

**SECTION 11150
ENTRY GATES AND PARKING CONTROL SYSTEMS**

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS:

- A. Requirements of the General Conditions, DIVISION 1, are hereby made a part of this Section to the same extent as if repeated herein.
- B. The Contractor shall coordinate work with that of other trades affecting or affected by the work included under this Section and shall cooperate with such trades, the Testing Agency, the General Contractor to assure the steady and timely progress of the work.
- C. The Contractor agrees to accept the results of any tests secured by a qualified Testing Agency engaged by the Owner.
- D. Where referred to, Standard Specifications of technical societies, manufacturer's associations, and federal agencies shall be the latest edition and include all amendments current as of the date of issue of these Specifications.

1.2 RELATED DOCUMENTS

- A. Provisions established within the General and Supplementary General Conditions of the Contract, Division 1- General Requirements. End the Drawings are collectively applicable to this Section
- B. Section 16710: Access Systems
- C. Section 16700: Telecommunications System Cabling and Equipment
- D. Section 16000 Electrical

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of this Contract comprises general construction of **a parking structure** project, including associated site amenities and site development, for the Owner. **System shall be capable of being integrated into the existing city of Portland Park and Shop**

parking program. method of proposed integration shall be submitted with the bid.

1.4 WARRANTY

A. Furnish 5-year parts and labor warranty as part of Project Closeout documents. **Add alternate for yearly service contract.**

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver equipment in manufacturer's protective packaging.
- B. Store equipment in packaging to prevent soiling or physical damage.
- C. Handle equipment in manner to prevent damage to finished surfaces and operating mechanisms.
- D. Protect prefinished surfaces from damage or staining. Provide protective covering for equipment following installation until Date of Substantial Completion

1.6 CONTRACTOR RESONSIBILITIES

A. Contractor shall provide final design, furnish and install all materials, labor, tools, and equipment to install, activate and test, providing for the following complete and operational systems to be installed in the parking Garage:

- 1. Automotive barrier gates systems.
- 2. Parking revenue control system.
- 3. Access control systems for car related auto and pedestrian doors.
- 4. Intercom systems and audio discriminators system. (**limited to access control locations only**)
- 5. AVI systems for exterior roll-up security grilles.
- 6. Video surveillance monitoring and control system. (**At entrance/exit gates and lobby area only---4 cameras**)

B. Give required notices

C. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities that bear performance of Work, including all provisions of the

Occupational Safety and Health Administration, and including Article 1926.21 (Safety Training and Education).

D. Promptly submit written notice to Owner's Representative of observed variance of Contract Documents from legal requirements. Assume responsibility for Work known to be contrary to such requirements, without notice.

E. Arrange for delivery of product data, samples, manufacturer's instructions, and certificates to Owner's representative Arrange and pay for delivery to site in accordance with progress Schedule.

F. Arrange for replacement of damaged, defective, or missing items.

G. Arrange for manufacturer's field services; arrange for and deliver manufacturers warranties and bonds to Owner's Representative.

H. Review shop drawings, product data, samples, and other submittals. Submit as required with notification of any observed notification of any observed discrepancies of problems anticipated due to non-conformance with the Contract Documents.

I. Receive and unload products at site.

J. Handle products at site, including uncrating and storing.

K. Assemble, install, connect, adjust, and finish products in accordance with manufacturer's instructions.

L. Provide installation inspections required by public authorities.

N. Provide system(s) on-site training and setup assistance to operating staff (min 10 hours).

O. Repair or replace items damaged.

The work shall be designed in accordance with the Project Contract Drawings and Specifications to meet the Owner's requirements.

1.7 SYSTEM DESCRIPTION

GENERAL

1.0 TECHNICAL REQUIREMENTS

The parking facilities main garage Ingress and Egress is composed of One Entry Lane / One Exit Lane, and One

Reversible Lane at the main entrance and one entry and one exit lane at a secondary location, provide add alternate for third location for monthly pass holders. **Submit with the bid sample monthly reports for accounting, and managerial methodology for system. System to accommodate time limited shared use parking and the city of Portland's' "Park and Shop program".** It is the intention of that transient and monthly parking equipment hardware and software will function as an automated Pay-on-Foot Station setup.

