for three mid-week days in September 2020 are shown below.

Table 11: September 15, 2020

Broad Run									
Out - 1	In - 1	Out - 4	In - 4	Out - 5	In - 5	Out - 8	In - 8	Out - 5	In - 5
Trains		Trains		Trains		Trains		Trains	
2		3		18		4		19	
324		328		330		332		325	
331		327				335			
6		8		8		6		8	
V726 Cab-T		V719 Cab-T		V716 Cab-T		V715 Cab-T		V716 Cab-T	
V842 Psgr Car-T		V711 Cab-T		V813 Psgr Car-T		V858 Psgr Car		V813 Psgr Car-T	
V838 Psgr Car-T		V843 Psgr Car-T		V806 Psgr Car-T		V812 Psgr Car-T		V806 Psgr Car-T	
V856 Psgr Car		V804 Psgr Car-T		V862 Psgr Car		V811 Psgr Car-T		V862 Psgr Car	
V825 Psgr Car-T		V801 Psgr Car-T		V863 Psgr Car		V836 Psgr Car-T		V863 Psgr Car	
V852 Psgr Car		V850 Psgr Car		V832 Psgr Car-T		V865 Psgr Car		V832 Psgr Car-T	
V55 Engine		V829 Psgr Car-T		V818 Psgr Car-T		V67 Engine		V818 Psgr Car-T	
		V871 Psgr Car		V860 Psgr Car				V860 Psgr Car	
		V57 Engine		V69 Engine				V69 Engine	

Crossroads											
Out - 2	In - 8	Out - 7	In - 7	Out - 8	In - 0	Out - 6	In - 6	Out - 0	In - 2	Out - 0	In - 2
Trains		Trains		Trains		Trains		Trains		Trains	
10		12		8		9		11		21	
300		302		306		310		314		301	
305		309		307		313					
8		7		8		6		6		6	
V728 Cab-T		V727 Cab-T		V722 Cab-T		V712 Cab-T		V729 Cab-T		V56 Engine	
V846 Psgr Car-T		V810 Psgr Car-T		V814 Psgr Car-T		V816 Psgr Car-T		V854 Psgr Car		V729 Cab-T	
V853 Psgr Car		V874 Psgr Car		V840 Psgr Car-T		V819 Psgr Car-T		V827 Psgr Car-T		V854 Psgr Car	
V837 Psgr Car-T		V866 Psgr Car		V824 Psgr Car-T		V835 Psgr Car-T		V847 Psgr Car-T		V827 Psgr Car-T	
V828 Psgr Car-T		V833 Psgr Car-T		V868 Psgr Car		V855 Psgr Car		V815 Psgr Car-T		V847 Psgr Car-T	
V803 Psgr Car-T		V830 Psgr Car-T		V873 Psgr Car		V869 Psgr Car		V870 Psgr Car		V815 Psgr Car-T	
V844 Psgr Car-T		V876 Psgr Car		V845 Psgr Car-T		V61 Engine		V54 Engine		V870 Psgr Car	
V879 Psgr Car		V50 Engine		V851 Psgr Car				V56 Engine		V54 Engine	
V51 Engine				V60 Engine							

