REQUEST FOR PROPOSAL
RFP # 191011002001

PARKING ACCESS AND REVENUE CONTROL SYSTEM (PARCS)

CITY OF HENDERSONVILLE, NORTH CAROLINA

July 22, 2022

Due Date & Time:	**Friday, August 26, 2022 @ 3pm ET**
Mailed Delivery Address:	**Brian Pahle** **Assistant City Manager** **160 Sixth Avenue East** **Hendersonville, NC 28792**
With an electronic copy via email to:	**BPahle@hvlnc.gov** **GPosluszny@WalkerConsultants.com**
Mandatory Pre-Proposal Conference:	**Monday, August 1, 2022 @ 10 am ET** **Virtual Conference Call**
RFP Advertised on websites of:	**City of Hendersonville, North Carolina** **North Carolina Interactive Purchasing System (IPS)** **North Carolina Department of Administration** **Historically Underutilized Businesses (HUB)**

PROPOSAL FORM

Mr. Brian Pahle
Assistant City Manager
City of Hendersonville
160 Sixth Avenue East
Hendersonville, NC 28792

Dear Mr. Pahle:

In accordance with the City's Request for Proposals ("RFP") # 191011002001 dated July 22, 2022, the undersigned (“Proposer”) hereby submits its proposal (“Proposal”) for Parking Access and Revenue Control System (“PARCS”) equipment (as defined in the RFP) to the City of Hendersonville, North Carolina.

I. CONTRACT PRICE

The Proposer, having examined the Request for Proposal documents including the drawings and specifications sections, and having attended the Pre-Proposal conference, hereby offers to provide the Parking Access and Revenue Control System (“PARCS”) for the prices stated on the attached Proposal Price Tabulation Form (Appendix A) as to both the Base Price and each Alternate that may be selected by the City. The prices stated include profit, overhead, and represent the entire price for the work stated, and recurring and/or ongoing fees are clearly stated in the price proposal form.

II. COMPLIANCE WITH SPECIFICATIONS

The Parking Access and Revenue Control System (“PARCS”) system shall comply with all specifications and requirements of the RFP as stated on the attached Specifications Compliance Form (Appendix B) as modified by any clarifications, exceptions, comments, substitutions, or add-value propositions stated on such form.

III. OTHER SUBMITTALS

The undersigned submits with this Proposal the other information that is required to be submitted by Specification Sections 001116 and 111233 and certifies that such information is true and correct in all respects.

The undersigned has emailed a copy of this proposal, including all submittals required on or before the submission deadline, to:

1. Brian Pahle, BPahle@hvlnc.gov
2. Geoffrey Posluszny, GPosluszny@WalkerConsultants.com

IV. NO COLLUSION AFFIDAVIT

In submitting this Proposal, Proposer hereby declares that the only person or persons interested in this Proposal as principal or principals is or are named herein and that no person other than herein mentioned has any interest in this Proposal or in the Purchase Agreement that would be entered into

with the City if this Proposal is accepted; that this Proposal is made without connection with any other person, company or parties making a Proposal; and that it is in all respects presented in good faith without collusion or fraud. Proposer represents to the City that, except as may be disclosed in an Addendum hereto, no director, officer, employee, or agent of City currently has any interest, either directly or indirectly, in the business of the Proposer, and that no director, officer, employee or agent of the City shall have any such interest at any time during the term of the Purchase Agreement should it be awarded to the Proposer.

V. ACKNOWLEDGMENT OF RFP TERMS AS AMENDED BY ADDENDA

The Proposer further declares that it has fully examined and understands the Request for Proposal documents dated July 22, 2022, relative to the PARCS RFP, has attended the Pre-Proposal conference, and has read and understands all the Addenda furnished prior to the opening of proposals, as acknowledged below, and that the Proposer has satisfied itself as to the requirements of, procedures regarding, and rights to be potentially awarded pursuant to the RFP.

Acknowledgment is hereby made of receipt of the following Addenda since issuance of the RFP.

Addendum #	Date
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

If any of the language or information in this Proposal conflicts with the RFP or any of the documents furnished with the RFP, the language of the RFP or of the applicable document shall govern.

VI. TIME FOR ACCEPTANCE

This Proposal shall remain a firm offer for 90 days after the scheduled proposal closing time and shall remain binding during such time, and if this Proposal is accepted by the City within this period, the Proposer will work in good faith to negotiate and execute a written agreement with the City within this 90-day period. The undersigned further agrees that if this Proposal is accepted, the City is under no obligation to utilize the proposer's standard agreement.

The undersigned further agrees to begin the work within ten (10) business days of executed contract and will pursue the work with an adequate work force to satisfactorily perform the work for the entirety of the Contract term.

THIS AREA INTENTIONALLY LEFT BLANK.

VII. VERIFICATION AND CERTIFICATION OF AUTHENTICITY/AUTHORITY OF PROPOSAL

Submission of this Proposal is the duly authorized official act of the Proposer, and the person executing this Proposal on behalf of Proposer is duly authorized and designated to execute this Proposal on behalf of and as the official act of Proposer, this _____ day of_____, 2022.

Name: _____ Title: _____

Email: _____ Phone: _____

Company: _____ NC Tax ID #: _____

Address: _____ City/State/Zip: _____

Proposer: _____
(Signature)

Sworn to or subscribed before me, this the _____ day of _____, 2022.

(Official Seal Below)

Notary Public: _____
(Signature)

Printed Name: _____

SECTION 001116

INSTRUCTIONS TO PROPOSER

1. PROJECT IDENTIFICATION AND DEFINITIONS

A. Project is in the City of Hendersonville, North Carolina Downtown District.

B. Owner is:

The City of Hendersonville
160 Sixth Avenue East
Hendersonville, NC 28792

C. Owner's Consultant is:

Walker Consultants
3545 Whitehall Park Drive, Suite 425
Charlotte, NC 28273

D. The City of Hendersonville may be referred to as ("City") or ("Owner").

E. The Project is the furnishing, installation, and configuration of Parking Access and Revenue Control System (PARCS) equipment for the City's new parking structure currently under construction. Construction is estimated to be completed by the end of 2022 with an opening date tentatively scheduled for January 2023. The PARCS system will be fully integrated with the City's current iParq solution and ParkMobile application.

F. The selected vendor's proposal including any negotiated documents will be provided to Edifice, the current CMAR for the parking structure. Installation of the new PARCS will become integrated with the current construction schedule and will be overseen by Edifice.

G. All communication concerning this RFP must be communicated through the owner's Consultant. No direct communication with the City of Hendersonville, NC or its employees or staff pertaining to the RFP will be allowed. All communication shall be via email to: Geoffrey Posluszny, Walker Consultants @ GPosluszny@WalkerConsultants.com.

H. Proposals are due by 3:00 pm, Friday, August 26, 2022

2. PROPOSAL SCHEDULE:

A. RFP Released: Friday, July 22, 2022

B. Mandatory Pre-proposal Conference: **Monday, August 1, 2022 @ 10 am ET**

C. Questions Deadline: **Wednesday, August 3, 2022**

D. Questions Answered: Friday, August 5, 2022

E. Proposals Due: **Friday, August 26, 2022**

3. DOCUMENTS

A. Proposal Form, Instructions to Proposers, Project Specifications, Price Form (Appendix A), and Specification Compliance Form (Appendix B), and drawings are attached.

B. Neither Owner nor Owner's Consultant assume any responsibility for errors or misinterpretations resulting from use of incomplete sets of RFP Documents.

C. Owner and Owner's Consultant, in making copies of RFP Documents available, do so only for purpose of obtaining Proposals on Work and do not confer license or grant for any other use.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITES

A. Proposers shall carefully examine contract documents and installation locations to obtain first-hand knowledge of existing conditions. No subsequent extras will be allowed due to any claim of lack of knowledge for conditions which can be determined by examining site and contract documents.

B. Submission of Proposal constitutes warranty that:

1. Proposer and any subcontractors intended to be used have carefully and thoroughly reviewed Contract Documents and have found them complete and free from ambiguities and sufficient for purposes intended.
2. Proposer and all workers, employees, and subcontractors it intends to use are skilled and experienced in type of construction represented by RFP and Contract Documents,
3. Neither Proposer nor any of its employees, agents, suppliers, or subcontractors have relied on any verbal representations from Owner, Owner's Consultant, or any of their employees.
4. Proposal is based solely on Contract Documents, including properly issued written Addenda, and not upon any other representation.

5. MANDATORY PRE-PROPOSAL CONFERENCE

A. A mandatory pre-proposal conference to discuss the project will be held via web conference on **Monday, August 1, 2022, at 10:00 am**. Participation in person will not be allowed.

B. The Owner reserves the right to disqualify any party that does not have an officer or representative present at the pre-proposal conference.

C. Qualified Offerors wishing to attend the pre-proposal conference should communicate their intentions, via e-mail, by **3 PM ET Friday July 29, 2022**, to Geoffrey Posluszny, Walker Consultants @ GPosluszny@WalkerConsultants.com

1. Include the **name and email address for all attendees from each company**. **Virtual Meeting invitations will be sent to all interested parties.**
2. Subcontractors are invited to attend the pre-proposal conference.
3. Attendees may also e-mail advance questions, which may be addressed during the pre-proposal meeting.

4. All information provided at the pre-proposal conference, which is not already in the bid documents, will be disseminated by an addendum.

6. RESOLUTION OF DISCREPANCIES, QUESTIONS AND AMBIGUITIES

A. All questions about meaning or intent of RFP shall be submitted via email marked as high importance and with a "read receipt" requested no later than **3 PM ET on Wednesday, August 3, 2022**, to Geoffrey Posluszny, Walker Consultants @ GPosluszny@WalkerConsultants.com

1. Questions received after that date will not be considered or answered. Only answers contained in formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
2. Questions and their responses will be issued by Addendum and emailed to all parties that attend the mandatory Pre-Proposal Conference.
3. Addenda will also be posted on the City's website www.HendersonvilleNC.Gov.

B. Acknowledgement of all Addendum issued during proposal period shall be included in Proposal and shall become part of the Contract Documents. In case any Proposer fails to acknowledge receipt of any such Addendum in the space provided in the Proposal Form, its proposal will be considered as non-responsive, and will be rejected. No interpretation or correction of this RFP shall be binding unless it is stated in a written addendum.

C. The Owner shall not be responsible for any oral representation or interpretations.

7. PRICE BASIS FOR PROPOSALS

A. The price and specification compliance forms must be completed and submitted with proposal. Both spreadsheets should also be submitted in the original Excel format.

B. Entire Proposal shall be without interlineation, alteration, or erasure.

8. HISTORICALLY UNDERUTILIZED BUSINESS ENTERPRISES

A. The Owner is committed to the intentional utilization of Historically Underutilized Business ("HUB") Enterprises on all construction projects. In keeping with this commitment, the Owner encourages participation from firms that are either minority firms or who have a minority partner. In addition to the use of a minority partner, if any, the Owner encourages the use of Minority and Women Owned Business Enterprises ("MWBE") for this anticipated project.

9. INDEMNITY AND INSURANCE REQUIREMENTS

Indemnity and insurance requirements are set forth in the form contract provided with this RFP.

Prior to commencing Work, the successful Contractor will be required to deliver a Certificate of Insurance evidencing the required coverage, which is stated in the bid documents.

10. PREPARATION OF PROPOSALS

A. Proposers must mail, or hand deliver one (1) original and three (3) hard copies of their proposals, plus one electronic version on USB drive prior to **3 pm, Friday, August 26, 2022,** to:

City of Hendersonville
RFP # **191011002001**
Attention: Brian Pahle
160 Sixth Avenue East, Second Floor
Hendersonville, NC 28792

Proposals that are received by the city after that date and time will not be considered, even if posted in the mail or deposited with a carrier for delivery prior to that date and time. Proposals should be enclosed is a sealed envelope marked **"RFP # 191011002001".**

B. Send the electronic version by that date and time via email marked as high importance and with a "read receipt" requested to:

1. Brian Pahle, BPahle@hvlnc.gov
2. Geoffrey Posluszny, GPosluszny@WalkerConsultants.com

C. Complete electronic proposal shall be in .PDF format with Price Form provided in Excel ® format.

D. Proposals must be made in form given in these RFP documents and should include a fully completed Appendix A, Appendix B, and all required submittals. Proposer must sign proposal giving full name and business address in the presence of a notary public.

E. Proposals must include proposer's standard contract or purchase agreement along with any software license contracts. Acceptance of a proposal by a proposer should not be interpreted as the City's agreement to sign any proposer's standard agreement without modification. Final agreement terms will be negotiated with the apparent successful proposer.

11. SUBCONTRACTOR LISTING

A. If Owner or Owner's Consultant, after due investigation, has reasonable objection to any proposed subcontractor, other person, or organization, either may request apparent successful proposer to submit acceptable substitute before giving notice of award. No Contractor will be required to employ any Subcontractor, other person, or organization against whom it has reasonable objection.

12. GOVERNING LAWS AND REGULATIONS

A. Each proposer agrees that it shall not discriminate on the basis of race, gender, religion, national origin, age, or disability in the solicitation, selection, hiring, or treatment of employees, subcontractors, vendors, or suppliers in connection with its proposal or any resulting agreement, nor shall the proposer retaliate against any person or entity for reporting instances of such discrimination.

B. In submitting its Proposal, Proposer declares that the only person or persons interested in the Proposal as principal or principals is or are named in the proposal and that no person other than therein mentioned has any interest in the Proposal or in the PARCS and Network Installation Purchase Agreement that would be entered into with the Owner if the Proposal is accepted; that the Proposal is made without connection with any other person, company or parties making a Proposal; and that it is in all respects presented in good faith without collusion or fraud. Proposer represents to the Owner that no director, officer, employee, or agent of the Owner currently has any interest, either directly or indirectly, in the business of the Proposer.

