

**Appendix E**  
**Updated: February 1, 2019**

**Description of Greater Cleveland Regional Transit Authority (GCRTA)**  
**Interactions**



## Greater Cleveland Regional Transit Authority (GCRTA)

The Greater Cleveland Regional Transit Authority (GCRTA) is a publicly owned system, which, pursuant to the Cuyahoga County voters’ approval of a one-percent sales tax for the support of public transportation, was created in 1975 by combining the Cleveland Transit System, the Shaker Heights Rapid Transit System and five suburban bus lines into a coordinated county-wide transit operating agency. Today, GCRTA combines the extensive bus network and heavy rail line of the former Cleveland Transit System, with light rail lines formerly belonging to the City of Shaker Heights. Contracts were made with five suburban bus systems effective October 5, 1975 and operating rights of other smaller carriers were bought out, with some systems being purchased outright.

By early 1976, a fully coordinated regional transit system was achieved and in 2005 the final two city-operated transit systems were merged into GCRTA. GCRTA serves the City of Cleveland, the City of East Cleveland, the City of Brookpark, and the City of Shaker Heights, Maple Heights, and North Olmstead and the Water Front Line.

GCRTA is governed by a board of ten trustees representing municipal jurisdictions in Cuyahoga County served by GCRTA transportation systems. GCRTA is an independent, political subdivision of the State of Ohio and has its own taxing power. Table E-1 provides a summary of GCRTA’s 2017 operating facts.

**Table E-1. Summary Operating Facts for 2017**

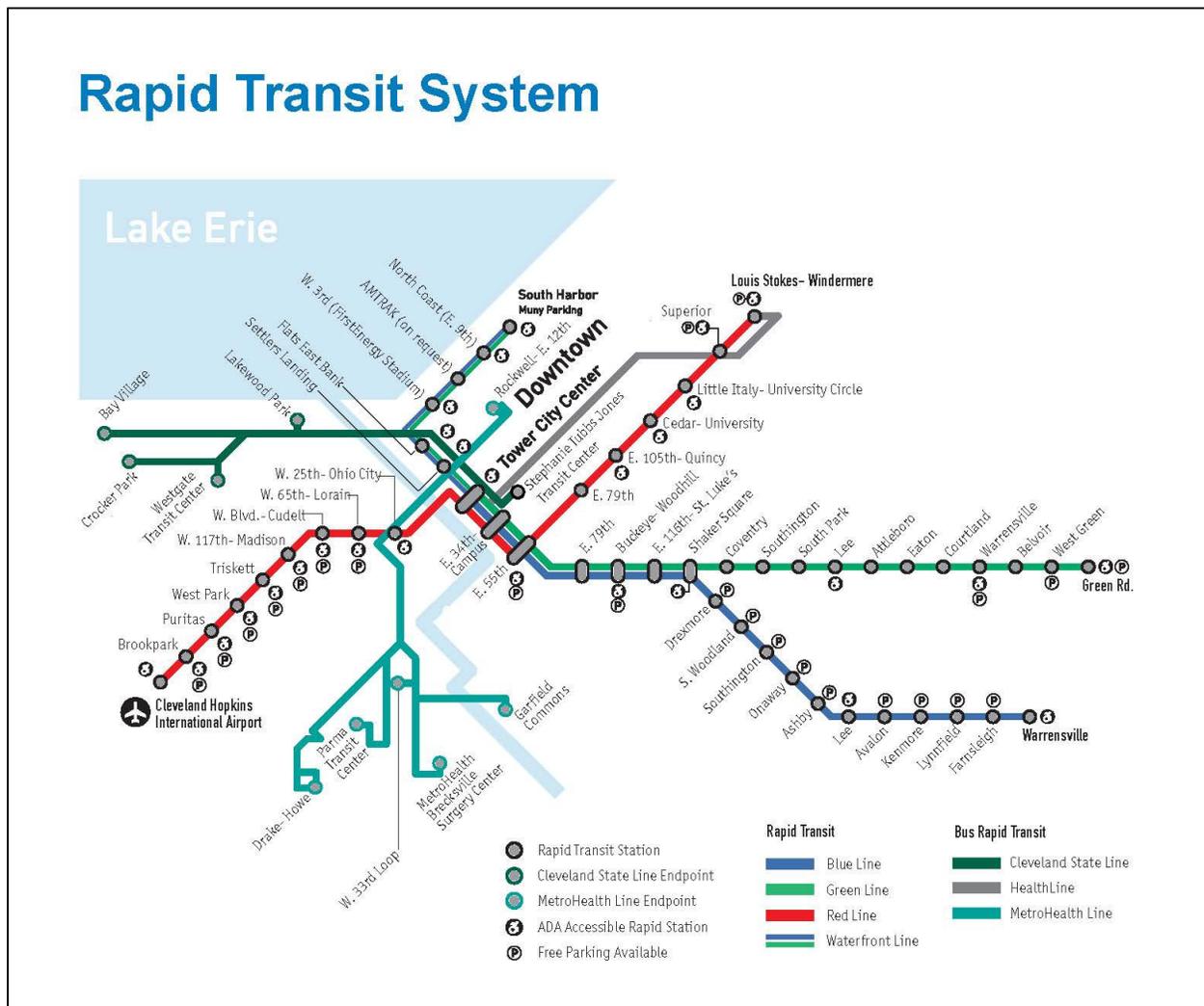
Description	2017 Level
Operating Budget	\$312 million
Employees	2,318
Ridership	39.6 million passenger trips
Service Area	458 square miles 59 municipalities
Bus Service	382 buses and trolleys 55 routes 13.4 million revenue miles
Rail Service	3.3 million revenue miles Red line, heavy rail Blue and Green, light rail