B. General Scope of Work

1. The technology shall be an on-line, real-time, PARCS using ticket issuing machines, credit card readers, fee computers, and Pay-on-Foot machines based on magnetic stripe technology. Monthly access is to be accomplished by proximity access cards and readers technology. It is also mandated that bar code readers shall also be integrated at entry and exit points as well as at Pay-on-Foot machines and cashier registers in order to accommodate

Proposed barrier gates shall be torque driven motors with high speed Opening / Closing time of 1.4 to 1.9 seconds in order to speed up Ingress & Egress especially during events.

2. Contractor shall also be responsible for installing ground loops as part of the scope of work to be done.

3. All entry shall be equipped with push-button actuated ticket issuing machines with intercoms. The Access Card system shall have programmable anti-pass back capability. Back-outs shall generate an alarm, and tickets issued with a back-out shall be voided by the system. Tickets left in the throat of the ticket issuing machines shall be retrieved and stored after a programmable interval. Ticket issuing machines should also have the capability of accepting credit cards for credit card In / credit card Out functionality.

4. All public entries and exits shall be equipped with intercoms. They shall also be equipped with pre-programmed voice announcement kits to assist customers.

5. All of the exit lanes shall be equipped with exit verifiers (ticket gobblers). They should also have the capability of accepting credit card transactions for those customers who forget to process their tickets before exiting or who happen to exceed their grace period, and also for the use of credit card In / credit card Out functionality.

6. After-hours, the overhead doors to the main garage get closed down for security reasons. It is required as part of the parking equipment proposal to integrate a magnetic swipe reader and a proximity reader and related controllers to be supplied and installed which will open the side door during after hours. The magnetic-stripe reader will read the parking tickets and the Proximity reader is to read the monthly access cards and also send an open signal to the door.

It is also necessary to automatically open the overhead doors as soon as a vehicle tries to exit the garage. A vend signal has to be sent to the overhead doors at the same time as it is sent to the barrier gate.

7. All cashier stations with fee computers shall be able to accept cash or integrated credit card transactions based on issued tickets. They shall also have fee displays, thermal receipt printers, and cash drawers. The cashier stations shall also be able to process validated tickets as well as programmed chaser tickets and automatically apply the corresponding rates.

8. The automatic pay on foot stations shall be equipped with intercoms. They also must be able to process transient tickets, be capable of reading programmed chaser tickets, apply the corresponding rate, and accept payment in the form of cash or credit card. They then shall

encode the ticket as paid and allow enough of a lag time for the customer to exit the facility by inserting the ticket into one of the exit verifiers. They shall also be equipped with a thermal receipt printer in order to issue receipts on demand.

The pay on foot stations shall be capable of accepting four different notes, dollar, five, ten, and twenty-dollar bill. They should also be capable of **dispensing** coins as well as a minimum of two different notes, dollar, and five. **add alternate to include Canadian Currency in addition to that of the United States**

9. The Credit Card processing and approvals need to be integrated into the system and performed thru TCP/IP communication in order to speed up transactions and minimize the loss due to fraudulent activity. This integrated credit card processing should be utilized wherever possible, from the cashier stations, exit verifiers, pay on foot stations, as well as management terminals for monthly access, and debit card charges.

Software

The software provided with the PARCS shall be the parking control system manufacturer's standard software to the maximum extent possible. Software shall include the computer and network operating system(s) and programs for parking system management, database management, and report generation.

a. Parking system management software shall allow the system to monitor activity at pieces of equipment and the count system in real-time; manage and display tickets / access cards; control, track, and bill access card, debit card and credit card activity; track tickets; define user names, and passwords for computer security control.

b. Database management software and related hardware shall allow the system to store, and retrieve data for each transaction for up to five years.

c. The reports software shall be capable of displaying and printing a full range of parking management and statistical reports, including, but not limited to:

I. Cashiering reports showing the following information for each cashier shift:

- Starting cash, cash sales, refunds, deposits, credit card charges by card type and totals, and ending cash.
- The number of transactions and amount of revenue for parking fees, lost or manual tickets, and other fees and charges.
- The number of transactions and amount of revenue for cash sales, debits, value of validations and other payments.
- The number of transactions and the breakdown of tickets by dollar amount.
- Counts related to individual cashier shifts including starting and ending transaction numbers, the number of transactions, the number of tickets processed the number of void and no sale transactions.