13. DISQUALIFICATION OF PROPOSERS

A. In evaluating Proposals and prior to award of contract, Owner shall consider qualifications of Proposers, and whether Proposals comply with prescribed requirements.

B. Owner or Owner's Consultant may conduct such investigations as it deems necessary to assist in evaluation of any Proposal and to establish responsibility, qualifications and financial ability of Proposers, proposed subcontractors and other persons and organizations to do work in accordance with Contract Documents to Owner's satisfaction within prescribed time.

C. Owner reserves right to reject any Proposal that does not pass any such evaluation to Owner's satisfaction.

14. EVALUATION CRITERIA

A. An evaluation committee comprised of representatives from three different Owner departments: Parking, Administration, and Information Technology; will evaluate all timely-received proposals. All proposals will first be evaluated for responsiveness, then responsibility. All responsive and responsible proposals will be evaluated on the following criteria:

1.	Proposed Solutions and Timeline	15%
2.	Experience and Qualifications of Manufacturer	25%
3.	Experience and Qualifications of Installer/Distributor	25%
4.	Proposed cost of system including initial cost and future costs	20%
5.	Maintenance Support and On-Demand Services	15%

B. The Owner may shortlist the proposers based upon responses to the above items. The Owner will notify each Proposer on the shortlist if such presentation is required. These presentations will provide an opportunity for the Proposers to respond to questions posed by the Evaluation Committee and to clarify their proposals through exhibition and discussion. The Owner will not reimburse for oral presentation or any other costs of any Proposer.

C. The award will be made to the Proposer that submits the best overall proposal as determined by the Owner based on the foregoing criteria.

D. Proposals shall not be subject to public inspection until a contract is awarded as specified in N.C.G.S. § 143-129.8.

15. TRADE SECRETS/CONFIDENTIALITY

A. Upon the award of a contract by the Owner, proposals are considered to be a public record except for material that a proposer identifies as confidential in the manner described below and that qualifies as "trade secret" information under N.C. Gen. Stat. 66-152 et seq., and except for material that is otherwise protected from disclosure under the North Carolina Public Records Act (N.C. Gen. Stat. Chapter 132). With the foregoing exceptions, upon the award of a contract, the contents of each proposal shall be subject to the right of the public to inspect and to obtain copies of such material under such Act whether or not the proposal has been accepted by the Owner.

B. To properly designate trade secret material as being confidential, proposers should submit such material in a separate, sealed envelope, marked "Trade Secret--Confidential and Proprietary Information--Do Not Disclose Except for the Purpose of Evaluating this Proposal," and should stamp the same trade secret/confidentiality designation on each page of the trade secret materials contained in the envelope.

C. In submitting a proposal, each proposer agrees that the Owner may reveal any trade secret materials contained in such response to all of the Owner's staff and officials of the Owner who are involved in the selection process, and to the Owner's consultant and any third parties who are hired or appointed by the Owner to assist in the evaluation process.

D. Each proposer agrees to indemnify and hold harmless the Owner and each of its officers, employees, and agents from all liability, damages and expenses, including reasonable attorneys' fees, incurred by any of them in connection with the Owner's refusal to disclose any material that the proposer has designated as a trade secret. A proposer's pricing shall not be considered a trade secret and shall be subject to public disclosure upon the presentation of a contract for consideration by the Owner's Board of Directors.

E. Any Proposer that claims trade secret or confidentiality protection for its entire Proposal will be disqualified.

16. AWARD OF CONTRACT

A. Owner reserves the right to reject all Proposals, to waive all informalities and to negotiate contract terms with successful Proposer, and right to disregard all nonconforming, nonresponsive, or conditional Proposals and to make award in any manner deemed in best interest of Owner.

B. If contract is to be awarded it will be awarded to Proposer whose Proposal and products indicate to Owner that award will be in best interests of the project.

C. The City of Hendersonville’s City Council shall make the final decision as to whether and to whom a contract shall be awarded. No contract shall be binding on the City until it has been approved by City Council and signed by the City of Hendersonville and the successful proposer.

END OF SECTION 001116

SECTION 111233

PARKING ACCESS AND REVENUE CONTROL SYSTEM (PARCS)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and DIVISION 01 Specifications Sections, apply to this Section.

1.2 REFERENCES

A. List of Abbreviations:

1.	ACS	Access Control System
2.	ADA	Americans With Disabilities Act
3.	API	Application Programming Interface
4.	AVI	Automatic Vehicle Identification
5.	DHCP	Dynamic Host Configuration Protocol
6.	DSS	Data Security Standards
7.	EMV	Europay, MasterCard and Visa
8.	ENS	Entry Station
9.	EXS	Exit Station
10.	FMS	Facility Management System
11.	ID	Identification
12.	LAT	Lane Acceptance Test
13.	MDF	Main Distribution Frame (Server room)
14.	NEMA	National Electrical Manufacturing Association
15.	NFC	Near Field Communication
16.	PARCS	Parking Access and Revenue Control System
17.	PCI	Payment Card Industry
18.	POF	Pay on Foot
19.	PROX	Proximity Reader or Card
20.	PMCS	Preventive Maintenance Checks and Services
21.	RAID	Redundant Array of Independent Disks
22.	RCS	Revenue Control System
23.	RMA	Return Merchandise Authorization
24.	SAT	System Acceptance Test
25.	TCP/IP	Transmission Control Protocol/Internet Protocol
26.	UL	Underwriters Laboratories, Inc.
27.	UPS	Uninterruptible Power Supply

1.3 SUMMARY

A. Section includes provision of all material, labor, equipment, services and training necessary to furnish and install fully integrated on-line, real-time Parking Access and Revenue Control System (PARCS) functioning as described herein.

B. Related Requirements:

1. Division 10 Section “Signage” for electronic signs and POF signs
2. Division 26 Section “Common Work Results for Electrical” for electrical requirements.

C. System Description

1. The Hendersonville Parking Garage is a new-build structure being designed as a single helix structure supplying approximately 250 spaces and is accessed by an entry/exit plaza on North Church Street and another entry/exit plaza on 5th Avenue West.

2. The new PARCS will include two (2) Entry/Exit Plazas and one (1) Pay-on-Foot (POF) kiosk in the 5th Avenue West elevator lobby. Conduits will be installed in the North Church Street elevator lobby for a future use POF if needed.

D. Usage Volumes: Transactions for subsystems are projected to reach the following annual volumes:

1. RCS: 20,000 transactions per year.
2. ACS: 200 cards in circulation; 60,000 transactions per year.

E. System Design:

1. FMS consisting of server, task or subsystem computers and workstations providing on-line monitoring and control of all PARCS devices. Through information generated by system reports, a complete FMS capable of:

   a. FMS including an API integration with IPARC software.
   b. Correlating RCS and ACS entries and exits with vehicles present.
   c. Reconciling time parked with revenue generated.
   d. Providing independent and consolidated occupancy and activity counts for both RCS and ACS systems.
   e. Monitoring all lane equipment.

2. ACS for regular (‘monthly’) parkers who prearrange parking and utilize proximity cards or AVI tags to enter and exit the facilities.

   a. AVI Tags are to be “hard puck” style, no window sticker or hangtag AVI credentials will be accepted.

3. RCS for ‘transient’ parkers who pull a ticket to enter and pay a fee to exit either in advance at the POF or at the exit via Credit Card.

   a. RCS including a validation system to reduce or eliminate fees.
   b. RCS including an API integration with ParkMobile and IPARC.

F. PARCS Including:

1. Two (2) entry lanes, each equipped with ENS, including:
   a. Ticket dispenser

1) Integrated Proximity Card Reader
2) Integrated Intercom Substation
3) Integrated QR/Barcode Scanner

b. Ceiling-Mounted AVI Reader
c. Automotive Barrier gate with inductive loops
d. Lot Full Sign

2. Two (2) exit lanes, each equipped with EXS, including:
   a. Ticket verifier
      1) Integrated EMV Credit Card Reader
         A) Mag-Stripe Reader
         B) Chip Reader
         C) Contactless NFC Reader (Card and Mobile Device)
      2) Integrated Proximity Card Reader
      3) Integrated Intercom Substation
      4) Integrated QR/Barcode Scanner
   b. Ceiling-Mounted AVI Reader
   c. Automotive Barrier gate with inductive loops
   d. Pedestrian Warning Sign

3. One POF located in the 5th Avenue West garage elevator lobby, equipped with:

   a. One (1) Cash (Bill and Coin) and Credit Card POF
      1) EMV Credit Card Reader
         A) Mag-Stripe Reader
         B) Chip Reader
         C) Contactless (Card and Mobile Device)
      2) Integrated Proximity Card Reader
      3) Integrated Intercom Substation
      4) Integrated QR/Barcode Reader

4. Server, Server Rack, UPS for Server Equipment, KVM, Network Equipment, intercom Server, and Firewall.

   a. Cloud-based Server is an acceptable alternative to on-site server.

5. Workstation with Monitor (min. 24”), Keyboard, Mouse, Staff Intercom Station, UPS, and Networked Laser Printer.

   a. Workstation to be located off-site; however, will be connected via Town Fiber Optic.

6. Remote Management software for both workstation and mobile device.

7. Open API integration with ParkMobile.

8. Open API integration with IPARC software.

9. Other Equipment/Locations per design drawings.

G. Work Included:

1. Review contract documents and specifications to be certain that all functional requirements, as described, can be achieved with equipment to be supplied.

2. Provide and install all PARCS equipment as described in this Specification.

3. Provide and install all software, ancillary components, and materials to provide a complete and functioning PARCS.
4. Coordinate with the Owner's design team on the design of infrastructure modifications necessary for the PARCS.
5. Review designs for power cabling from electrical rooms to each equipment location. Alert Owner of any different or additional requirements required by the PARCS.
6. Review designs for electrical and communication conduit from MDFs and electrical rooms to equipment locations.
7. Provide and install all communication cabling necessary from the MDF rooms to the PARCS equipment.
8. Provide and install any power conditioning that is required for the operation of the system.
9. Provide and install all ancillary electronics and communications equipment necessary for communication network related to the PARCS. Terminate and connect all communications cabling.
10. Prior to installation, coordinate and confirm with Owner all final and precise layout of equipment, signs, conduits, mounting locations, stubs, anchor bolts and other required hardware and components.
11. Install all Contractor-supplied equipment and provide interconnection with Owner supplied equipment, if any.
12. Test, adjust, and interface circuits prior to installation of equipment. Make all connections of wiring to components.
13. Authorize and accept responsibility for application of power to equipment and initiation of operation.
14. Run all initial diagnostics and system testing programs necessary to provide a complete working system.
15. Test equipment and participate in system commissioning as required.
16. Attend construction meetings, provide schedules as requested, and schedule fieldwork to be coordinated with facility operations.
17. Provide submittals as specified.
18. Provide as-built drawings, operating manuals, maintenance manuals, and training sessions as specified.
19. Provide warranty services as specified, and post-warranty maintenance services, if desired by Owner.
20. Obtain all permits, licenses and certificates, or any such approvals of plans or specifications as may be required by Federal, State and local laws, ordinances, rules and regulations, and compliant with the contract documents for the proper execution of the work specified herein.
21. Comply with all Federal, State and Local laws, ordinances, rules and regulations pertaining to the performance of the work specified herein and compliant with the contract documents.

H. Work Excluded

1. Provision and installation of electrical and communication conduit from MDFs and electrical rooms to equipment locations will be provided by Owner.
2. Provision and installation of electrical cabling from electrical rooms to equipment locations will be provided by Owner.

1.4 DESIGN CRITERIA

A. Accuracy: Provide the following minimum accuracy levels. Calculate accuracy by dividing the accurate counts/calculations by all counts/calculation.

1. Ticket reading: 99%
2. Fee calculation: 99%
3. Transaction counts: 99%
4. Exception counts: 99%
5. Revenue amounts: 99%
6. Data received and accepted by computer system as valid: 100%
7. Data transmission: Less than one message re-transmission per hour.

B. Equipment Construction: Design and construct all components and equipment with the following:

1. Durable vandal and weather resistant cabinets, which are able to maintain finish, look, integrity and functionality in the environment in which installed for a period of ten years.
    a. Mounting holes accessible only from inside of cabinets.
    b. Hinged cabinet doors that swing clear of bollards, walls, columns and any other obstructions.
    c. Modular internal components, to extent practical, for easy maintenance and replacement.
2. Corrosion resistant connection boxes for all wiring connections.
3. Control logic and communication capability as necessary and required herein.
4. Compatible communication ports for all communications and connections.
5. Crystal controlled time clock/calendar that is updated at least once daily by FMS and accurate to one minute per ninety days for all primary components.

C. User Interface: Design and construct the user interface with the following:

1. Ergonomically designed devices and user interface for ease of use by patrons.
2. POFs meet the latest ADA requirements, including but not limited to reach ranges, visibility of display screens, clear floor or ground space, and operable parts.

D. Communication:

1. All applicable components are microprocessor controlled, in on-line, virtual real-time communication with FMS via TCP/IP.

2. All transaction data sent to FMS immediately, with communications hierarchy appropriate to need for action or response from another component, feature or subsystem.
3. All transaction data is available to FMS workstations within one minute of completing transaction at any device. Delays or functional degradation resulting from data communication between devices over FMS network is not acceptable.
4. Each primary component communicates complete transaction log to FMS. In event of communication failure, devices continue to operate in off-line mode and store a minimum of 1,000 transactions, or have sufficient system redundancy, to insure availability of transaction data upon restoration of FMS. In event of failure during communication, an error-checking and recovery routine is employed to prevent corruption of data files.

