1. • **Access Control System Enhancement**
   • **Building Perimeter Control**

1 .1 **General**

1.1.1 The Mid-Sized Optical Turnstile shall be a proprietary design, engineered, and manufactured by a recognized vendor who has manufactured this type of product for five (5) or more years, such as Designed Security, Inc. All components of the product including the electronic subassemblies such as the controller module shall be engineered, manufactured, and assembled by the same vendor of this product. The Mid-Sized Optical Turnstiles shall be installed in the lobby or entrance area of a building or complex to provide controlled access to the secured side of the facility as indicated on the plans.

1.1.2 The Mid-Sized Optical Turnstiles shall provide effective access control within manned or visually monitored (CCTV) areas. They are effective at entrance and exit points in corporate offices and manufacturing facilities where controlled access is essential, but both aesthetics and pedestrian throughput is a major concern.

1.1.3 The Mid-Sized Optical Turnstiles shall provide a pedestrian throughput of up to 30-45 people/minute, 1800-2700 people/hour depending upon the processing speed of the access control system utilized within the facility. Handicapped walkways shall provide accommodations for wheelchair access in accordance with The Americans With Disabilities Act of 1990 as well as all local codes.

1 .2 **Product Description**

1.2.1 Mid-Sized Optical Turnstiles are physical barriers (pedestals) placed in a parallel arrangement with a length as short as eighteen (18) inches in length to create bi-directional pedestrian walkways. Persons passing through the walkway are screened by use of a conventional access control system. Multiple walkways may be required depending on traffic volume and flow patterns in and out of the facility. Audible and visual annunciators are used to communicate with the pedestrian concerning walkway usage, access granted, access violations, and attempted use of invalid card (optional feature available when using properly configured access control systems).

1.2.2 Mid-Sized Optical Turnstiles do not include the access control system, associated software, hardware, or card readers required for screening persons passing through the walkways. The card readers (furnished by others) shall be mounted into pedestals by the Mid-Sized Optical Turnstile manufactured/vendor.

1.2.3 Mid-Sized Optical Turnstiles shall operate with any access control system utilizing a wide variety of card reader technologies, i.e.: proximity, mag stripe, bar code, or biometrics. This product shall allow for future changes in access control technology utilized within the facility, without major revision to the walkways. The card reader shall be furnished by others and mounted in the pedestals by the Mid-Sized Optical Turnstiles vendor. The walkways may be configured to operate with bi-directional control of traffic or with card-in/free-exiting.

1.2.4 All functions of the Mid-Sized Optical Turnstiles shall be controlled by the controller module, a completely solid-state microprocessor based subassembly engineered and manufactured specifically for this product application by the Mid-Sized Optical Turnstiles vendor. The utilization of third party processors or programmable controllers to accomplish this function is not acceptable.

The controller module subassembly shall be housed within the Mid-Sized Optical Turnstiles pedestal thereby eliminating the need for any external wiring or cable assemblies between the controller module and the pedestal.

1.2.5 Audible and visual annunciations are used to provide effective communications with the pedestrian concerning walkway usage, access granted and access violations, as well as invalid card attempt if the access control systems provides this output signal. The visual annunciator shall be backlit graphic display with green arrows to indicated proceed and a red bar to indicate to the user to present their card. The audible tone indicators shall provide signals to the pedestrian indicating access granted or alarm indication for access control violations.

1 .3 **Pedestal Construction**

1.3.1 The pedestals are the physical structure that creates the pathways for the Mid-Sized Optical Turnstiles system that is placed in a parallel arrangement to create bi-directional pedestrian walkways.

1.3.2 The Mid-Sized Optical Turnstiles pedestal can be fitted with a single card reader for Card-in/Free-exit operation or with two (2) card readers for Card-in/Card-out access control. The system is designed to interface with any access control system or reader device. Readers, keypads, etc. are not supplied by Designed Security, Inc. The pedestals shall be constructed of heavy gauge stainless steel with rounded corners and a IR translucent plexiglass panel on two (2) sides extending from the floor to just under the top surface. The panels are located on the sides to protect and conceal the IR sensor beams and allow transmission of the beams through the material.

1.3.3 The Mid-Sized Optical Turnstiles pedestal base shall be secured to the finished floor through the use of four (4) 3/8" dia. anchor bolts. The pedestals slide over the base and are screwed to the base to provide strength and stability to the pedestal and also allows for easy removal of the pedestal if required.

1.3.4 **Base construction:**

1.3.4.1 The base shall be constructed of 12 gauge steel with four (4) 9/16" mounting holes and one (1) 2" conduit pass through hole. It shall be designed to provide proper support to the pedestal.

1.3.5 **Surface finish and color:**

1.3.5.1 Exterior surface: The exterior surface of the pedestal shall be constructed from the following material.

1.3.5.2 Top: The surface shall be constructed from artificial marble substrates as manufacturer by: DuPont Corian, Nevamar Fountainhead, etc. This surface shall have rounded corners and edges and cutouts for the mounting of the graphic display unit.

1.3.5.2.1 Color shall be Corian: Midnight, or can be selected by architect, consultant, or owner.

1.3.5.3 Side: The side material shall be 16 gauge 302 stainless steel with a vertical satin brushed surface finish. (Custom materials and finishes are available.)

