



**Greater Cleveland Regional Transit Authority
Light Rail Station Design Parameters**

November 2009



Passengers boarding at the GCRTA East 9th Street Waterfront Line Station

The mission of the Greater Cleveland Regional Cleveland Regional Transit Authority (GCRTA) is to enhance the quality of life in Greater Cleveland by providing outstanding cost-effective public transportation services. An important element in that service is our rail network including the Blue / Green / Waterfront Light Rail system. As we continue to look forward to enhanced customer service, these guidelines can serve as a basic outline to the GCRTA requirements for light rail stations for interested third parties or designers.

Historically, the train station has been at the heart of cities and villages across the country signifying its important contributions to the communities. GCRTA wishes to recreate that synergy within the neighborhood context of each station by making them integral parts of their respective communities. They will be designed to maximize linkages with their neighborhoods in concert with the residents and stakeholders of these communities. They will reflect best practices in urban design, be sustainable, incorporate appropriate green technology, and successfully integrate all modes of transportation. Stations will be visible, secure, attractive, and relate to the context of the surroundings.

The GCRTA feels strongly that high-quality design results in an environment that fosters ridership and elevates the entire station area vicinity. While this document deals primarily with the functionality and operational requirements of the station, we encourage designers to think creatively on how a station will interact with its environment. We support innovation in design and extensive community engagement.

The guidelines are presented as follows:

1.0	General Requirements.....	2
1.1	Safety and Security	2
1.2	Maintenance	2
1.3	Americans with Disabilities Act.....	3
1.4	Arts in Transit.....	3
1.5	Transit-Oriented Design	4
1.6	Sustainable Design / Green Building Technology.....	4
2.0	Design Parameters.....	5
2.1	Loading Platform / Track Requirements	5
2.2	Passenger Stations.....	6
2.3	Amenities and Auxiliary Requirements	7
3.0	Figures	8
3.1	GCRTA Standard Clearance Diagram.....	8
3.2	GCRTA Standard Train Diagram.....	9

GCRTA reserves the right to alter or modify the general parameters below as required to meet requirements or regulations. They are only meant as a general framework for schematic station concept. Reference technical specifications and materials for various components shall be provided during the design progression or as required during a schematic development process.

Specific questions should be directed to the GCRTA Programming and Planning Department: 216-566-5260.

1.0 GENERAL REQUIREMENTS

1.1 Safety and Security

- A. The station design shall promote and enhance passenger and employee safety and security. The facility and design drawings shall demonstrate strict accordance to NFPA, NEC and NESC Standards.
- B. All specified flooring shall meet OSHA slip-resistance standards.
- C. Design of passenger station shall be in accordance with NFPA 130. The station and platform shall be constructed of non-combustible materials approved by GCRTA.
- D. Blind spots, tight quarters, alcoves, dark areas, or other design features that could compromise the security of the station shall not be permitted. GCRTA utilizes the principles of CPTED (crime prevention through environmental design). This includes landscaping or other "soft" elements that could block visibility or encourage hiding.
- E. Lighting shall provide adequate levels for maintenance of safety and security. 10 footcandles shall be provided within the main station building and platform areas.
- F. Pedestrian pathways shall be designed to minimize the crossing of the rail tracks. Fencing shall be provided between the tracks to discourage crossing except for at designated locations.
- G. All work must be designed to be constructed in conformance with the GCRTA Standard Safety Specification 01450 and Maintenance of Revenue Traffic Specification 01501. In particular, designers must be cognizant of the 600V DC overhead trolley wire and restrictions associated with work and construction within 10' of the wire.

1.2 Maintenance

- A. Building design decisions shall promote the concept of reducing the operating costs of the facility. The design shall enhance cleanliness. Unnecessary flat horizontal surfaces should be avoided. Adequate trash receptacles shall be employed. Surfaces shall be designed to withstand high pedestrian traffic and require a minimum of maintenance.
- B. All roofs shall be designed to minimize excessive snow and ice build-up during winter months. Roof design shall not allow sliding of built up ice, rain, sleet or snow onto pedestrian surfaces. GCRTA has a preference for non-flat roofing systems.
- C. Adequate provision of water and drainage should be provided to all areas for cleaning and maintenance purposes. All site drainage design shall eliminate the possibility of interior building flooding or water backup.