E. Future System Expansion:

1. Readily expandable to accommodate additional parking facilities, features and configurations. Installed PARCS capable of expansions/enhancements listed below:

    a. Add additional lanes of PARCS
    b. Add POF machines to PARCS.
    c. Add FMS integration with off-site parking facilities or systems.
    d. Integration with Mobile Apps or Websites via API

1.5 PRICE AND PAYMENT REQUIREMENTS

A. Price includes the provision of all material, labor, equipment, and services necessary to furnish and install fully integrated PARCS as outlined herein.

1. Examine site and drawings.

    a. Identify in writing any constraints or conflicts regarding PARCS installation.
    b. Include cost, in writing, of rectifying such constraints or conflicts in Price Proposal.

B. Add Alternatives: Provide prices for the following Alternates on Price Form:

1. Maintenance and Service Contract after Warranty:
    a. A separate contract awarded for Maintenance and Service after expiration of the warranty.
    b. This Contract may be executed directly with a party designated and approved by manufacturer(s) to maintain and service PARCS equipment.
    c. Contract would commence with expiration of one-year warranty period.
    d. Provide annual pricing for five years.
    e. Provide pricing valid in year of contract anniversary. Should Owner decide to procure said contract extension, payment shall be due thirty (30) days prior to each contract anniversary and shall be invoiced and paid on a quarterly basis
2. Extended Parts Warranty:

a. A contract to extend the manufacturer's parts warranty after the expiration of the warranty.
b. Provide annual pricing for five years.
c. Provide pricing valid in year of contract anniversary. Should Owner decide to procure said contract extension, payment shall be due thirty (30) days prior to each contract anniversary and shall be invoiced and paid on a quarterly basis

3. Manufacturer's Recommended Spare Parts
   a. Provide pricing as described in submittal requirements listed later in this specification document.
4. One (1) Mass Validation Encoder attached to workstation.
5. On-line Validation Encoder on a singular unit order basis.
6. Off-line Validation Encoder on a singular unit order basis.

C. Progress Payments: See General and Supplementary Conditions.

D. Substantial Completion: A certificate of substantial completion will be provided (for each phase) when the following requirements have been satisfied:

1. All systems, features, and communications have passed the SAT per Section 3.3 of this document.
2. Certification of PCI compliance.
3. All spare parts, stock material and manuals are on site and have been approved.
4. All test checklists, documentation and training has been completed.

E. Final Acceptance: Final acceptance of each Phase will occur upon satisfactory completion of all work, tests, demonstrations and training specified herein as well as successful completion of thirty-day operational test.

1.6 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Distribute to the appropriate parties:

   a. Installation diagrams, details, and templates for setting mounted equipment.
   b. Templates and cast-in inserts to anchor freestanding equipment.
   c. Electrical wiring diagrams and details.
   d. Electrical requirements.

2. Coordinate final and precise layout of conduits, stubs, vehicle detectors, inductive loops, bollards, and anchor bolts with those responsible for installation.
3. Coordinate and assist General Contractor or appropriate party to assure PARCS will meet design intent specified herein and as shown on drawings.
4. Coordinate interfaces with any other systems by others, including but not limited to Local Area Network, Client's financial reporting system, security, and signage.
5. Coordinate data communication, internet, server location, and network requirements with Owner or Owner's IT Representative.

B. Pre-Installation Meeting: Conduct meeting at project site thirty (30) days in advance of time scheduled for work to proceed to review requirements and conditions that could interfere with successful PARCS performance. All parties concerned with PARCS installation, including electrical, communications, concrete work, or others who are required to coordinate work are required to attend. Include Owner or Owner's Representative. At a minimum, cover:

1. Electrical rough-in, equipment bases, and any other required preparatory work.
2. Review schedule.
3. Review testing and acceptance procedures.

C. Provide submittals in accordance with requirements of Division 01 Section, "Submittal Procedures:"

1. See requirements of Division 01 Section, "Submittal Procedures," Part 1 heading, "Submittal Procedures," for limits to resubmittals.
2. See requirements of Division 01 Section, "Submittal Procedures," Part 2 heading, "Requests for Information," for RFI constraints.

D. Resubmittals: Owner or Owner's representative will review each of Contractor's shop drawings and/or submittal data the initial time and, should resubmittal be required, one additional time to verify that reasons for resubmittal have been addressed by Contractor and corrections made. Circle all Resubmittal changes/revisions/corrections. Owner or Owner's representative will not be responsible for non-circled changes/ revisions/ corrections and additions. Should additional resubmittals be required, Contractor is responsible for all costs incurred, including the cost of any fees or services made necessary to review such additional resubmittals (to be reimbursed to Owner).

1.7 PROPOSAL SUBMITTALS - TO BE INCLUDED WITH RESPONSE

A. Price Form: Total PARCS cost and unit cost of each component.

1. Provide pricing for Add Alternates as described earlier in this specification document.

B. Product Data:

1. Product description for each component including the following:

a. Detail of user interface.
b. Operating temperature and humidity ranges.
c. Housing material and access panel location.
d. Mounting requirements.
e. Electric power requirements

2. Current integration with ParkMobile
   a. Describe in detail your functional and operation integrations with ParkMobile.
3. Description of the FMS software and hardware including the following:

a. Configuration diagram.
b. Software platforms and programming language.

c. Communication protocol, polling procedures and transaction message flow from peripheral devices to and through FMS.
d. Communication failure/error identification and recovery.
e. Fault tolerance.
f. Back-up procedures.
g. Data storage and retrieval procedures.

C. Exceptions and Substitutions:

1. Provide an all-inclusive list of all exceptions taken to any part or parts of this document.
2. Substitutions: It is recognized that there are variations in equipment between manufacturers. Where functional performance, features or quality of system varies materially from that specified, submit Request for Substitution form identifying substitution being proposed. This submittal may be accompanied by catalog sheets, brochures, and technical specifications of the proposed system.
3. Exceptions: Provide an all-inclusive list of any and all exceptions taken to any part or parts of this document (including substitutions).

D. List manufacturer of each primary component of system.

E. Manufacturer's Qualifications:

1. In continuous operations for previous five years.
2. Primary components installed in three or more parking facilities of similar size and complexity. Provide the following for each installation.

a. Name of project.
b. Location.
c. Contact name, telephone number and email address.
d. Date of installation.
e. Number of lanes.
f. Description of equipment and quantities.

F. Installer Qualifications:

1. Proven ability to install equipment and provide appropriate and required service and support after installation.
2. Continuously worked with equipment manufacturer, including providing installations and maintenance, for minimum of three years.
3. Approved in writing by PARCS manufacturer(s).
4. Documentation of manufacturer's installation training within previous two years.
5. Three comparable installations in parking facilities of similar size and complexity in past three years. Provide the following for each installation.

a. Name of project.
b. Location.
c. Contact name, telephone number and email address.
d. Date of installation.
e. Number of lanes.
f. Description of equipment and quantities.

6. Manufacturer approved service center located within two hours driving distance of site.

G. List of sub-contractors, identifying nature of work performed.

H. List of manufacturer's recommended spare parts specific to this installation, including:

1. Part name.
2. Part number.
3. Unit price.
4. Quantity.
5. Total Cost.

I. Warranty:

1. Submit copy of warranty and explanation of any instances which may impact warranty coverage.
2. Submit RMA procedures.

J. Add Alternates: Provide detailed descriptions, inclusions and exclusions of Add Alternates.

1.8 INFORMATIONAL AND CLOSEOUT SUBMITTALS

A. Shop Drawings:

1. Dimensioned drawings showing plans, elevations, sections and large-scale details indicating coordination and relationships with other construction.
2. Wiring diagrams detailing wiring for power, signal and control systems, and differentiating clearly between wiring installed by manufacturer, installer and others, such as electrical sub-contractor.
3. Detailed information about FMS software and associated hardware including:

a. Configuration diagram.
b. Software platforms and programming language.
c. Communication protocol, polling procedures and transaction message flow from peripheral devices to and through FMS.
d. Communication failure/error identification and recovery.
e. Fault tolerance.
f. Back-up procedures.
g. Data storage and retrieval.

B. Samples: Submit samples of tickets, reports, and other items to be selected by Owner within 30 days of contract.

C. Operating Documentation: Prior to initiation of field test and training, deliver two hard copies and one electronic copy of operations manuals, maintenance and administration manuals.

D. Copies of all licenses, registrations, documentation, disks and other media as may have been included with those commercially available software packages provided with system. In addition, ensure that all licenses, registrations and warranties have been transferred to Owner prior to final software turnover.

E. At least 30 days prior to scheduled training sessions, deliver a Training Plan. Include at a minimum, a description of all training courses including identification of instructional outcome, duration of course, and type of presentations.

F. Testing Plan and Documentation: Provide a test plan for review and approval by Owner or Owner's authorized representative 30 days prior to start of first test. Include demonstrations of compliance with specifications, contractual compliance, disaster recovery testing and documentation, definitions of all test objectives, participant responsibilities, documentation for tests, and procedures for dealing with failures during test. Provide checklist which details tests for every functional requirement of each entry and exit lane, specified supplies/spare parts, training, operating and maintenance manuals and provide space for signoffs by Offeror and/or Owner's authorized representative.

G. Spare Components: Deliver selected and purchased add alternate spare components, complete and ready to use, prior to commencement of operational testing and maintain inventory of spare components at this level as components are used during warranty period.

H. Stock: Furnish the following operating stock items prior to commencement of operational testing. Owner must approve color and artwork of tickets and ACS ID devices.

1. 20,000 RCS Tickets per ENS (or the equivalent in ticket rolls).
2. 10,000 RCS Receipt Tickets per EXS and POF (or the equivalent in receipt rolls).
3. 50 ACS Proximity Credentials
4. 300 ACS AVI Credentials – "Hard Puck"
5. One (1) spare banknote vault(s) per POF.
6. One (1) spare coin vault(s) per POF.
7. Gate Parts
    a. Fifty (50) breakaway arm connectors.
    b. Two (2) complete gate arm assemblies.

I. Lock and Key Requirements:

1. Keys

    a. Provide two (2) sets of keys for each unit of equipment with locks.
    b. All equipment of the same type has the same key and equipment of different types have different keys.
    c. Keys are unique to this project; other equipment supplied by the same manufacturer in the region uses different keys.
    d. POF keys have three levels of security:

        1) POF door.
        2) POF access to release each bill/coin vault.
        3) POF access into each vault.

4) Keys must be high security mechanical keys. No electronic or Web-Keys will be acceptable.

2. If a special tool is required to perform any function on the PARCS during the normal course of business and/or maintenance, provide three of these tools.

J. Contractor is responsible for all permits and licenses and compliance with all codes and regulations.

1.9 DELIVERY, STORAGE AND HANDLING

A. Assume care, custody and control of all PARCS equipment and components.

B. Replace damaged materials at no cost to Owner.

C. Deliver equipment to site in manufacturer's original containers to prevent damage and marked for easy identification.

D. Store equipment in original containers in clean, dry location.

E. Remove gate arms and cover lane equipment in areas with active construction to avoid damage. Reinstall prior to lane and system acceptance testing.

1.10 SITE CONDITIONS

A. Operate and function as intended under the local climate and weather conditions, including but not limited to temperature extremes, wind, salt, dust, and precipitation.

B. Islands at gated lanes must not be poured until stub ups and anchor bolts are properly placed and any conflicts with installation at each location are resolved.

C. Power and Wiring

1. Owner will provide and install power wiring and conduit to islands as shown on Drawings and as specified.
2. Provide and install all necessary device control wiring, communications wiring and additional power wiring required by system. Include special electrical power and grounding.
3. Provide surge protection devices at both ends of all non-fiber optic communication wiring longer than 25 feet.
4. Provide and install any power conditioning that is required for the operation of the system. Power provided for this Project is 120 VAC +/- 10% and 60 Hz from circuits dedicated to PARCS.
5. Provide and install all electronics and communications equipment for communication network. Terminate and connect all communications cabling.
6. Provide and install on-line, regulating computer grade UPS) for:

a. Servers, networking equipment, workstations, and task computers (system controllers) with 30 minutes of back-up battery power.

D. Fiber Optic (F/O) Cabling: Use fiber optic communications wiring for all Ethernet runs longer than 300 feet in accordance with the following:

1. Include pull boxes as shown on the drawings or per industry standards.
2. Provide a detailed parts list showing number and manufacturer, for all fiber backbone material. (F/O cable, Terminators, Patch Panels, Fiber Duplex Patch Cords, etc.)
3. Label all F/O components as per TIA/EIA-606. (Cables, Connectors, Hub facilities, Termination facilities, Conduits, and Pathways). All Drops are to be labeled.
4. Do not exceed minimum bend radius for all F/O cable.
5. Do not exceed allowable tensile rating for F/O cable during installation. If a winch or pulling machine is used, a dynamometer must be used to monitor tension.
6. F/O testing and certification of all runs is a requirement, per industry standards. Written test results of each test must be submitted to Owner or Owner's representative for review.

    a. End-to-End Attenuation testing.
    b. Optic Time Domain Reflectometer (OTDR) testing.

1.11 WARRANTY

A. General: Equipment and installation (100% parts and labor) for one year from date of final acceptance. System maintained and serviced against any and all malfunctions due to manufacturing or installation defects at no cost to Owner during warranty period, including preventive maintenance per manufacturer's recommendations or as necessary to keep equipment in good working order.