1.3.6 **Dimensions:**

1.3.6.1 Pedestal dimensions: 18" long X 6" wide X 38" high.

1.3.7 **Walkway Spacing:**

1.3.7.1 Standard Walkways: 32" between pedestals (24” min).

1.3.7.2 Handicap Walkways: 36" between pedestals (38” max).

1.3.7.2.1 There shall be a minimum of one (1) handicap walkway provided for each grouping of the Mid-Sized Optical Turnstiles within the facility.

1.4 **Product Operation:**

1.4.1 Approaching the walkway, the pedestrian observes the red bar on the graphic display on the top of the pedestal indicating that the user present their card. Once the card is read and verified the access control system signals the Mid-Sized Optical Turnstiles to allow one individual to pass.

1.4.2 The graphic display flashes a green arrow in the direction that access has been granted. The individual can now pass through the walkway without generating an alarm condition. A low volume chime also prompts the pedestrian to proceed through the walkway after a valid card is read.

1.4.3 Should the access control system determine the card is invalid, a center bar on the graphic display shall illuminate red and the "proceed" chime shall be silenced. At this time, the pedestrian is unauthorized to enter the walkway. Should the pedestrian ignore the condition and pass through the walkway, an alarm is sounded within the pedestal and an alarm contact is activated for remote annunciation. The same audible and visual annunciation occurs if a pedestrian passes through the walkway without a card or attempts to follow a valid card user through the lane “tailgating". (An "auto reset" function within the system controller restores the walkway to normal use after a preset time period.)

1.4.4 After valid usage of the walkway, the graphic display changes from a green arrow to a red "use card" light.

1.4.5 In the case of bi-directional access control, operation of both card readers and the graphic displays are interfaced to insure single usage of the walkway at any one time. The system is capable of detecting tailgating (more than one pedestrian using the walkway for a single authorized entry) with persons following one another by twelve inches or more. Tailgating is annunciated in the same manner as other walkway violations.

1.4.6 In the case of single direction access control, pedestrians are free to exit the walkway anytime it is not being used by persons entering the walkway.

1.5 **Components**

1.5.1 Controller Module: The controller module for the Mid-Sized Optical Turnstiles product shall be microprocessor based and completely solid-state subassembly. Relay logic will not be acceptable. The output from the controller module subassembly shall be directly connected to the other product subassemblies. The controller module shall process data from the access control system and the optical sensors to determine validity of pedestrian travel through the walkway.

It shall control the operation of the graphic displays to provide audible and visual instructions on the use of the walkway and alarm indicators for violations. The controller module shall be installed within the pedestal, eliminating the need for external wiring, or cable assemblies between a remotely located controller and the walkways. Power connections to the controller shall be low voltage. This electronic subassembly shall be manufactured by the Mid-Sized Optical Turnstiles vendor.

1.5.1.2 Relay logic for the controller module is not acceptable.

1.5.1.3 Relay interface between the controller module and the Mid-Sized Optical Turnstiles walkways is not acceptable.

1.5.1.4 External wiring or cable assemblies between the controller module and the Mid-Sized Optical Turnstiles walkways is not acceptable.

1.5.2 The controller module shall have the following input/output requirements:

1.5.2.1 Input: Valid Card Momentary (<0.25 sec.) N/O dry contact from access control system.

1.5.2.2 Input: Remote Bypass Maintained/Momentary dry contact from access control system.

1.5.2.3 Output: N/O or N/C alarm contact status.

1.5.2.4 Output: N/O or N/C “A” passage complete contact status.

1.5.2.5 Output: N/O or N/C “B” passage complete contact status.

1.5.3 Graphic Displays: The graphic displays shall be backlit panels with independent graphical symbols for instruction and audible sounders. The panel surface shall be 1/8" thick smoked plexi material with silk screen graphics on the reverse side. The panels shall be opaque except when illuminated. The source of illumination shall be solid-state and of sufficient brightness to provide legible graphics in high light level areas. This electronic subassembly shall be manufactured by the Mid-Sized Optical Turnstile vendor.

1.5.4 Optical Sensor Unit: The optical sensor unit shall utilize active IR sensors to determine pedestrian presence and direction of travel through the walkway. This electronic subassembly shall be manufactured by the Mid-Sized Optical Turnstile vendor.

1.5.5 Component Location: All components required for optical turnstile operation (with exception of the low voltage transformer) shall be physically located within the pedestal.

1.6 Technical Specifications

1.6.1 Power requirements: 12 VDC, at 700 mA per walkway.
Transformer provided by optical turnstile vendor shall be installed in equipment closet within 100 feet of the optical turnstile walkway. Dedicated 120 VAC, 20 amp circuit.

1.6.2 **Wiring requirements:**

1.6.2.1 Power: 50 feet or less 14 gauge.
50 to 100 feet 12 gauge.

1.6.2.2 Signal: 50 to 200 feet 22 gauge.

1.6.2.3 **Access Control System:**

1.6.2.3.1 Card Readers: As required by access control system manufacturer.

1.6.2.3.2 Control Points: As required by access control system manufacturer.

1.6.3 The Mid-Sized Optical Turnstile product and all associated electronic subassemblies shall be manufactured in the USA.

1.6.4 The Mid-Sized Optical Turnstile product shall be a Designed Security, Inc. ES8500 Series.

1.7 **Additional Information:**
For additional information on the Designed Security, Inc. Mid-Sized Optical Turnstiles, please contact:

Designed Security, Inc. • 1402 Hawthorne Street • Bastrop, TX 78602 • 800-272-3555.