II. Lane reports which show the total amount of transaction activity for a given lane on a daily and year-to-date basis, similar to the cashier reports but for a 24 Hour period and year-to-date.

III. Reports which show, on a daily and year-to-date basis, the activity on each prepaid or billable account including the account name and number, the number of transactions and the amount of revenue to be debited/collected and any balance in the account.

IV. Entering and exiting statistics reports showing the number of vehicles, which have entered and exited in each lane and throughout the facility on a daily and year-to-date basis.

V. Analysis reports. The PARCS shall be capable of analyzing and summarizing all of the cashier, lane and daily statistical reports for a programmable date and time range and display such information in a report format.

VI. Accounts reports shall list information on prepaid or billable accounts and access cards including contact information, and shall permit password authorized changes to the account information with a report of the date and time the contact information was changed and who made the change.

PARCS Equipment Summary

Garage

Manufacturer Model # / Equipment Description	Quantity
Entry Lanes	
Mag-Strip Ticket Dispenser with Credit Card / Intercom & Voice Assist Kit	3
Bar Code Reader	3
Proximity Access Reader	3
High Speed Barrier Gate	3
Articulating Gate Arm	3
Dual Channel Loop Detector	3
Exit Lanes	
Mag-Strip Exit Verifier with Credit Card / Intercom & Voice Assist Kit	3
Bar Code Reader	3
Proximity Access Reader	3
High Speed Barrier Gate	3
Articulating Gate Arm	3
Dual Channel Loop Detector	3
Side Door	
Proximity Reader	2
Mag Stripe Ticket Reader	2
Door Controller	2
Misc.	
Ground Loops	16
Necessary Lane Controllers / Conduits / Electric & Communication Wiring	N/A
PAY-ON-FOOT Machines	2

Parking Office

Manufacturer Model # / Equipment Description	Quantity
Central Cashier Station	
Cashier Station with Credit Card	1

Bar Code Reader	1
Management Server	
Computer Server	1
17" LCD Display	4
Laser Printer	1
UPS Power Supply	1
Management Software	
Ticket Tracking Software	1
Monthly Access Software	1
Debit Card Software	1
Credit Card In / Out	1
Accounts Receivable Software	1
Bill-Back Validation Software	1
Chaser Ticket Software	1
On-Line Credit Card Processing Software	1
Count Monitoring Software	1
Misc.	
Master Intercom Station	1

G. Training

Before acceptance, the Contractor shall train parking management personnel and employees in the use of the system, including how to use all parking system equipment, data base management and report generation software, the cashier and supervisor functions and capabilities, and the use of audit functions. Contractor shall submit a schedule for training to parking management for approval one month prior to the start of acceptance testing. The Contractor shall budget at least eighty hours of training time over a one-month period, followed by another twenty hours of refresher training to be

A. Access Control

1. Contractor shall furnish and install all materials, labor, tools and equipment to install, connect and test to provide a complete electronic access control system consisting of central management console, control panel(s), power supplies, interface boards and devices, door position sensors or contacts, REX (request to Exit) motion sensors and/or mechanical switches (as required by code), proximity card readers

isolation relays, cabling, software, and hardware necessary to connect to and allow for the operation of the access control system. **The control, viewing and management stations for garage systems will be built and operated independently of the access and security systems for the retail building and be housed in, and operated from the garage management office.**

2. All electronic door holding mechanisms i.e. strikes, magnetic locks, etc. will be supplied and installed by the contractor supplying door hardware. Access control contractor is required to make all final low voltage connections to ALL electronic, access control, door hardware. This will include access to the pedestrian lobby.