- D. Glazing should be of the self-cleaning type with exposure to the rain for functionality. Design of glazing should promote ease of cleaning and replacing. Where possible, cleaning, replacement and installation shall be from the inside of the building. The designer must consider how each window is to be cleaned. All glazing within 5' foot of a walking surface level shall be tempered and laminated safety glass for safety and security. No glazing is allowed within elevator shafts due to the inability to clean adequately.
- E. APTA standard heavy duty elevators shall be used when vertical transportation is required. They must be capable of handling a stretcher. No escalators permitted.
- F. All building components shall be corrosion resistant and, as is possible, vandal resistant. All exposed surfaces shall be treated with anti-graffiti coating if the materials are not inherently graffiti resistant, such as porcelain tile.
- G. All handrails and railings shall be stainless steel. Stainless steel components and ice melt salt resistant details, especially in the vicinity of exterior floor surfaces, shall be considered a high priority.

1.3 Americans with Disabilities Act

- A. The GCRTA considers "fully accessible transit" a high priority and conformance with the GCRTA's program for ADA compliance is a major design criteria. The entire station project including parking areas, walkway, buildings and platform must be compliant with the July 23, 2004 American with Disabilities Act and Architectural Barriers Act Accessibility Guidelines or version current at time of construction bidding.
- B. All designers are advised that transit has higher requirements than basic ADA regulations. Above those basic requirements, GCRTA strives to make universal accessibility a part of all infrastructure projects. It is desirable that unless determined to be not constructible or economically infeasible, all public areas and accessways be accessible.

1.4 Arts in Transit

- A. It is the policy of GCRTA's Arts in Transit to set aside a percentage of the station construction budget. It is typically 1.5% of the total construction cost.
- B. The incorporation of art may be a separate commissioned piece(s), modification to the basic design, integrating art into required components of the project itself or any combination thereof. It is preferred that the design plan on the incorporation of art, either through a space for others or integrated art. GCRTA does require a public process for artist selection for a portion of the budget.s

- C. Safety and maintainability of the art shall be a priority. It is critical that the art be made of durable materials that will not cause injury or harm. Art that is non-compliant with safety considerations shall be removed.

1.5 Transit-Oriented Design

- A. The station will reflect the best practices of urban design. GCRTA's vision of the station as a catalyst for growth, investment, safety, security and vitality of the urban neighborhood shall be ever present and a primary ingredient in all decisions regarding the planning, design and subsequent construction of the facility.
- B. The station and site must be designed to establish a pleasant, safe, efficient pedestrian interface with the neighborhood, rail services and bus services.
- C. The station design must accommodate convenient, safe interface with all rail and bus pedestrians.
- D. GCRTA therefore requires the design and construction of an attractive and functional station that can be built and maintained cost-effectively. The station must be attractive, durable, vandal-resistant, and easy to maintain. The station design must result in an inviting, safe, secure, easy-to-use facility for GCRTA's internal and external customers.
- E. The designer shall be familiar with the GCRTA transit-oriented design (TOD) Guidelines and incorporate them into the work. The TOD Guidelines are located at http://www.riderta.com/ar_major.asp.

1.6 Sustainable Design / Green Building Technology

- A. The design of the station shall be sustainable and shall incorporate green technology as required to achieve a minimum of LEED Silver certification.
- B. Chosen LEED aspects must be compatible with GCRTA Safety and Maintenance requirements. It is not acceptable to incorporate non-compliant materials, such as carpet or exposed wood, to increase the LEED points.
- C. Alternative energy may be considered if the technology is proven and will demonstrate a return-on-investment over the 30-year lifespan of the station.

2.0 DESIGN PARAMETERS

2.1 Loading Platform / Track Requirements

- A. Platforms shall be constructed of cast-in-place reinforced concrete with integral 2'-0" wide tactile warning strips in safety yellow along the loading zone area. Textured and colored concrete is acceptable as long as all requirements for anti-slip coefficient of friction are maintained.
- B. Platform length shall be 300 foot preferred, 260 foot minimum. Platforms should be located within tangent track, as feasible.
- C. Platforms may be either center or outside (field side). Center platforms shall be 14' to 16' wide preferred, 12' wide minimum. Field side platforms shall be 12' to 14' wide preferred, 10' wide minimum. Designer must verify platform width with the ability to construct the ADA mini-high platform lift and maintain a 4'-0" accessible path. The 2'-0" wide tactile warning area on the edge of the platform shall not be considered a portion of the accessible path.
- D. Platforms are constructed with the loading edge 4'-10" from the centerline of rail. Platform height is 12'-1/2" above top of rail.
- E. It is preferred that covered waiting areas be provided on the platforms. These can be as simple as small shelters or more elaborate canopies, budget permitting.
- F. Any structure at track level, with the exception of the ADA mini-high platform, must be 8'-0" away from the centerline of the track. See GCRTA Clearance Diagram (Figure 3.1).
- G. Track geometry and structure shall conform to AREMA standards. Standard specifications can be provided, as required. For end-of-the-line stations, contact GCRTA for additional yard and switching parameters.
- H. For field side platform designs, fencing shall be placed between the tracks to discourage crossing the tracks except for at designated locations. Track crossings, if required, should not be within the loading area and shall be handicap accessible.
- I. For accessible loading of wheelchairs or other mobility devices, RTA requires a mini-high loading platform be constructed. Platform is 36'-1/2" above top of rail with the face 5'-5" from the centerline of track. Platform size must be at least 5'-0" x 5'-0" to meet ADA requirements and to receive the loading ramp from the train. Preference is for a ramp up to the platform rather than a mechanical lift. Platform is always uniformly located at the middle door of the third car. See GCRTA Standard Train Diagram (Figure 3.2).
- J. Catenary requires 18' – 20' vertical clearance preferred, 15' minimum. Pole spacing is dependant upon horizontal / vertical curvature.