Table 12: September 16, 2020

Broad Run									
Out - 1	In - 1	Out - 4	In - 4	Out - 5	In - 5	Out - 8	In - 8		
Trains		Trains		Trains		Trains			
2		3		18		4			
324		328		330		332			
331		327		325		335			
6		8		8		6			
V726 Cab-T		V719 Cab-T		V716 Cab-T		V715 Cab-T			
V842 Psgr Car-T		V711 Cab-T		V813 Psgr Car-T		V858 Psgr Car			
V838 Psgr Car-T		V843 Psgr Car-T		V806 Psgr Car-T		V812 Psgr Car-T			
V856 Psgr Car		V804 Psgr Car-T		V862 Psgr Car		V811 Psgr Car-T			
V825 Psgr Car-T		V801 Psgr Car-T		V863 Psgr Car		V836 Psgr Car-T			
V852 Psgr Car		V850 Psgr Car		V832 Psgr Car-T		V865 Psgr Car			
V55 Engine		V829 Psgr Car-T		V818 Psgr Car-T		V67 Engine			
		V871 Psgr Car		V860 Psgr Car					
		V57 Engine		V69 Engine					
Crossroads									
Out - 8	In - 8	Out - 2	In - 0	Out - 0	In - 2	Out - 6	In - 6	Out - 4	In - 4
Trains		Trains		Trains		Trains		Trains	
10		11		8		9		12	
300		302		306		310		314	
305		309		307		313		301	
8		7		8		6		6	
V728 Cab-T		V727 Cab-T		V722 Cab-T		V712 Cab-T		V710 Cab-T	
V846 Psgr Car-T		V720 Cab-T		V814 Psgr Car-T		V816 Psgr Car-T		V823 Psgr Car-T	
V853 Psgr Car		V854 Psgr Car		V840 Psgr Car-T		V819 Psgr Car-T		V800 Psgr Car-T	
V837 Psgr Car-T		V827 Psgr Car-T		V824 Psgr Car-T		V835 Psgr Car-T		V831 Psgr Car-T	
V828 Psgr Car-T		V847 Psgr Car-T		V868 Psgr Car		V855 Psgr Car		V878 Psgr Car	
V803 Psgr Car-T		V815 Psgr Car-T		V873 Psgr Car		V869 Psgr Car		V875 Psgr Car	
V844 Psgr Car-T		V870 Psgr Car		V845 Psgr Car-T		V61 Engine		V63 Engine	
V879 Psgr Car		V54 Engine		V851 Psgr Car					
V51 Engine				V60 Engine					

Table 13: September 17, 2020

Broad Run									
Out - 1	In - 1	Out - 4	In - 4	Out - 3	In - 3	Out - 8	In - 8		
Trains		Trains		Trains		Trains			
2		3		18		4			
324		328		330		332			
331		327		325		335			
6		8		8		6			
V726 Cab-T		V719 Cab-T		V721 Cab-T		V715 Cab-T			
V842 Psgr Car-T		V711 Cab-T		V718 Cab-T		V858 Psgr Car			
V838 Psgr Car-T		V843 Psgr Car-T		V807 Psgr Car-T		V812 Psgr Car-T			
V856 Psgr Car		V804 Psgr Car-T		V822 Psgr Car-T		V811 Psgr Car-T			
V825 Psgr Car-T		V801 Psgr Car-T		V820 Psgr Car-T		V836 Psgr Car-T			
V852 Psgr Car		V850 Psgr Car		V802 Psgr Car-T		V865 Psgr Car			
V55 Engine		V829 Psgr Car-T		V817 Psgr Car-T		V67 Engine			
		V871 Psgr Car		V872 Psgr Car					
		V57 Engine		V65 Engine					
				Crossroads					
Out - 8	In - 3	Out - 0	In - 8	Out - 3	In - 0	Out - 6	In - 6	Out - 4	In - 4
Trains		Trains		Trains		Trains		Trains	
10		11		8		9		12	
300		302		306		310		314	
305		309		307		313		301	
8		7		8		6		6	
V728 Cab-T		V727 Cab-T		V725 Cab-T		V712 Cab-T		V710 Cab-T	
V846 Psgr Car-T		V720 Cab-T		V723 Cab-T		V816 Psgr Car-T		V823 Psgr Car-T	
V853 Psgr Car		V854 Psgr Car		V809 Psgr Car-T		V819 Psgr Car-T		V800 Psgr Car-T	
V837 Psgr Car-T		V827 Psgr Car-T		V808 Psgr Car-T		V835 Psgr Car-T		V831 Psgr Car-T	
V828 Psgr Car-T		V847 Psgr Car-T		V859 Psgr Car		V855 Psgr Car		V878 Psgr Car	
V803 Psgr Car-T		V815 Psgr Car-T		V821 Psgr Car-T		V869 Psgr Car		V875 Psgr Car	
V844 Psgr Car-T		V870 Psgr Car		V861 Psgr Car		V61 Engine		V63 Engine	
V879 Psgr Car		V54 Engine		V877 Psgr Car					
V51 Engine				V58 Engine					

F. Distribution of Transit Amenities

VRE makes transit amenities available to VRE passengers to the greatest extent feasible to support their comfort, convenience, and safety on VRE trains and passenger stations. VRE strives to maintain existing amenities in good repair and installs additional amenities as the need arises.