3. Contractor shall also furnish the number of system access cards to be specified by the Owner's Representative for initial startup (min 500).

4. All power supplies and wiring shall conform to manufacturer's specifications including the use of shielded cables for card readers as required.

5. Insure that all door-controlling devices allow for exit as required by fire codes even in the event of power failure. Electric door strikes on all doors shall be FAIL SAFE and not sensor installed as well as an emergency release button. Where a fire alarm system is present and where required by local code, the access control system shall interface with the fire alarm system so that all exit doors, will automatically unlock in the event of fire alarm system activation.

6. Isolation relays shall be used in the main APC to protect the main APC circuit board from damage from spikes or power surges from mag locks or electronic strikes.

7. Back up rechargeable batteries and automatic charging circuit with appropriate metal enclosures shall be installed and have adequate amperage reserve to operate the system (exclusive of the computer) for a period of not less than 24 hours.

8. Card readers shall be of the proximity type. Mag stripe readers are not to be used.

9. The Software shall be installed and up to 4 hours of training on the use of the system shall be provided to the owner or the owners designated representative.

10. The software shall be by Galaxy or Lenel or industry standard equivalent approved by the Owners

representative and shall be Windows 2000 or XP compatible and support dial-up and TCP/IP communications to controllers and operating PC. It shall provide at least 16 fields per cardholder including 4 user-defined fields. It shall provide a comprehensive report facility with audit trail.

11. Proximity cards shall be numbered and easily added or deleted from the system.

12. Programming of the system to operate all connected door locking and holding devices as well as release devices, fire alarm system, or other specified interactive devices, shall be included.

13. Programming of user access level groups and holiday schedules shall be included.

14. Two (2), 4-hour system training sessions for the leasing and maintenance staff shall be included.

15. Access control MGMT software and console will to be integrated with video surveillance system mgmt, to produce one centralized point of control, review and reporting of both systems.

16. General contractor will be responsible for providing required conduits and pathways for the Access control systems. Contractor is required conduits and pathways for the Access control systems. Contractor is required to define conduit and pathway requirements for the General contractor.

B. Barrier Gate and Revenue Control Systems

1. Contractor shall furnish and install all materials, labor, tools, and equipment to install, connect, and test, providing a complete and operational Barrier Gate Entry and Revenue Control Systems consisting of but not limited to:

- (i) AVI readers and a minimum of 500 AVI tags
- (ii) Barrier gates with illuminated lift arms or articulated arm if the headroom constraints dictate.
- (iii) Entry ticket dispensers
- (iv) Exit terminals
- (v) Two pay on foot machines for cash and credit card utilization. POF machines shall include alarm monitoring for vandalism, low tickets, reader failure, banknote failure, etc.
- (vi) Exit cashier terminal

- (vii) Operating CPU central server
- (viii) Facility management software
- (ix) All network and cabling
- (x) Loop detection systems
- (xi) Gate closing safety devices
- (xii) All equipment shall be capable of Credit card processing. All Credit card processing shall be "on real time" processing including transaction shall not exceed 4 seconds.

2. The general contractor shall be responsible for providing the required conduits pathways for Access control systems. This contractor is required to define conduit and pathway requirements for the general contractor.

3. Contractor is required to coordinate their work with the other contractors including access control, overhead door, electrical, security, and CCTV.

4. Contractor shall supply all mounting devices and electronics required to complete installation of the POS system into the garage operation office.

5. The software shall be installed and up to 10 hours of training on the use of the system shall be provided to the Owner.