1. Warranty period commences after Offeror has demonstrated satisfactory performance of completed PARCS as specified in Section 3.3 of this document.
2. Maintain a log of all maintenance, preventive maintenance and repair work performed under warranty and provide to Owner or Owner's representative on monthly basis and at end of warranty period.

B. Warranty response period:

1. Monday through Friday, 8:00 am to 5:00 pm excluding holidays.
2. Response time from initiation of trouble call to on-site response by qualified service technician cannot exceed four (4) hours.

3. Repair or replace all defective or damaged items under warranty by end of the following calendar day on which notice was given.

C. If Contractor is not available, Designated Maintenance staff may affect repairs. Pre-qualify Maintenance staff to perform repairs and identify types of repair each trained individual is qualified to perform without impacting terms of warranty.

D. Replace items taken form spare parts inventory during warranty period at no additional cost to Owner.

E. Preventive Maintenance: Provide a schedule and task list for preventive maintenance services to be provided by on-site staff. Include maintenance services such as cleaning, lubricating, checking all connections, and to assure basic unit operations.

F. Install all software updates, patches and upgrades applicable to this system during warranty period at no additional cost.

PART 2 - PRODUCTS

2.1 FACILITY MANAGEMENT SYSTEM

A. User Interface:

1. Capable of operating across Local Area Network (LAN), accessible, with proper user ID and password, to all authorized users' workstations with installed FMS software modules on LAN.
2. Provide field programmable functions of each device from FMS (password protected), including rate structures (from FMS only), with all programming changes reported in daily log.
3. Maintain a secure connection while active, and automatically log-off after programmable period of inactivity.
4. Remote access to FMS over standard TCP/IP connection (may use web browser-based applications).
5. Browser-based user-interface modules utilize client/server technology or equivalent. The following general requirements apply to all components or modules:

    a. Windows-based graphical user interface.
    b. Allow for both standard and custom report formats.
    c. Adequate security to allow for different classifications of users.

B. Computer System:

1. Provide and install server/host computer in a lockable rack, off the ground and protected from dust and debris. Cloud-Based Server is an acceptable alternative.
2. Provide FMS servers, task computers, workstations and all ancillary equipment with sufficient power, capacity and communication bandwidth to meet functional performance demands of PARCS software without loss of responsiveness to user input or slowing of any end node device or workstation.
3. Provide separate workstation with monitor, keyboard, processor and printer in parking office.
4. Provide four (4) licenses and software for remote access to FMS on existing computers provided by Owner.
5. Provide four (4) licenses and software for remote access to FMS on mobile devices provided by Owner.
6. Meet performance recommendations of software vendor and accommodate for growth and expansion as specified herein without any specified function being slowed or delayed by performance of any other function or task.
7. System back up in less than three hours.

8. Report generation at a minimum of 35 pages per minute.

C. Data Storage:

1. Reside and operate on an ANSI SQL-compliant relational database server product.
2. Incorporate integrity controls to enforce three types of integrity:

    a. Entity integrity ensures no duplicate keys within a table and all non-null tables are populated.
    b. Relational integrity ensures no orphan keys, that all transactions properly deleted children entities, and properly modified adult references.
    c. Domain integrity ensures all attribute value ranges are enforced.

3. All transaction records including but not limited to RCS and ACS stored as actual data, not in report format.
4. Archive data in a format readable by report generator.
5. On-line data storage capacity to store a minimum of 24 months of system data.
6. Archive data automatically every six months with first archive after first 18 months, so that server always has most recent 12 months of data.

    a. Be on industry standard media such as DLTs.
    b. Be redundant.
    c. Archive or restore transaction database in less than one hour.
    d. Use redundant on-line storage such as Level 1 RAID Technology.

7. Either periodically or on demand, FMS downloads and sends electronically, revenue reports for integration into Owner's financial department via TCP/IP connection to designated computer network in Microsoft Excel or approved equivalent.

D. Licensing

1. Supply all required operating system and application software licenses in sufficient quantities to accommodate number of users and equipment in installed system.

E. Security

1. Utilize protocols and passwords that prevent unauthorized access to software and hardware and manipulation of data and reports, including individual transactions.
2. Include minimum of 4 levels of access authorization to all operational, administrative and reporting functions and provide the following security features:

    a. Define individual user and group-based security.
    b. Ability to assign a unique user ID and password for each person authorized to use system.
    c. Ability to establish an expiration period for passwords and periodically change that password for each authorized user ID.
    d. Ability to disable a user ID following successive log-on failures exceeding a specific limit.
    e. Ability to view and report user and group level security rights and create user-defined fields.

f. Ability to de-activate codes for former users and internal and external customers.

3. Password protected FMS subsystems to restrict access to individual functions of each subsystem:

a. Revenue Control System Monitoring, Control and Reporting.
b. Access Control System Monitoring, Control, and Reporting.
c. Occupancy Monitoring and Reporting.
d. Equipment Monitoring and Reporting.
e. Ad-Hoc Report Generator.

F. Occupancy Monitoring: Provide the following functions.

1. Every vehicular entry and exit lane will serve as a counting location, equipped with vehicle detection devices.

a. Each entering vehicle subtracts a count of one from number of available spaces.
b. Each exiting vehicle adds a count of one to number of available spaces.
c. Provide directional logic (e.g. a vehicle entering through an entrance lane or through an exit lane is counted as an inbound vehicle).

2. Track and display the number of available parking spaces on computer monitor(s).
3. Provide anti-coincidence packages to accurately monitor entering and exiting vehicles that occur simultaneously.
4. Provide two programmable thresholds for each parking area:

a. One threshold to trigger "full status". When full status is reached count-system operates in one of two modes, selectable by user.

I) Mode one signals an alarm and relies on human intervention to activate appropriate dynamic signs and gate status changes.
II) Mode two automatically activates appropriate dynamic signs and gate status changes but allows for manual overriding of "full status".

b. Second threshold triggers "open status". The two operating modes described above also apply to “open status” threshold.

5. Ability to automatically disable ticket dispensing function when facility is full but allows for manual override.
6. Ability to activate any and all electronic signs, individually controlling each facility or zone within a facility, including "FULL" signs and lane control lights provided by PARCS Contractor, as well as "FULL" or capacity signs provided by others.
7. Ability to maintain and display separate counts for each facility or zone within a facility, each with total occupancy or spaces available, total RCS and ACS occupancy and total RCS and ACS spaces available.
8. Ability to maintain for each entry and exit lane:

a. Non-resettable counters tracking monthly, transient and total parking patron usage.
b. Counts of illegal/opposite direction entry/exit for each lane.
c. Vends, vehicle detector and gate counts.

9. Ability to store lane, facility and zone counts at hourly intervals in daily files for specialized reports to analyze lot utilization and activity levels.
10. Transaction Counts: Provide, display and compare separate counts related to each lane:

a. At entry lanes: Ticket dispenser count plus ACS count compares with directional lane count and gate count.
b. At exit lanes: Exit verifier transactions plus ACS count compares with directional lane count and gate count.

G. Equipment Monitoring: Provide the following functions.

1. Monitor operational status of all entry and exit lanes and POFs.
2. Warning alarms displayed and tracked through FMS for the following conditions:

a. Lane status; open or closed.
b. Gate failure.
c. Gate up.
d. Low-ticket supply.
e. Ticket in throat.
f. Illegal entry or exit (reverse direction through lane).
g. Back-out ticket.
h. Ticket jam.
i. Vehicle detected in lane for longer than 30 seconds without initiating transaction.
j. Count status.
k. Passback violation.
l. POF tampering.
m. POF door status, open or closed.
n. POF receipt paper status.
o. POF note vault status.
p. POF coin vault status.

3. Visual and audible abnormal status alarms at each computer workstation.
4. When an alarm is turned off, visual and audible signals stop at all workstations.
5. A daily log report identifying all system alarms.
6. Monitor electrical circuits and frequency of operational errors in components to identify maintenance actions to prevent failure of a component.

2.2 REVENUE CONTROL SYSTEM (RCS):

A. FMS Interface: Provide the following functions in concert with the FMS.

1. Remote programming of all devices that process RCS transactions.
2. Testing of fee structure against existing facility usage statistics.

3. Uploading and consolidating reports from all devices processing RCS transactions.
4. Retrieval and review of all transactions based on user-defined parameters.

B. Reports: Provide the following reports which can be displayed on a monitor, printed on a printer, converted to an ASCII file and are sortable chronologically and by shift or lane.

1. Daily Event Log - A listing of changes to system and users who made changes, including print communication messages, facility lane equipment alarms, remote gate opening, and system log on/offs.
2. Daily Transaction Report – A daily summary of all transactions processed at each POF, including entry time, transaction time, payment amount and type.
3. Field sortable entry lane counts (equipment “vend” for ENS, ACS, gate, activation loop, and closing loop counts.
4. Field sortable exit lane count totals (equipment "vend" for EXS, ACS, gate, activation loop, and closing loop counts).
5. Revenue Alarms Report – Provide report to include at a minimum remote gate vends and manual gate open counts.
6. Monthly Lane Volume Report - Provide entry and exit counts by date. This report is used for management planning and statistical information.
7. Monthly Duration Report - Provide duration of stay based on patrons' elapsed parking time and patron time of entry. This report is utilized in rate structure and facility usage analysis, management planning, statistical information, rate analysis, and revenue analysis.
8. Ticket Sequence Report – Provide a complete sequence of transactions related to individual tickets (i.e., information about how and when a ticket was issued tied to how and when fee was paid, and ticket was processed).
9. Monthly Ticket Value Report - Provide ticket stratification based upon value of all transactions processed. Provide breakdowns for each rate structure. This report is used for revenue analysis, rate analysis, management planning, and statistical information.
10. Outstanding Ticket Report – Provide a listing of tickets that have been issued but are not yet processed at an exit. FMS receives data on each ACS transaction from ACS controller, adding it to transaction log and consolidating it into daily activity reports.
11. Be capable of retrieving from transaction data base information for ad hoc reports on ACS activity.
12. Back-out/Stolen Ticket List – Provide a chronological list of back-out tickets issued by ticket dispenser for selectable times.

C. RCS Credential: Machine Encoded Bar Code at time of issuance

D. Rate Structure:

1. A minimum of twenty different fee structures.
2. Each fee structure has the ability to program a minimum of forty fee increments.
3. Automatic adjustment for daylight saving time and leap year in fee calculations.
4. User defined maximums (12-hour, 24-hour, etc.)
5. Provide for:

    a. Day, evening, and night rates.

b. Weekend rates.
c. Flat rates.
d. Event rates.
e. Holiday rates.

6. User defined grace time parameters

a. Exit grace time.
b. Turnaround grace time.
c. Elapsed grace time – to allow for elapsed time from payment at a central location, retrieve vehicle and drive to exit lane.

E. Credit and Debit Card Processing:

1. Accept the following types of credit card payments:

a. VISA
b. MasterCard
c. American Express
d. Discover
e. Bank Debit Cards with Credit Card logo
f. Contactless Credit Cards available from the above
g. Mobile Credit Card payments (Apple Pay ®, Google Pay ®, Samsung Pay ®)

2. Utilize credit and debit card acceptance hardware, software, and other system components that are PCI DSS compliant and utilize PCI-P2PE reader options.

a. Acceptable proof of PCI DSS Compliance is an authorized certificate of compliance AND that the PARCS manufacturers are listed on Visa and MasterCard web sites as PCI DSS compliant.
b. Provide a list of all available options for Payment Processors and Gateways that may be selected to support processing through the PCI-P2PE reader options.
c. Provide a sample contract from the Gateway Payment Processors.

3. All attended devices (where an employee facilitates the transaction) must have a PCI-approved EMV PIN-pad included. All unattended (automated) devices may have a PIN pad, but it is not required.

4. Configure system such that information from each credit card transaction is transmitted to the Owner’s authorizing clearinghouse to provide on-line real time approvals.

5. Timeframe for authorization should not exceed five seconds for mag-stripe and ten seconds for EMV chip transactions.

6. Confirm and provide record formats required by Owner’s authorizing clearinghouse.

7. Provide the ability to print FACTA-compliant receipts. The system will be able to reproduce receipts as necessary.

F. Validation System

1. Allow up to 999 validation accounts to be programmed within FMS. Each account to include a unique account number and allow validations based on use, time or dollar value.
2. Allow all validations to be reported and sortable by time, date, origin, and use.
3. Patrons with a fully validated ticket bypass POF, proceed directly to exit and insert validated ticket at EXS.
4. Web-Based Billable Validation
    a. Tenant or operator logs into a password protected account via computer, smartphone, or another web-enabled device.
    b. Ticket number is entered, plus any adjustment in “standard validation.”
    c. Barcode scanner option for validating barcode tickets (rather than entering ticket number).
    d. Ability to use paper or mobile barcode or QR code validations.
    e. Software tracks and stores user ID, ticket number and validation amount for billing purposes.
    f. Validation billing software calculates and prepares monthly invoices.
5. On-Line Encoding Validation
    a. On-Line Validator is electronic barcode scanner connected to the internet via wired or wireless communication.
    b. DHCP or Static IP addressable.
    c. Ticket barcode is scanned by electronic validator
    d. Message is displayed on validator screen “Validation Successfully Applied” or similar
    e. Validation information is uploaded to PARCS server and disseminated to all PARCS devices
    f. Provide encoder pricing on a singular basis as an add alternate line item.
6. Off-Line Machine-Readable Encoding Validation
    a. Ticket is inserted into a portable desktop device by individual tenants to add validation to ticket.
    b. Device encodes ticket and adds tracking information for billing and reporting purposes.
    c. Provide encoder pricing on a singular basis as an add alternate line item.
7. Chaser Ticket Validation
    a. Encoded validation chaser tickets are produced by parking operator for specific tenants or users.
    b. Configure system to encode tickets automatically and quickly in high volume.
    c. Patron inserts chaser ticket at the Exit Station after the fee is displayed.
    d. Chaser ticket usage is recorded for billing and reporting purposes.
    e. Provide alternate pricing for purchasing pre-encoded chaser tickets rather than an encoding workstation. Provide pricing for one (1) validation chaser

ticket producer/printer/creator as an add alternate line item attached to the current workstation included in the parking office.