### General Scope of GCRTA Rail Services

GCRTA operates two distinct types of rail transit systems, and both use the same track on a segment of 2.6 miles, the only such combined operation in North America. The first rail system type is a high-platform heavy rail line, which runs mostly on the surface adjacent to main line freight railroads and has no street-level grade crossings. Two short portions of this line are underground. This line is referred to as the heavy rail system or Red Line.

The second type of rail system at GCRTA is the light rail line, which has two branches with 34 low platform stations. Approximately 40 percent of this system is fully grade-separated, with the majority being at-grade with crossing protection through traffic signal controls at intersections. This system is referred to as the light rail system or Blue and Green Lines.

Both systems use overhead contact system (OCS) with direct current electricity at 600 volts DC. In the joint use area, rail cars of either type draw power from the same contact wire. The GCRTA rail transit fleet consists of 48 (38 active revenue) light rail vehicles and 60 (40 active revenue) heavy rail cars. There are over 37 double-track route miles that are maintained by GCRTA, and 86 bridges (as part of the rail system and for other purposes). Figure E-1 shows the heavy and light rail lines operated by GCRTA, along with the three bus rapid transit (BRT) lines.



**Figure E-1. GCRTA Heavy and Light Rail Service Map**

**Heavy Rail System (Red Line)**

The heavy rail Red Line consists of 18 high platform stations along a single, nineteen mile double track route, extending from the Cleveland Hopkins International Airport on the west, to

Louis Stokes Station in East Cleveland. The 18 high-platform stations are listed from west to east in Table E-2 below.

**Table E-2. Heavy Rail Stations**

Cleveland Hopkins International Airport	Tower City – Public Square
Brookpark	Tri-C – Campus District
West 150 <sup>th</sup> – Puritas	East 55 <sup>th</sup>
West Park	East 79 <sup>th</sup>
Triskett	East 105 <sup>th</sup> – Quincy
West 117th – Madison	Cedar – University
West Blvd. – Cudell	Little Italy – University Circle
West 65th – Lorain (Eco Village)	Superior
West 25th – Ohio City	Louis Stokes Station at Windermere

The Red Line operates from 3:30 a.m. to 1:30 a.m., seven days per week. Trains operate every 7.5 minutes during the weekday rush hour periods on the west side and every 15 minutes on the east side. At all other times, trains operate every 15 minutes. Weekday rush hours require 22 train cars in service; seven single cars are used on Saturday and Sunday. Special event service requires additional cars and occasional extended operating hours. Single cars are also used mid-day and evenings.