6. Contractor shall supply 3 year warranty on all systems parts and labor.

C. Video Surveillance:

1. Cameras to be dome style with the following minimum specifications:
 - i. Image format: 1/3" color high resolution, CCD
 - ii. S/N ratio better than 51 dB
 - iii. Electronic iris: 1/50-1/100,000 sec
 - iv. Resolution; 480 TV lines
 - v. Light sensitivity .15 lux @ F2.0
 - vi. Lens 5-50 mm manual vari-focal auto-iris(location dependant)
 - vii. Warranty 3 years

viii. All cameras shall have environmental housing for exterior applications

2. Video recording devices shall be digital (DVR) with the following minimum functions: IP enabled, one input for each camera , minimum storage capacity of 750Gb of video storage, video authentication, automatic failover, active detection, dry contact alarm inputs, continuous recording, alarm recording, scheduled recording, on-demand recording.
3. The control/viewing station located in the garage office will contain a minimum of 4 -19 inch flat panel color monitors. Monitors (1&2) will be programmed to normally sequence through all cameras. Monitor (3) will display the integrated systems management and control alarms. Monitor (4) will display a single cameras activity as directed by the operator or automated alarm function ie motion detection, activity detection.....
4. Installation of the communications system shall be coordinated with the installation of other related systems.

D Intercom systems

1. The purpose of the building security intercom system is to provide clear two way remote reply intercommunication between personnel in the control center and customers or visitors at doors, controlled access areas, in elevator vestibules, parking areas etc. The system shall provide a means to efficiently control the movement of people between controlled access areas, provide a means to communicate to designated stairwell landings for routine and emergency situations; allow for emergency calling from designated locations and provide voice paging to specific areas.
2. The system shall include all necessary power supplies, master control stations, substations, speakers, mounting boxes terminal boards ,

cables, connectors, equipment and accessories for a complete operational system.

3. The system shall be a digital direct-selection type with an individual push button and LED annunciator, on the master consoles, for each substation in the system. Shall also include direct select electronic buttons and LED's for all functions including all-call and line system tests.
4. The system shall be microprocessor digital controlled with cable between master and substations. The system shall allow for hands-free, remote reply at the receiving stations.
5. A complete operational system shall be provided. Intercom locations will be as located on the electrical drawings; a minimum of two on each garage level, one at each stairwell on each level, at each door, at the vehicle entrance, in the lobby, at each access/ egress gate, allow for an additional 3 locations to be situated around the perimeter of the structure at grade level.
6. Master control station shall be rack mounted into the security control and communication consoles in the parking office.
7. The appropriate number of power supply, MDF connection blocks, page adaptors, interfaces, multiple master connection units, and accessories shall be mounted in a secure area in the electrical or telecommunication room.
8. All stations will be tamper resistant and weather protected and flush mounted.
9. Intercoms to be push to talk shall be located as required by code.
10. Intercom control unit shall be located in the parking office.
11. All intercoms shall include audio discriminator functionality.
12. Installation of the communication system shall be coordinated with the installation of other related systems such as the access control, CCTV, and Alarm systems.

1.8 Submittals

1. Submit under the provisions of the General conditions and Submittals section.
2. submit all request for substitutions in accordance with the General conditions
3. Shop Drawings
4. single line drawings of the actual system, complete wiring diagrams
5. Manufacturer's original catalog data and descriptive information on each piece of equipment to be used.
6. Quality Assurance and Control program
7. Closeout Documentation—the contractor shall supply three sets maintenance and operations manuals for each of the major components of the system.

Part 2 Products

2.1 Manufacturers

1. Parking control and revenue control Systems; SKIDATA, AMANO, WESTECH, TRAKKER or approved equal
2. Access control system; Galaxy Control, Lenel or an approved equal
3. Intercom system and audio discriminators system: Zenitel or an approved equal.
4. AVI system: Transcore or approved equal
5. Video Surveillance monitoring and control system: Silent Witness, Sony, Loronix, Pelco, American Dynamics or an approved equal.

Part 3 Execution

3.1 Installation

1. System shall be designed manufactured , tested and installed in accordance with NFPA 70 (national electrical code), state codes, local codes, requirements of authorities having jurisdiction and in particular

International Building code 2006
NFPA 101 (life safety code)
American with Disabilities Act
Manufacturer's requirements
Standard industry practices

2. Provide a factory trained representative to perform final testing of the system and to train Owner or Owner's representative in the use of the system.
3. Contractor will be responsible for placing or coordinating any required conduit and or power service needed for the installation of the system.