G. Entry Station (ENS)

1. Independently and in concert with FMS, issue time and date stamped ticket.
2. Include the following integrated components:
    a. Processed ticket vault.
    b. Easily readable display screen and audio message such as “Please Insert Ticket”.
    c. Audio and visual instructions displayed to patrons.
    d. Integrated intercom
    e. Integrated proximity card reader
    f. Integrated QR Scanner
3. Machine readable encoding that is compatible with all other RCS components.
4. Capable of operating while disconnected from FMS.
5. Minimum capacity of 5,000 tickets with hands-only (no tools) ticket loading.
6. Independent ticket dispensing mechanism that is removable as a single unit.
7. Easily readable display screen and audio welcome message such as “Please Press Button for Ticket and “Please take ticket”.
8. Capable of maintaining a minimum processing rate, in combination with gate and other in-lane equipment, including typical patron delays, of 400 transactions per hour for push button operation and 450 transactions per hour for auto-dispensed operation.
9. Operational Descriptions:
    a. Normal RCS Patron Entry
        1) Upon vehicle detection, send a signal to the ENS to issue a machine-readable time and date encoded ticket at the push of a button by patron.
        2) Upon removal of the ticket from ENS, send a signal to open the gate and send transaction data to FMS.
        3) The use or detection of an ACS credential does not allow the above sequence to occur.
    b. Back-out Ticket Taken: Ticket is removed from ENS and directional sequence is violated (i.e. vehicle backs out of entrance without entering)
        1) Sound an audible alarm at the FMS
        2) Report ticket issued as an invalid back-out ticket and post to the daily transaction exception log
    c. Back-out Ticket Not Taken: Ticket is left in the ENS and directional sequence is violated (i.e. vehicle backs out of entrance without entering)
        1) Abandoned ticket is ingested back into ENS, rendered invalid, and discarded into dedicated holding bin.
        2) Event posted to daily transaction exception log.

d. Full Status

1) RCS manually or automatically disables ticket dispenser and CC reader at all entry stations when count system considers facility to be full.
2) Easily readable display screen and audio message such as “Sorry, the garage is full”.
3) RCS reactivates ticket dispensing function when count drops below a programmable threshold.
4) ACS patrons are allowed access even when ticket dispensing is disabled.

H. Exit Station (EXS)

1. Independently and in concert with FMS, read ticket data to determine ticket validity, payment due and any encoded validation.
2. Include the following integrated components:

a. Processed ticket vault.
b. Easily readable display screen and audio message such as “Please Insert Ticket”.
c. Audio and visual instructions displayed to patrons.
d. Integrated intercom
e. Integrated credit card reader.
f. Integrated proximity card reader
g. Integrated QR Scanner

3. Capable of maintaining a minimum processing rate, including typical patron delays and in combination with gate and other in-lane equipment, of 400 transactions per hour.
4. Maximum elapsed time from insertion of validated ticket until gate opens is three seconds.
5. Operational Description

a. Upon detection of a vehicle, display screen audibly and visually prompts patron to insert ticket into EXS.
b. For fully paid or validated tickets, send signal to open gate and send data to FMS. Retract ticket into EXS and retain for audit purposes.
c. For tickets that are not fully paid/validated or if grace period has expired, prompt patron to pay remaining fee via credit card or contact staff via intercom.
d. Send signal to close gate after vehicle has passed closing vehicle loop or sensor.

I. Pay-on-Foot Station (POF)

1. Independently and in concert with FMS, read ticket data to determine ticket validity, payment due and any encoded validation.
2. Include the following integrated components:

a. Processed ticket vault.
b. Easily readable display screen and audio message such as “Please Insert Ticket”.
c. Audio and visual instructions displayed to patrons.
d. Integrated intercom
e. Integrated credit card reader.
f. Integrated QR Scanner

3. If payment is due, display amount due and request payment by cash or credit card.

   a. Accept U.S. paper money in any combination of one, five, ten, and twenty-dollar denominations.
   b. Accept U.S. coin in any combination of nickel, dime, quarter, or dollar.
   c. Include a separate coin and note safe or vault in banknote acceptor.
   d. Dispense change using highest denominations possible.

4. Preference will be given to self-replenishing change vaults. Specify which is being provided.
5. Upon receipt of payment, issue machine encoded ticket, with programmable grace period.
6. Provide concise instruction with pictograms where appropriate for user-friendly operation.
7. Provide clear, audible instructions to patron throughout transaction process.
8. Include high security lock system with appropriate alarm contacts for tampering.
9. Capable of maintaining a minimum processing rate, including typical patron delays, of 100 cash transactions per hour.
10. Operational Description

    a. Patron inserts ticket into POF.
    b. For valid tickets, fee is displayed. Patron inserts cash or credit card and payment is processed. Change is returned to patron if needed or credit card transaction is processed.
    c. Amount paid, transaction number and other data are printed on ticket in readable form and encoded on ticket. All data is sent to FMS.
    d. Patron is advised audibly and visually to take ticket and proceed to vehicular exit.
    e. Receipts are issued only upon patron request for all transactions.
    f. If POF cannot read ticket or it is otherwise identified as an exception transaction an alarm is sent to FMS, ticket is returned to patron, and a visual and audible message advises patron that transaction cannot be processed and to press intercom for assistance.

2.3 ACCESS CONTROL SYSTEM (ACS):

A. FMS Interface:

1. Provide an on-line, computer-based access control system for those authorized by Owner to have access to parking facility without being processed through ticket system, for example; a “monthly parker”.

2. Distributive, networked or centralized processing may be employed, so long as required multi-lane control features such as anti-passback, occupancy and activity tracking are maintained. Employ Proximity readers as specified herein with AVI as an Add-Alternate for access for the following distinct user groups:

    a. Authorized vehicles requiring free and fast ingress and egress to parking facilities.
    b. Monthly parkers who have a contractual agreement and/or will prepay or prearrange billing for parking on a monthly basis.
    c. Frequent parkers, who prepay or prearrange billing and are charged for parking at fees equal to or discounted from public parking fees. Includes:

        1) Smart cards with a prepaid balance that decrements with each use:

            a) Upon use at entrance, verify balance and advise patron if preprogrammed low balance has been reached via red light or audible message.
            b) Upon exit, calculate fee due and display balance left on card after transaction. If fee exceeds balance send alarm to FMS and advise patron to pay balance via credit card or press button for assistance.

3. Individually recognize and process up to ten thousand (10,000) ACS users at all reader locations.
4. Have at least sixteen (16) preprogrammed access levels capable of being changed without reprogramming of ACS.
5. Provide anti-passback control. With this feature, users enter and exit in proper sequence (i.e., entry, exit, entry, exit, etc.).

    a. Selectable option to allow either "hard" (out of sequence user is rejected and an alarm is generated at ACS controller and FMS) or "soft" mode (out of sequence user is allowed access but reported.)
    b. In both hard and soft modes, each out of sequence event is reported as an exception transaction in daily ACS access log.
    c. Password protected "resynchronization" of all users to one access before return to anti-passback control.

6. Link users to each other to allow one entity to be identified with and/or pay for a group of users. Provide up to one hundred (100) such ACS groups.
7. Ability to group ACS cards and limit access to a preset maximum number of cars in facility at any given time, and/or allow and track overages to be invoiced separately.
8. Nesting feature:

    a. Ability to require parkers that are assigned to park in a specific level or area (nest area) to use ACS credential to enter and exit nest area in order to exit facility.
    b. Required sequence: In facility, in nest, out of nest, out of facility.

9. Central ACS controller requirements:

a. Issue and reprogram ID devices.
b. Allow authorized supervisor to create, store, send and receive user programming from ACS readers. Password protected access to programming, with multiple levels of access, to any and all information regarding specific blocks and/or suites of cards.
c. Provide a data base for ACS management including the following:

1) Provide at least twenty (20) programmable record fields for each person issued an ACS credential and at least twelve (12) programmable record fields for each user's vehicle(s). .
2) Allow specific parker record files to be retrieved, displayed and/or printed based on selectable criteria, such as current ACS status, access group, access level, and/or ID numbers (except data that is password protected).
3) Allow searching, sorting and printing of database by any field for routine and special forms such as invoices or mass-mailings.
4) Consolidating and retaining data to allow for report generation. The following are minimum required reports, viewable on a workstation monitor and/or printable on demand:

a) Activity Usage Reports – Provide a chronological list of ACS usage, including date, time, credential, and location of entries and exits; capable of being sorted by any field.
b) Count Reports – Monitor and report counts of ACS vehicles present on an hourly basis by group, access level.
c) Percentage of Occupancy – For selectable times during 24 hour period for all categories of ACS parkers.
d) In/Out Status Report: Shows status of all ACS cards at any given time, sortable by name/card #/status.
e) Active User Report – A listing of all active users that have access to the facility.
f) Activity Exceptions Report – A field-sortable listing of all activity exceptions to include at a minimum hard-passback, soft-passback, shared account, debit card, hotel quest pass and nesting violations.
g) User Changes Report – Provide report of changes to user accounts to include at a minimum debit card rate changes and status changes (e.g. card placed in neutral with no charges applied at exit).

a. Capable of reporting the collection of fees from parkers on monthly prepayment, decrementing, end of month billing, and/or credit card basis.
b. Monitor and report revenue associated with ACS system to FMS. Separate revenue by type of payment (prepay, decrementing, monthly billing and/or type of credit card) and indicate ACS ID device number(s), account number(s), and month(s) for which payment was received.
c. Provide for posting of payments and automatic lockout of ACS users within programmable grace period after expiration of a prepaid account.

d. Provide automatic on-line real-time monitoring of ACS usage with DVD/CD-ROM storage of transaction data for audit and analytic purposes.
e. Monitor and report all alarm conditions to FMS.
f. Password protection and Daily Log reports for all administrative actions.
g. AVI readers continue to track and record data if gates remain ‘up’.

B. Readers

1. Housed in a weatherproof, harsh environment enclosure rated NEMA-3R or greater.
2. Where required to be pole mounted, mounted on a steel pole and installed per manufacturer’s suggestions.
3. Operational Description

a. ACS reader identifies ACS credential device in lane and searches for authorization through ACS Controller. If authorized, a signal is sent to open the gate.
b. Where ACS lanes are also equipped with Entry Stations or Exit Stations, activation of reader automatically disables dispenser/verifier. Likewise, the initiation of a ticket entry/exit transaction automatically disables ACS.

4. Proximity Card System

a. Passive credential design capable of being read within 6 inches of reader.
b. Minimum accuracy of card reader: 99%.
c. Read and process credential within one second of presentation to reader.
d. In combination with gate and other in-lane equipment, Ability to maintain processing rate of 600 transactions per hour for at least four continuous hours of operation, including normal patron delays.
e. Checking protocol that identifies multiple reads of same card within a few seconds (due to users “waving” card in front of reader), correcting false anti-passback reads.
f. Protection from common and/or local sources of interference - Unaffected by neighboring electronic systems or electronically controlled devices.
g. When paired in-lane with any RCS device, card reader mounted to face plate of RCS device (ticket dispenser, exit validator, POF etc.).

5. AVI System

a. Access system consisting of antennas, readers and local controllers (as required by vendor's system architecture) that automatically reads vehicle’s credential data as the car approaches the entrance or exit and transmits a signal to ACS controller. ACS controller confirms or denies authorization and activates gate for authorized users.
b. Whether or not physical vehicle access is granted, system records transaction of data triggered by approach of AVI equipped vehicle. Distributive, networked, or centralized processing may be employed, so long as required multi-lane control features such as anti-passback, occupancy and activity tracking are maintained.
c. Use a radio frequency (RF) signal to identify authorized users via a transponder in/on the vehicle as it passes through the RF field at each ACS

monitoring location. Alternative mounting options such as externally mounting credential, hangtag, or handheld devices may be quoted. The following are minimum hardware design requirements:

1) Credential must have a guaranteed service life of five years.
2) Programmable with a unique identification code. Upon receipt of RF signal from antenna, device returns a signal that carries its unique ID.
3) Minimum read range between 10 - 15 feet at 5 MPH with a 99% minimum accuracy rate for active devices independent of rate of transmission.
4) Read and process credential within one second of presentation to reader.
5) In combination with gate and other in-lane equipment, ability to maintain processing rate of 800 transactions per hour, including normal patron delays.
6) Adjustable read zones to prevent reading and crosstalk from any devices in adjacent lanes or from vehicles queued in line of vehicles.
7) Interference protection from common or local sources of RF radiation.
8) Unaffected by neighboring electronic systems or electronically controlled devices.
9) No additional facility modifications such as fences, blocks or mounted absorption material.

d. Overhead RF antennas, unless otherwise indicated by equipment lane details.
e. Housed in a weatherproof, harsh environment enclosure rated NEMA-3R or greater.
f. Ability to be tuned to any frequency within operational band by changing settings of reader without modifying or replacing credential.
g. Operate under conditions of either rain or snow at winds below gale force. Protected by and operational against common dirt or dust born particles.
h. System may be either low frequency RF operating in VHF frequency band or high frequency RF operating within UHF band as allowed by jurisdictional authorities.
i. Employ error checking communications protocol that prevents partial device numbers from being transmitted to host computer.