Trains operate above ground with the exception of the stations at Cleveland Hopkins International Airport, which is located within a 1,628 foot long tunnel, and Tower City station, which is enclosed, but not subterranean. A length of 2.6 miles between Tower City Station and East 55th Street uses the same tracks as the light rail lines, and is referred to as the Joint Area.

Beginning in 2009, GCRTA implemented a new fare-collection system, and installed new signs and machines at stations to support the system. The proof-of-payment system eliminated on-board fare collection. In addition, the new system allowed passengers to use credit cards to purchase fares at ticket vending machines. The new ticket vending machines are also capable of activating farecards and passes.

The active, revenue service rolling stock, consists of 60 cars built by Tokyu Car Corporation. These cars were delivered in 1984 and 1985, and are approximately 80 feet in length, and weigh approximately 82,500 pounds each. Twenty of the cars are double-ended and seat 80 passengers. The remaining 40 single-ended cars seat 84 passengers. All rail cars have three doors per side, and are equipped with designated wheelchair areas. *At the present time, there are 40 revenue operations Tokyu cars available for rush-hour operations.*

Heavy rail operations are supported by nearly 86 Rail District employees functioning as operators/yard-persons. In addition, the GCRTA Transit Police provide over 25 full time equivalent part time police/ fare enforcements employees, on the trains, at the station platforms and at Tower City. Part of the heavy rail line was opened in 1955, an extension added in 1958, and the last extension to Cleveland Hopkins Airport was completed in 1968.

### **Light Rail System (Blue and Green Lines; including Waterfront Line)**

The light rail system of GCRTA, formerly known as Shaker Rapid, is a two-track line between Shaker Heights and the Lakefront Municipal Parking Lot (South Harbor). The system has a fully grade-separated route for six miles between downtown Cleveland and Shaker Square. The line has two branches east of Shaker Square in the landscaped median strips of Van Aken Boulevard (Blue Line) and Shaker Boulevard (Green Line). West of Tower City the line turns north through the Flats (Waterfront Line). The total line length is 15.3 miles of double track. The first 2.6 miles east of Tower City use the same tracks as the high-platform heavy rail line in the Joint Area.

Light rail schedules require 16 cars during morning and afternoon rush hours. Light rail service operates approximately 20 hours per day, between 4:00 a.m. and 12:00 a.m., 7 days per week, all year. The Waterfront Line operates between 6:30 am and 7:00 pm on weekdays and 9:00 am and 7:00 pm on weekends. During the weekday rush-hour periods, trains operate every five minutes, every ten minutes on the Shaker and Van Aken branches and every 20 minutes on the Waterfront Line. At all other times, trains operate every 15 minutes on the Waterfront section and between Tower City and Shaker Square. Trains operate every 30 minutes on the Shaker and Van Aken branches. Single cars are used to provide regular service. Two car trains are used for special event service. Special event service occasionally requires additional operating hours.

The light rail equipment consists of 48 cars manufactured by Breda Costruzioni Ferroviarie. These cars were delivered between 1980 and 1981, and are approximately 80 feet long, and weigh nearly 90,000 pounds. Each light rail car seats 84 passengers, is articulated and bi-directional, with an operator cab at both ends. Each car has three doors per side. *Thirty-four of the Breda rail cars completed the mid-life overhaul and are available for revenue operations.*

Over 86 Rail District employees, functioning as operators/conductors/yard-persons, support light rail operations. The system was built in stages with various combinations of street railway and inter-urban electric railway-type service from 1913 to 1930. GCRTA completed total reconstruction of the line in 1981. The Waterfront Line was completed in 1996. The system provides service to 34 low-platform stations listed from west to east in Table E-3.