2.2 Passenger Stations

- A. The level of the passenger station will vary greatly depending on the particular location. The following general parameters should be verified with a programming phase or contact with the GCRTA.
- B. At grade light rail stations without major bus transfer facilities do not require any passenger station elements beyond covered waiting areas on the platform. These waiting areas can be regular GCRTA shelters or custom designed canopies. (Reference: Waterfront Flats East Bank or Blue Line Avalon)
- C. Grade separated light rail stations without major bus transfer facilities shall have weather-protected stairs and vestibules with elevators. It is the preference that these spaces be designed to eliminate the need for mechanical heating and cooling of the public spaces and minimize doors. Mechanical / janitor's closet, electrical / communications, and elevator machine rooms shall be provided. (Reference: Waterfront East 9th / West 3rd or future Blue Line Lee-Van Aken)
- D. At stations with major bus transfer or other intermodal facilities, the station shall be designed to include a transit center component. This shall include an indoor waiting area with information center, vending, and ticketing. Mechanical / janitor's closet, electrical / communications, and single-sex private toilet rooms shall be provided. In some instances, supervisor's areas and operator break rooms may be required. (Reference: Blue Line Warrensville-Van Aken or Blue/Green Line Shaker Square)
- E. No public toilet facilities unless an agreement for maintenance by others is developed prior to construction.
- F. Consideration may be given to auxiliary spaces for outside vendors or public meeting rooms being constructed by GCRTA for leasing to others. It must be demonstrated that there is a demand for such items prior to construction.
- G. It is recommended that any design be aware of the primary function of the station – to effectively and efficiently move passengers from one mode (foot, bus, auto, train) to another. Minimize unnecessary turns or zig-zags in the access pathways. Straight run stairwells are required unless demonstrated that they are not feasible.
- H. Interior materials shall be of a high durability, flame / smoke resistant, and easily cleaned. No gypsum board / drywall in public spaces. No carpet flooring.

2.3 Amenities and Auxiliary Requirements

- A. All signage shall conform to the GCRTA Standard Signage Guidelines. Some creativity with the main red GCRTA logo sign may be accommodated to achieve design approvals or aesthetic with prior approval of the Authority, as long as the branding remains immediately recognizable. All safety and basic operational signage must conform to the manual.
- B. GCRTA has standard security camera and emergency call box specifications and location requirements. After schematic design, GCRTA Transit Police Security Specialist will work with the designers to incorporate security elements.
- C. All landscaping shall be low-maintenance, native and resistant to salt. It shall be lower groundcover or able to be trimmed high for visibility. No sprinkler systems.
- D. RTA has standard lighting and HVAC controls. Specifications shall be provided during the design development phase.
- E. Any seating areas or benches must have intermediate armrests to limit the "seat" area to no more than 3'-0". Patrons have expressed a preference to non-metal seats in exterior locations. Wood or other flammable material is not acceptable.
- F. Trash cans shall have open areas for visibility and no integral liners.
- G. Bicycle racks shall be provided at all stations. If feasible, they should be located under overhead cover for protection.
- H. Newspaper storage racks ("hotels") shall be provided with a mixture of vend and free doors. Final configuration shall be confirmed through design based on location.
- I. All site amenities shall be directly affixed to the ground. There is a preference for off-the-shelf items in standard colors to allow for future replacements.
- J. Any locations, such as a bridge or pedestrian walkway, that are directly over the tracks shall be enclosed with an 8'-0" high fence for safety of dropping items on the rails. No glazing is permitted in these locations.