2.4 CONTROL GATE

A. Provide an effective barrier to vehicles entering or exiting facility.

B. Distance between end of extended gate and curb or wall is restrictive to motorcycles.

C. Closed gate arm height of approximately three feet unless noted otherwise on drawings.

D. Use articulating gate arms in areas of limited headroom.

E. Employ breakaway design that can be easily replaced when broken away from housing.

F. Provide safety feature of rising upon contact with vehicle or person without causing damage or injury.

G. Incorporate in one housing all necessary components for functioning of unit.

H. Provide circuit breaker protected gate motor and components designed for heavy-duty use.

I. Provide corrosion resistant parts.

J. Provide gate controller that prevents damage when gate motion is blocked in any position and cannot be opened or closed by force applied to gate arm.

K. Allow for adjustment of gate arm travel.

L. Gate Controller features:

1. Microprocessor controlled over-the-network activation and communication for gate status and functions from FMS.
2. Separate momentary contact closures for each of the following counts:

    a. ACS patrons
    b. RCS patrons
    c. Vehicle entries
    d. Vehicle exits.

3. Directional logic with electronic outputs to alarms, counters and to report atypical lane activity to FMS.
4. Ability to store at least three vend inputs and sequentially process each vend.
5. Ability to test gate operability and controller programming on-site without use of special diagnostic equipment.
6. "AUTO-MANUAL" switch, and "ON-OFF" switch for gate.
7. Contains power supplies, dust-proof relays, and other circuit components to control gate.
8. Provide remote gate arm activation (with sufficient line of sight or CCTV camera coverage).

M. Control Gate Usage Restrictions:

1. Provide signage prohibiting pedestrians and motorcycles from utilizing control gate as a means of ingress or egress to facility.
2. Provide along approach route of automated gate and/or affixed to both sides of control gate arm.
3. Incorporate both text and graphics to convey hazards of not meeting this restriction.

N. Vehicle Detection

1. Provide vehicle detection loops at all entry and exit lanes as shown on drawings.
2. Coordinate to have pre-formed loops installed 1.5 inches below final topping.

3. Detect vehicular presence, legal entry, legal exit, illegal exit, illegal entry, and back-out.
4. Each public entry and exit lane contain two or three vehicle detection loops.
5. Loop detectors shall be dual channel detectors.
6. Provide two channel pulse and presence outputs.
7. Provide separate, momentary contact closures upon detection of a vehicle, along with continuous contact closures during the period that the vehicle is detected.
8. Loop detectors shall contain two fully separate, self-tuning, vehicle loop detectors and directional logic circuitry.
9. Incorporate a sensitive tailgate recognition system capable of resolving two automobiles within six inches of each other on a standard 2.5 ft x 6 ft loop.
10. Loop detectors shall each have adjustable sensitivity modes.
11. Different sensitivity settings shall allow vehicles of varying height and size to be properly detected.
12. Loop detectors shall be fully microprocessor-based.
13. Loop detectors shall generate two loop frequencies. No two frequencies shall be the same to minimize the possibility of detector crosstalk or interference between two detector loops mounted within close proximity. Detectors generating an identical frequency are unacceptable.

O. Inductive Loops

1. Cut-into paving surface and filled with manufacturer's approved sealant.
2. Be formed by three to four turns of 20-gauge/16-gauge XLPE single-conductor wire.
3. No splices are permitted.
4. Contain loop leads:

    a. Limited to a length of 30 feet.
    b. Have a four-twist minimum per foot and located at a minimum of 18 inches from electrical power lines.
    c. Be contained in separate conduit to prevent interference from electrical signals.
    d. Light in color (White, Red, or Orange) for presence loop
    e. Dark in color (Black, Blue, or Green) for safety loop
    f. Light in color (White, Red, or Orange) for secondary presence loop (if applicable)
    g. Dark in color (Black, Blue, or Green) for down-stream loop (if applicable)

5. 20-gauge XLPE single conductor wire:
    a. #20 AWG multi-strand copper wire
    b. 0.040" Nominal XLPE (cross-linked polyethylene) Insulation
    c. 0.120 Nominal O.D. for use in 1/8" saw cuts
    d. Only used in Concrete drive lanes

6. 16-gauge XLPE single conductor wire:

    a. #16 AWG multi-strand copper wire
    b. .080" Nominal XLPE (cross-linked polyethylene) Insulation
    c. 0.220" Nominal O.D. for use in 1/4" saw cuts

d. Used in Concrete or Asphalt drive lanes

7. Backer Rod:

a. Closed cell polyethylene foam
b. Installed prior to sealing saw cuts
c. Holds loop wires and lead-in wire securely in saw cuts
d. Prevents wires from floating to surface when sealant is applied
e. Use 2” piece in at least every 2’ of saw cut
f. Used in concrete or asphalt
g. 0.375” Nominal O.D. for use in 1/8” sawcut
h. 0.500” Nominal O.D. for use in 1/4“ sawcut

2.5 INTEGRATED SIGNAGE

A. Lot Full Signs:

1. Signs shall be direct view LED, type TCL718GR-100 from Signal-Tech (888) 811-7010 or engineer/architect approved equal.
2. Dual Message LED signs display “OPEN” or “CLOSED” at garage entrance.
3. Dual LED in Red and Green to indicate garage parking availability.
4. Controlled automatically by PARCS software or via manual override.
5. Minimum 7”x18” overall, with minimum character height of 3.5”.
6. Mounted as indicated on drawings.

B. Pedestrian Warning System: shall be one (1) illuminated dual-sided signs and one (1) audible horn devices attached near the exterior of the facility to warn pedestrians of any exiting vehicle:

1. Signs shall be direct view LED, type TCL 1418DRR-A172 with red letters from Signal- Tech (888) 811-7010 or engineer/architect approved equal.
2. Provide custom color frame/housing to match surrounding wall surface.
3. Horn shall be type Peizo Audible Alarm warning device as provided integral with sign by Signal-Tech.
4. System shall signal when any loop detector in an exit lane detects a vehicle exiting.
5. System shall stop signal after all loop detectors in exit lane no longer detect a vehicle

2.6 INTERCOM SYSTEM

A. Fully digital, microprocessor based, modular design utilizing VoIP (Voice over Internet Protocol).

B. Programming server for all intercom features performed through networked workstation or from intercom staff station.

C. Programmed configuration of intercom stations and system features stored in non-volatile memory.

D. System includes all software and hardware required for programming system, including:

1. Individually programmable volume control for each intercom station.
2. Substations programmed to call intercom staff station.
3. Call forwarding feature for individual stations or all stations to re-direct calls to another designated staff station or substation.
4. Allow conferencing for an unlimited number of stations from staff station.
5. Include ability to announce up to 50 pre-recorded messages at intercom stations, selectable based on programmed criteria, or manually.
6. Announced messages and audio input broadcasts may be interrupted only at affected intercom station during intercom calls and return automatically upon completion of call.
7. If staff station is busy, system automatically announces pre-recorded message at calling station, when master station disconnects, another pre-recorded message directs station to re-initiate call.

E. Staff station desktop model with LCD-Display (8 lines x 14 characters minimum) and gooseneck noise cancelling microphone designed for high-noise environment. Required features:

1. Provide full-duplex hands-free conversation with any other selected individual station or combination of stations in system.
2. Integrated amplifier and loudspeaker.
3. Connector and external noise cancelling headset.
4. Firmware/feature upgrades available via download through intercom server with no local modification on station required.
5. Highly sensitive microphone to provide clear conversation from a maximum range of at least 20 ft.
6. Minimum audio frequency range for audio components: 200-7000Hz.
7. Intercom station directory panel with direct access, pre-programmable function menus, selectable language, and adjustable display contrast.
8. “Handset function” enabling user to switch from loud-speaking, gooseneck microphone operation to handset mode.

F. Substation requirements:

1. Microphone, loudspeaker and in-use LED, all housed in one unit with configurable front pushbutton control.
2. DSP technology to provide full speaker/microphone supervision and fully adjustable (volume/timing threshold programmable via intercom server) audio monitoring.
3. Feature upgrades via download through intercom server with no local modifications required.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Meetings: Meet with Electrical Contractor, before any rough-in work begins to:

1. Review building plans as related to PARCS equipment.
2. Discuss details and/or precautions to assure that all PARCS equipment functions properly.
3. Determine that all required conduits and wiring are properly laid out.

B. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, including equipment bases; accurate placement, pattern, and orientation of anchor bolts; critical dimensions; and other conditions affecting performance of the Work.

C. Examine location of all equipment and office equipment to determine if there are any constraints or conflicts before office equipment installation.

D. Examine roughing-in for electrical systems to verify actual locations of connections before parking control equipment installation.

E. Additional Wiring: Provide all additional conduit and wiring which is needed for total system performance, but which was not noted on Contract Documents at no additional cost to Owner.

F. Verify equipment layout in accordance with manufacturer's recommendations to allow proper movement of air through and around equipment.

G. Test, adjust, and interface circuits prior to installation of PARCS equipment.

H. Coordinate with Owner or Owner’s Representative location and type of internet connection for credit card processing system within 30 days after award of contract.

3.2 INSTALLATION

A. Install PARCS in accordance with manufacturer's recommendations and approved Shop Drawings.

B. When possible, install lane equipment so that farthest extending part of equipment is recessed six inches (6”) from the curb; in an effort to protect equipment and vehicular mirrors.

C. Installation and Start-Up: Contractor is responsible for installation of all control and communication wiring, Contractor supplied equipment and its interfacing and interconnection with Owner supplied equipment. Contractor authorizes and/or accepts responsibility for application of power to equipment and initiation of operation and for running all initial diagnostics and system generation programs necessary to provide complete working system.

D. Contractor is responsible for all software and communications by all computers and peripheral devices.

E. Provide dust and noise protection in strict accordance with equipment manufacturer's recommendations.

3.3 FIELD QUALITY CONTROL

A. Develop an Acceptance Testing Plan to demonstrate the functionality of the system. Provide sections for both Lane Acceptance Testing and System Acceptance Testing.

1. Include demonstrations of compliance with specifications, contractual compliance, definitions of all test objectives, participant responsibilities, documentation of tests and procedures for dealing with failures during test.
2. Detail tests for every functional requirement of each entry lane, exit lane and APS.

    a. Include checklist for specified supplies, spare parts, training operation and training manuals.
    b. Provide space for acceptance by Contractor and Owner or Owner's representative.

3. Confirm that all specified features are provided and fully operational before Acceptance Testing.
4. Notify Owner or Owner's Representative in writing at least one week prior to each official test session. In the event that a test is not successful, correct noted deficiencies and advise Owner or Owner's Representative, at least two days in advance, that test session is ready to resume.
5. Owner or Owner's Representative may witness tests.
6. Provide all test and diagnostic equipment including RCS and ACS credentials, currency, credit cards, stock items, and all consumables required for each test.

B. Passing Acceptance testing, even if performed in the presence of the Owner or Owner's Representative, do not relieve the Contractor of the responsibility to provide a system in accordance with the Specifications.

C. Promptly correct all problems encountered at no cost to the Owner.

D. Lane Acceptance Test (LAT): Test all equipment and systems at each location to confirm that the components installed are fully operational as specified. Substantial completion includes the following.

1. All PARCS equipment included in project or phase passed LAT.
2. All communications from equipment to FMS and workstations passed LAT.
3. All UPSs passed LAT
4. All electronic signage interfaces complete and passed LAT.

E. System Acceptance Test (SAT): Confirm that all the physical, operational and management features and capabilities of the individual lane components are present in the integrated system.

1. Before start of test, verify that:

    a. The major subsystems and the entire PARCS are fully operational as an integrated system and operating properly.
    b. All spare parts, stock items, and manuals are on site and approved.

c. All training is complete to Owner's satisfaction.
d. All test checklists and training evaluation forms have been submitted.

2. FMS produced all required reports and passed LAT.
3. Conduct interim SAT at the completion of each phase if phasing of the installation is required.
4. Maintain detailed records and a logbook of all SAT tests, events and issues to be provided to the Owner upon completion of the SAT.

F. Sample System and Lane Test Sequences:

1. FMS: A critical test sequence is to induce fail-over testing for each of the servers constituting the redundant PARCS server cluster. In each sequence of the test, the secondary and/or tertiary servers must provide successful transfer of data from induced failure of the primary operational server.

2. RCS:

a. Entry Station

1) Normal Transaction

a) Activate entry station by presence on entry loop/sensor.
b) Verify that "Please Press Button for Ticket" is displayed.
c) Press button and verify that ticket is dispensed.
d) Take ticket and verify that gate opens and closes upon clearing sensor.
e) Verify accurate time/date/location code on ticket.
f) Verify the ticket # was issued in FMS.

2) Backout with Ticket Taken

a) Activate entry station by presence entry loop/sensor.
b) Verify that "Please Press Button for Ticket" is displayed.
c) Press button and verify that ticket is dispensed.
d) Take ticket and back-off of entry loop/sensor.
e) Verify that gate closes.
f) Verify audible back-out ticket alarm has sounded at FMS.
g) Verify ticket is rejected at POF and identified as a back-out ticket.

3) Back-out ticket with Ticket Left in Throat

a) Activate entry station by presence on entry loop/sensor.
b) Verify that "Please Press Button for Ticket" is displayed.
c) Press button and verify that ticket is dispensed, and gate opens.
d) Leave ticket in dispenser and back-off of approach sensor.
e) Verify that ticket is retracted by ticket dispenser and dropped into back-out ticket receptacle.
f) Verify that gate does not open.
g) Verify audible back-out ticket alarm has sounded at FMS.

h) Verify ticket is rejected at POF and identified as a back-out ticket.