**Table E-3. Light Rail Stations**

<b>Main Line</b>	<b>Waterfront Line</b>
*Tower City	*South Harbor
*Tri-C – Campus District	*North Coast
*East 55 <sup>th</sup>	*AMTRAK (on request)
*East 79 <sup>th</sup>	*West 3rd
*Woodhill	*Flats East Bank
*East 116 <sup>th</sup> – St. Luke’s	*Settlers Landing
*Shaker Square	
<b>Van Aken Branch (Blue Line)</b>	<b>Shaker Branch (Green Line)</b>
Drexmore	Coventry
S. Woodland	Southington
Southington	Nature Center Station at South Park
Onaway	Lee – Shaker
Ashby	Attleboro
Lee – Van Aken	Eaton
Avalon	Courtland
Kenmore	*Warrensville – Shaker
Lynnfield	*Belvoir
Farnsleigh	*West Green
Warrensville – Van Aken	Green Road
<i>* There are no at-grade street crossings at these stops.</i>	

**Rail Facilities and Equipment**

The Rail Headquarters Building is part of the three building, 20-acre Rail Complex at East 55<sup>th</sup> Street and Grand Avenue, and is adjacent to the East 55th Street Rail Yard. The building includes the administrative offices for Rail District operations and the Rail Transportation headquarters, Transit Police headquarters, and a report and break area for staff. All rail operators and station attendants report to this facility. All Rail Control Center operations, including Yard Control and Rail Load Dispatch personnel and facilities are located at the Integrated Communications Center (ICC) on the 1st floor of the GCRTA’s main office building – 1240 W. 6th Street, Cleveland, Ohio.

The Central Rail Maintenance Facility, which is also part of the Rail Complex, covers 156,000 square feet or 3.6 acres. Preventive maintenance inspections, major and minor repairs and cleaning of all rail revenue vehicles occur at this location. The six major areas of Central Rail Maintenance are inspections, truck shop, unit rebuild, defect repair, body and paint shop (including cleaning area), and a machine shop. Employees at this facility work a 24/7 operation. Rail Facilities Maintenance East and Rail Training Departments are headquartered in this building. The Brookpark Shop, near the West End of the Red Line, is primarily used as headquarters for Rail Facilities Maintenance West and final staging for the revenue car overhaul projects.

The Service Building, part of the Rail Complex, is the base for the maintenance of substations, overhead, signals, and track, as well as the administrative headquarters for personnel involved in these areas. The first floor includes the work equipment repair area and tool and supply storage. Administrative offices including the Facilities Maintenance Department and Janitorial Department are on the second floor. Employees at this facility work a 24/7 operation.

The light rail lines from East 55th Street junctions to Green Road Station on Shaker Boulevard and Warrensville Center Road Station on Van Aken Boulevard are not interlocked. However, Warrensville/Van Aken has a push button route selector to select the route. There is an electrically controlled interlocking at the East 75<sup>th</sup> Street junction. A signal, train stop and push button were installed and became operational in November 2003 at East 79<sup>th</sup> Street Station to ensure operators enter cab signal territory when traveling westbound. There is a push button route selector at the junction between the Blue and Green Lines at Shaker Square. The light rail line from Settlers Landing to South Harbor, Waterfront Line, does not have any interlocking machines or remote control systems.

### **Rail System Safety – Related Features**

The rail systems at GCRTA contain many control and communications features that are an integral part of safe operation. These include two-way radio communication with all trains; wayside signals from E. 79<sup>th</sup> to Shaker Square and a few isolated curves on the Green and Blue Lines; Computerized Consolidated Train Dispatching System (CTDS) using cab signals on the Red Line and the light rail line from E. 79<sup>th</sup> to Settlers' Landing; automatic interlocking with Norfolk Southern Railroad at West Park; automatic interlocking with CSX Railroad at West 3<sup>rd</sup> on the Waterfront Line; interlocking and dwarf signals on heavy rail; absolute block procedures throughout system; automatic overspeed control on heavy rail governed by cab signals; cab signal testing capability at entrance to main line from all yards; posted speed control circuits with Automatic Train Stop (ATS) on certain approaches; deadman control feature on all rail vehicles; and rail crossing signals on the Waterfront portion of light rail with crossing gate protection at Robert Lockwood Jr. Drive.