4) Car Remains on Loop/Sensor WITHOUT Ticket Taken

a) Activate entry station by presence on entry loop/sensor.
b) Verify that “Please Press Button for Ticket" is displayed.
c) Remain on loop/sensor. Verify that after 30 seconds an alarm sounds at FMS to report inactive vehicle.

5) Car Remains on Loop/Sensor WITH Ticket Taken

a) Activate entry station by presence on entry loop/sensor.
b) Verify that “Please Press Button for Ticket" is displayed.
c) Press button and verify that ticket is dispensed, and gate opens.
d) Take ticket. Verify that gate opens.
e) Remain on loop/sensor.
f) Verify that after 30 seconds an alarm sounds at FMS to report inactive vehicle.

b. POF

1) Normal Transaction

a) Insert a valid credential and confirm that it is accepted by machine.
b) Confirm that machine calculates and displays the payment amount.
c) Confirm that machine displays the parking time.
d) Confirm that machine displays the permitted means of payment.
e) Conduct payment transaction with bank notes in a way requiring that change must be returned – verify change returned.
f) If POF, confirm that credential is re-encoded with current system time and returned to patron.
g) Confirm that a printed receipt is offered and printed as an option.
h) Repeat w/Credit Card. Verify approval within ten (10) seconds.

2) Invalid Transaction

a) Insert a back-out/invalidated credential.
b) Confirm that machine indicates that credential is invalid.
c) Confirm that machine returns credential to patron.
d) Confirm that machine instructs patron to proceed to push button for assistance.

3) Receipt and Cash Replenishment

a) Verify that bank note storage units can be easily removed/inserted. Confirm locking mechanism.
b) Verify that change storage units can be easily removed/inserted. Confirm locking mechanism.

c) Verify that credential and receipt read/write device(s) are readily accessible for replacement of roll stock.
d) Verify that main door properly aligns and locks upon service completion of above units.

c. Exit Station

1) Normal Transaction

a) Activate exit station by presence over primary approach sensor. Verify that “Please Insert Credential " is displayed.
b) Insert a valid credential into the throat and verify gate closes and credential is vaulted.
c) Proceed over exit sensor and verify gate closes upon clearing exit sensor.
d) Verify that exit station resets for next transaction.
e) Verify valid exit at PARC/S computer.

2) Invalid Transaction

a) Activate exit station by presence over primary approach sensor. Verify that "Please Insert Credential” is displayed.
b) Insert a credential with an expired grace time into the throat and verify that gate does not open.
c) Remove invalid credential and verify exit station is reset for the next transaction.
d) Verify an invalid exit at FMS computer.

3) Grace Period

a) Adjust grace period with handheld.
b) Activate exit station by presence over primary approach sensor. Verify that “Please Insert Credential " is displayed.
c) Insert a credential that has exceeded the programmed grace period into the throat and verify gate does not open and additional fee is computed correctly.
d) Once additional fee is paid, proceed over closing sensor and verify gate closes upon clearing closing sensor.
e) Verify that exit station resets for next transaction.
f) Verify valid exit at FMS computer.

4) Credit Card Transaction

a) Activate exit station by presence over primary approach sensor. Verify that “Please Insert Credential" is displayed.
b) Insert a valid unpaid credential in to the throat and verify correct fee is displayed.
c) Insert credit card into the throat and verify approval within eight (8) seconds.
d) Remove credit card from throat and verify receipt prints.

e) Remove receipt from throat and verify gate opens.
f) Proceed over closing sensor and verify gate closes upon clearing closing sensor.
g) Verify that exit station resets for next transaction.
h) Verify valid exit at FMS computer.

3. ACS:

a. Proximity Card System

1) Normal Transaction

a) Activate vehicle detection loop.
b) Present valid credential within four inches of reader.
c) Confirm that credential is accepted, and gate opens for passage.
d) Confirm that credential use data is logged to database.

2) Pass-back Test

a) Activate vehicle detection loop.
b) Present valid credential within four inches of reader.
c) Confirm that credential is accepted, and gate opens and closes after vehicle passes.
d) Repeat process.
e) Confirm that credential is not accepted, and pass-back alarm is activated on FMS
f) Confirm that Pass-back data is logged to database.

3) Back-out test

a) Activate vehicle detection loop.
b) Present valid credential within four inches of reader.
c) Confirm that credential is accepted, and gate opens and closes after backing off activation loop.
d) Repeat process, Credential should still be accepted since it did not proceed through the barrier

4) Invalid Transaction

a) Activate vehicle detection loop.
b) Present system invalidated credential within four inches of reader.
c) Confirm that credential is NOT accepted, and gate does NOT open.
d) Confirm that attempted use of credential is logged to database.

b. AVI System

1) Normal Transaction

a) Have vehicle approach exit station and activate vehicle detection loop.
b) Confirm that credential is accepted, and gate opens for passage.
c) Confirm that credential use data is logged to database.

2) Invalid Transaction

a) Have vehicle approach exit station with system invalidated credential.
b) Confirm that credential is NOT accepted, and gate does NOT open.
c) Confirm that attempted use of credential is logged to database.

3) Back-out test

a) Activate vehicle detection loop.
b) Approach reader with valid credential.
c) Confirm that credential is accepted, and gate opens and closes after backing off activation loop.
d) Repeat process, Credential should still be accepted since it did not proceed through the barrier

4) Adjacent Lane Cross Talk

a) Have vehicle without an ID approach lane with an AVI reader and activate the vehicle detection loop.
b) Simultaneously have vehicle with an ID approach in adjacent lane.
c) Determine if vehicle with ID activates reader in adjacent lane.

4. Intercom System

a. Verify that all intercoms activate and interact audibly w/appropriate stations when buttons are depressed.

G. Thirty-Day Operational Test and Final Acceptance

1. After Substantial Completion and opening of the facility, the Owner or Owner's representative will conduct an operational test for thirty days.

2. Provide a qualified and experienced technician on-site within one hour during the thirty-day test.

3. Performance Standards:

a. All mechanical components are operational without downtime. For each downtime period of four hours, one day will be added to the test duration.
b. All electronic components are operational without downtime or programming problems for the complete monthly reporting cycle. For each down time period of one hour but less than eight hours or programming problems that delay report cycle, two days will be added to the test duration.

c. All reports correlate 100% with cash receipts in each POF.

3.4 TRAINING

A. Develop and implement a comprehensive training program for authorized personnel.

B. Design the curriculum so that each group is trained in the full repertoire of system commands that they may have to use in course of performing designated functions.

C. Schedule training no more than two weeks prior to use of equipment.

D. Include lectures, visual presentations, hands-on operation of equipment and any materials necessary to perform job. Provide each trainee with a complete set of training materials and operating manuals during training session, to be kept for use on job at completion of training.

E. Training categories (Owner to identify names and numbers of personnel for each category)

1. Attendants:

a. Operate POFs, including ability to process normal and exception transactions, and to understand any and all messages displayed.
b. Clear ticket and paper jams and trouble shoot POF.
c. Reset system after a power failure.
d. Perform collections.
e. Replenish cash.
f. Change receipt paper and ribbons.

2. Supervisors:

a. Same basic training as Attendant, plus:
b. Understand any and all system messages provided by FMS, including but not limited to alarm messages, indications of attempts to compromise PARCS and explanations of atypical lane activity displayed by count system, revenue control system.
c. Correlate tickets issued with vehicles present, time parked with revenue generated.
d. Operate FMS and understand purpose and data contained within any and all reports produced by FMS.
e. Process exception transactions occurring at exit verifiers.

3. Maintenance personnel:

a. Same basic training as Attendant, plus:
b. Perform primary maintenance on all major components of system.
c. Replenish all system supplies.
d. Replace internal elements such as ticket transport units or printers.
e. Perform recommended PMCS items.
f. Lubricate and clean internal components.

g. Remove and replace gate arms and adjust gate arm travel.
h. Be certified by contractor to trouble shoot all systems and perform primary maintenance.
i. At conclusion of maintenance training session(s), submit to Owner or Owner's Representative a list naming qualified Owner/Operator maintenance personnel. Detail the level of maintenance/repair functions each of Owner/Operator personnel are qualified to perform.

4. Managers/System Administrators:

a. Same basic training as Supervisors, plus:
b. Utilizing data from FMS, perform statistical analysis and checks and balances over actions of Supervisors and subordinates.
c. Two months after Final Acceptance, provide additional training utilizing real data.

END OF SECTION 111233

Section 111233 - Appendix A - Proposal Price Tabulation Form
CITY OF HENDERSONVILLE, NC - PARCS PROCUREMENT DOCUMENTS

TOTAL	Written in Numerals	Written in Words
Base Price		
Additional Costs		
1-Year TOTAL		
Recurring Fee		
8-Year TOTAL Required		
PM & Service		
Warranty		
8-Year TOTAL Optional		
Add Spares		

Company: Date:

Name: Signature:

UNIT PRICING

ITEM #	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
1	Entry: Ticket Dispenser	2	$0.00	**$0.00**
2	Proximity Reader	2	$0.00	**$0.00**
3	QR Scanner	2	$0.00	**$0.00**
4	Intercom Substation	2	$0.00	**$0.00**
5	AVI Reader	2	$0.00	**$0.00**
6	Lot Full Sign	2	$0.00	**$0.00**
7	Exit: Ticket Verifier	2	$0.00	**$0.00**
8	P2PE Credit Card Reader	2	$0.00	**$0.00**
9	Proximity Reader	2	$0.00	**$0.00**
10	QR Scanner	2	$0.00	**$0.00**
11	Intercom Substation	2	$0.00	**$0.00**
12	AVI Reader	2	$0.00	**$0.00**
13	Pedestrian Warning Sign	2	$0.00	**$0.00**
14	Automated Barrier Gate	4	$0.00	**$0.00**
15	Straight Arm	4	$0.00	**$0.00**
16	Saw-Cut, Install, and Seal - Vehicle Detection Loop	8	$0.00	**$0.00**
17	Dual-Channel Loop Detector	4	$0.00	**$0.00**
18	Pay-on-Foot (Bill, Coin, & Credit)	1	$0.00	**$0.00**
19	P2PE Credit Card Reader	1	$0.00	**$0.00**
20	Proximity Reader	1	$0.00	**$0.00**
21	QR Scanner	1	$0.00	**$0.00**
22	Intercom Substation	1	$0.00	**$0.00**
23	Server Rack	1	$0.00	**$0.00**
24	PARCS Server	1	$0.00	**$0.00**
25	Networking Equipment	1	$0.00	**$0.00**
26	KVM	1	$0.00	**$0.00**
27	On-Line UPS Backup (for server equipment)	1	$0.00	**$0.00**
28	PARCS and Operating Software, Licenses.	1	$0.00	**$0.00**
29	Open API with ParkMobile	1	$0.00	**$0.00**
30	Open API with IPARC Software	1	$0.00	**$0.00**
31	Workstation	2	$0.00	**$0.00**
32	Networked Laser Printer	1	$0.00	**$0.00**

33	Intercom Server	1	$0.00	**$0.00**
34	Intercom Staff Station	1	$0.00	**$0.00**
35	Off-line Validator	3	$0.00	**$0.00**
36	On-Line UPS Backup (one per Workstation)	1	$0.00	**$0.00**
37	40,0000 Tickets or equivalent in roll stock	1	$0.00	**$0.00**
38	30,000 Receipts or equivalent in roll stock	1	$0.00	**$0.00**
39	50 Proximity Cards	1	$0.00	**$0.00**
40	300 AVI Tags	1	$0.00	**$0.00**
41	Spare Bill Vault	1	$0.00	**$0.00**
42	Spare Coin Vault	1	$0.00	**$0.00**
43	Breakaway Connectors	50	$0.00	**$0.00**
44	Gate Arm Assumblies	2	$0.00	**$0.00**
45	All Additional Cabling, Switches, Cabinets, and Junction Boxes	1	$0.00	**$0.00**
46	Installation of new PARCS	1	$0.00	**$0.00**
47	Training Hours	16	$0.00	**$0.00**
48	Commissioning	1	$0.00	**$0.00**
49	Documentation/submittals/legal	1	$0.00	**$0.00**
50	Freight and Shipping Charges	1	$0.00	**$0.00**
51	Sales Tax - Henderson County 6.75%	1	$0.00	**$0.00**
52	Recurring SaaS Fees Year 1 (If applicable)	1	$0.00	**$0.00**
53	EDIT	1	$0.00	**$0.00**
54	EDIT	1	$0.00	**$0.00**
TOTAL "BASE SYSTEM"				**$0.00**
REQUIRED ADDITIONAL EQUIPMENT, COSTS, DEDUCTIONS, ETC.				
55	EDIT	1	$0.00	**$0.00**
56	EDIT	1	$0.00	**$0.00**
57	EDIT	1	$0.00	**$0.00**
58	EDIT	1	$0.00	**$0.00**
59	EDIT	1	$0.00	**$0.00**
TOTAL ADDITIONAL EQUIPMENT, FEES, OR COSTS				**$0.00**
TOTAL 1-YEAR "All Inclusive"				**$0.00**