### **SSO and NTD Reportable Events Comparisons**

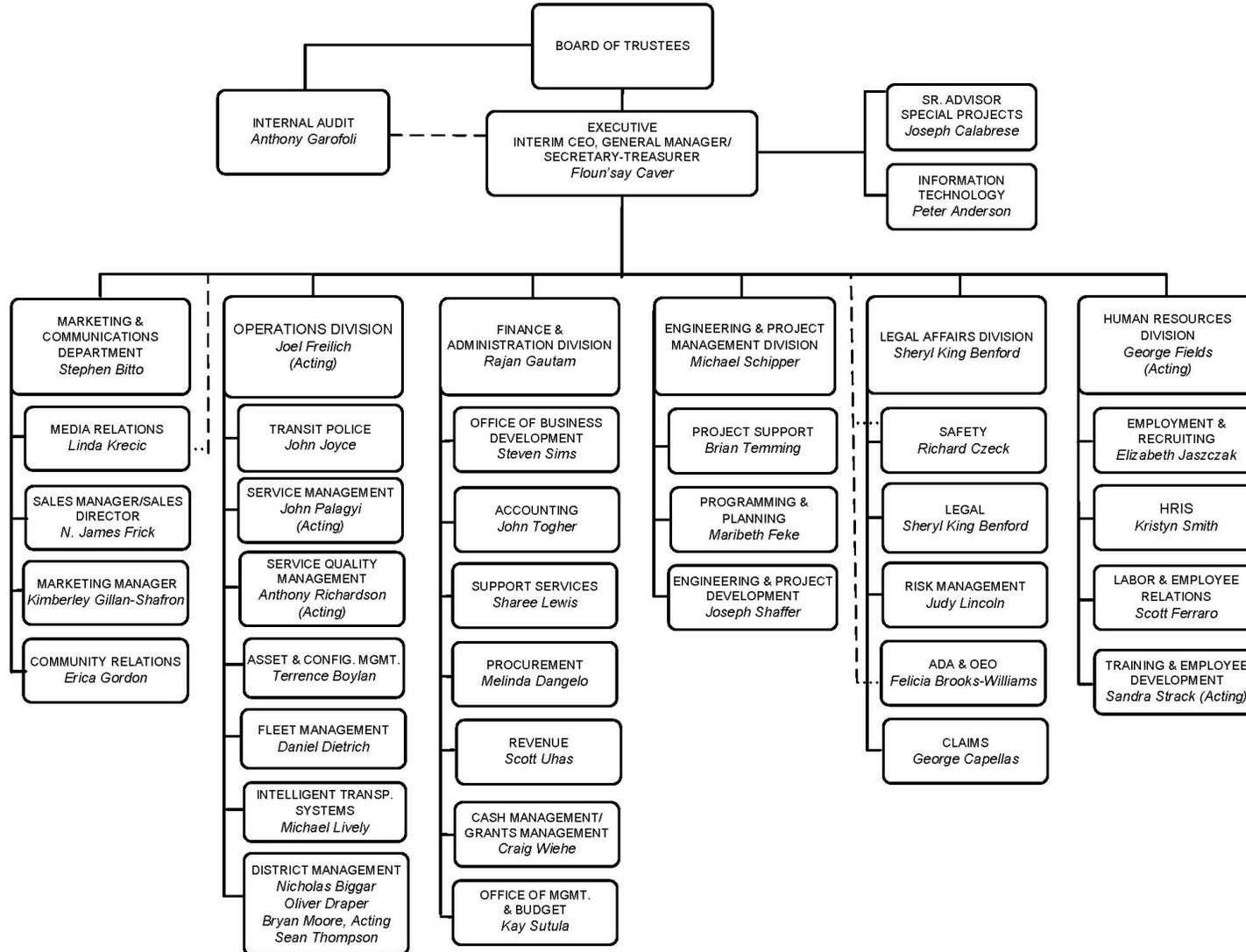
The Federal Transit Administration (FTA) has determined that the ODOT SSO program and GCRTA must assure that the NTD and SSO reportable events data matches, both in number of events and the reported data from those events are consistent. This is planned to be accomplished by GCRTA Safety and Risk Management staff to meet quarterly to compare reported events from SSO and NTD to assure that the reporting and data submitted matches. The results of these meetings are then provided in the monthly reporting.

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**GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY**  
Organizational Chart as of January 2, 2019



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