ADDITIONAL RECURRING FEES				
	DESCRIPTION - TO BE INVOICED AT CONTRACT ANNIVERSARY	QUANTITY	UNIT PRICE	TOTAL PRICE
60	Recurring Fees Year 2	1	$0.00	$0.00
61	Recurring Fees Year 3	1	$0.00	$0.00
62	Recurring Fees Year 4	1	$0.00	$0.00
63	Recurring Fees Year 5	1	$0.00	$0.00
64	Recurring Fees Year 6	1	$0.00	$0.00
65	Recurring Fees Year 7	1	$0.00	$0.00
66	Recurring Fees Year 8	1	$0.00	$0.00
	TOTAL ADDITIONAL RECURRING FEES			$0.00

ADD ALTERNATE 1: Preventive Maintenance and Service Contract				
	DESCRIPTION - TO BE INVOICED AT CONTRACT ANNIVERSARY	QUANTITY	UNIT PRICE	TOTAL PRICE
67	PM & Service Year 2	1	$0.00	$0.00
68	PM & Service Year 3	1	$0.00	$0.00
69	PM & Service Year 4	1	$0.00	$0.00
70	PM & Service Year 5	1	$0.00	$0.00
71	PM & Service Year 6	1	$0.00	$0.00
72	PM & Service Year 7	1	$0.00	$0.00
73	PM & Service Year 8	1	$0.00	$0.00
	ALTERNATE 1: PM & SERVICE TOTAL			$0.00

ADD ALTERNATE 2: Extended Parts Warranty				
	DESCRIPTION - TO BE INVOICED AT CONTRACT ANNIVERSARY	QUANTITY	UNIT PRICE	TOTAL PRICE
74	Parts Warranty Year 2	1	$0.00	$0.00
75	Parts Warranty Year 3	1	$0.00	$0.00
76	Parts Warranty Year 4	1	$0.00	$0.00
77	Parts Warranty Year 5	1	$0.00	$0.00
78	Parts Warranty Year 6	1	$0.00	$0.00
79	Parts Warranty Year 7	1	$0.00	$0.00
80	Parts Warranty Year 8	1	$0.00	$0.00
	ALTERNATE 2: PARTS WARRANTY TOTAL			$0.00

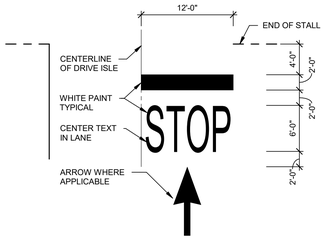
SPARE PARTS				
	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
81	Mass Validation Encoder	1	$0.00	$0.00
82	On-Line Validation Encoder	1	$0.00	$0.00
83	Off-Line Validation Encoder	1	$0.00	$0.00
84	EDIT	1	$0.00	$0.00
85	EDIT	1	$0.00	$0.00
86	EDIT	1	$0.00	$0.00
87	EDIT	1	$0.00	$0.00
88	EDIT	1	$0.00	$0.00
89	EDIT	1	$0.00	$0.00
90	EDIT	1	$0.00	$0.00
91	EDIT	1	$0.00	$0.00
92	EDIT	1	$0.00	$0.00
93	EDIT	1	$0.00	$0.00
	SPARE PARTS TOTAL			$0.00

SECTION 111233 - APPENDIX B - SPECIFICATION COMPLIANCE FORM

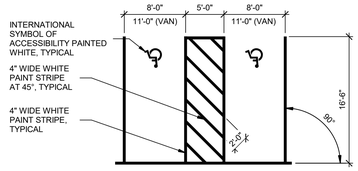
CITY OF HENDERSONVILLE, NC - PARCS PROCUREMENT DOCUMENTS

Project:	**19-001228.00**	**RFP Date:**	**JULY 2022**
Vendor Co.		**Signature:**	
Name:			

Section:	Description:	Exception/Solution/Alternate



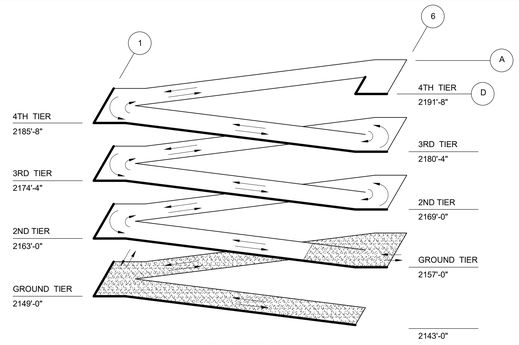
5 STOP LINE
1/8" = 1'-0"



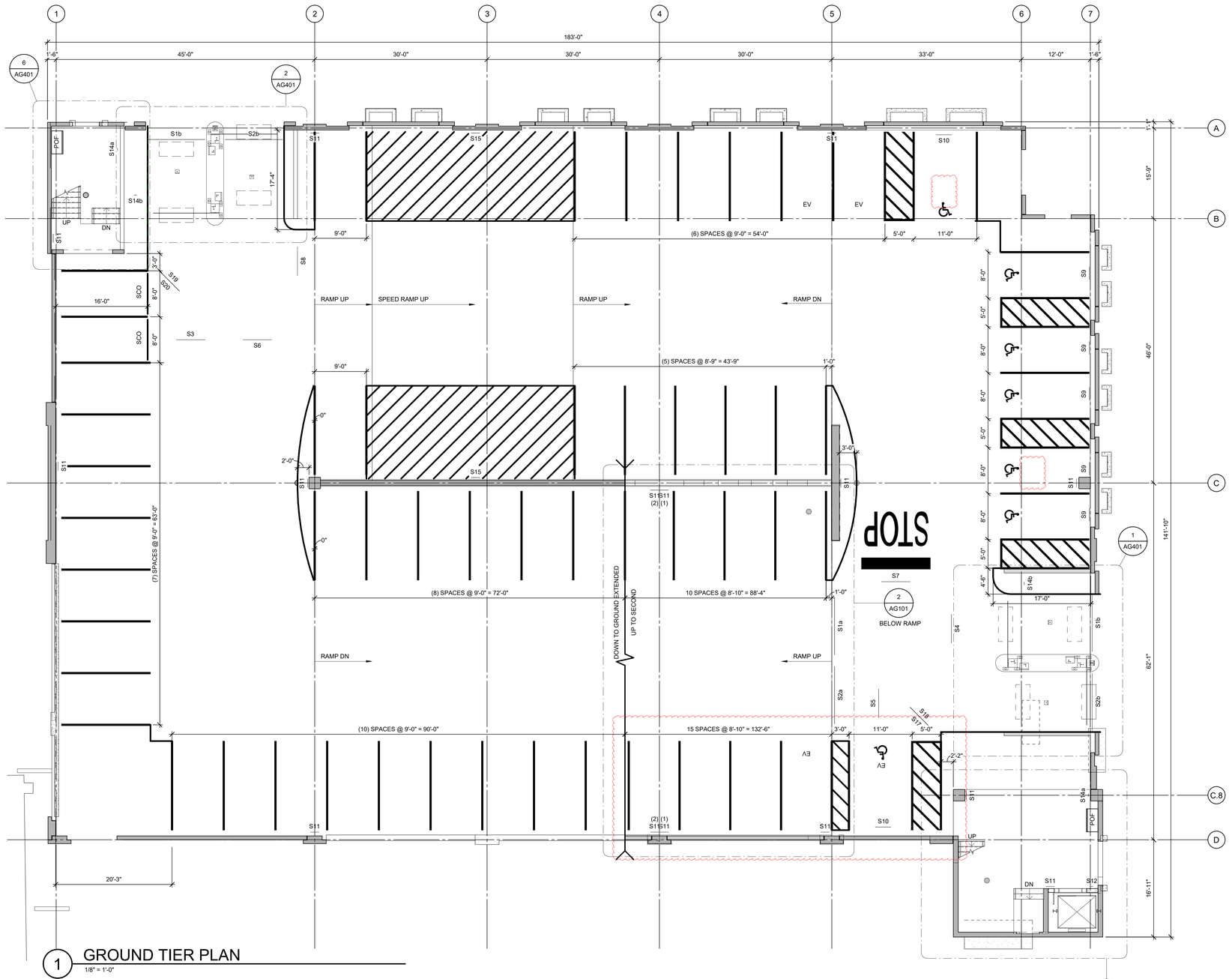
4 90° STRIPING DETAIL
1/8" = 1'-0"

PARKING SCHEDULE						
TIER	STANDARD	COMPACT	ACCESSIBLE CAR	ACCESSIBLE VAN	EV	TOTAL
FOURTH TIER	60	0	0	0	0	60
THIRD TIER	69	0	0	0	0	69
SECOND TIER	69	0	0	0	0	69
GROUND TIER	43	2	7	0	3	55
	241	2	7	0	3	253

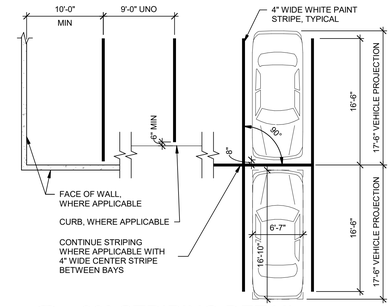
NOTE: GROUND TIER EXTENDED SPACES COUNTED IN GROUND TIER



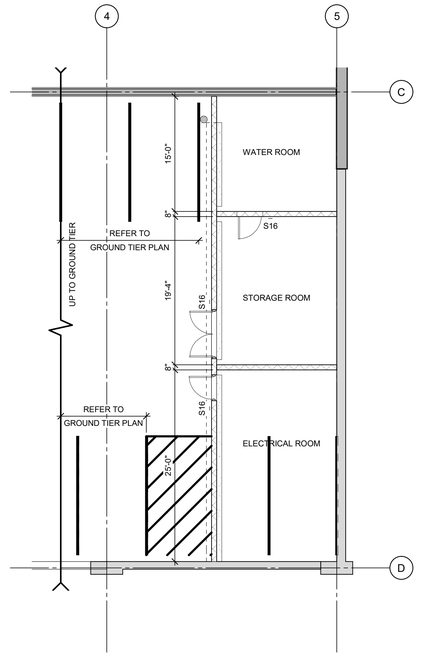
ISOMETRIC



1 GROUND TIER PLAN
1/8" = 1'-0"



3 90° STRIPING DETAIL
1/8" = 1'-0"



2 GROUND TIER EXTENDED
1/8" = 1'-0"

WALKER CONSULTANTS
13860 Ballantyne Corporate Place, Suite 140
Charlotte NC 28277
704.247.6230 Ph
www.walkerconsultants.com
NC CORPORATE LICENSE NO F-0518

CITY OF HENDERSONVILLE

DOWNTOWN PARKING DECK

415 N. CHURCH STREET
HENDERSONVILLE, NC 28792

MARK	DATE	DESCRIPTION
	04-13-2022	RFI #022

REVISIONS

SHEET ISSUE:	FOR BIDS AND CONSTRUCTION
ISSUE DATE:	08-11-2021
PROJECT NO:	19-001228-00
DRAWN BY:	RCG
CHECKED BY:	BMF/KBD

SHEET TITLE:
GROUND TIER PLAN

AG101

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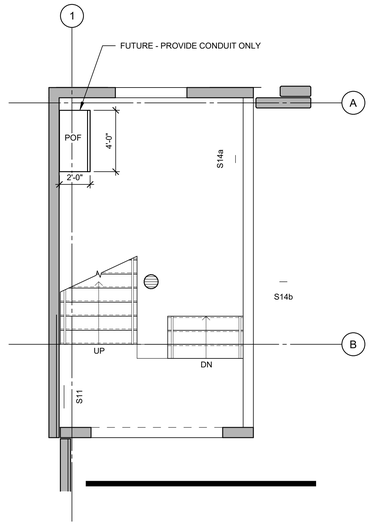
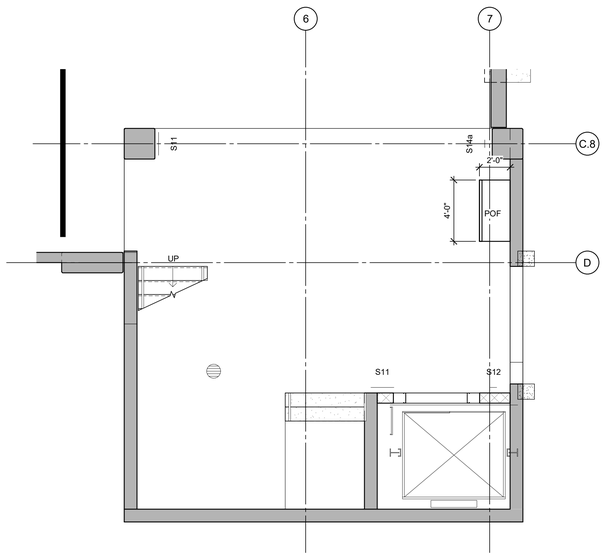


6 GROUND TIER PLAN - POF STAIR NO. 2

1/4" = 1'-0"

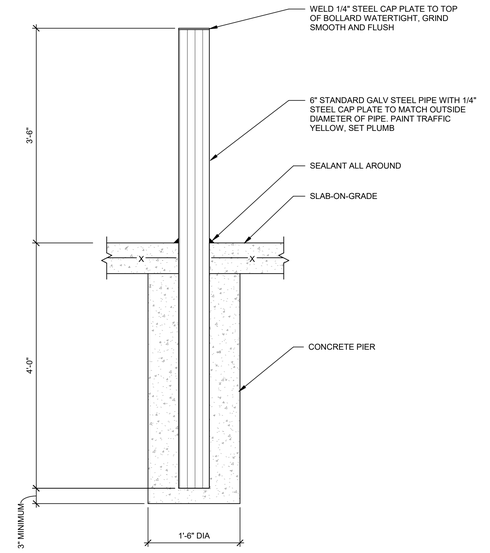


5 GROUND TIER PLAN - POF STAIR NO. 1

1/4" = 1'-0"

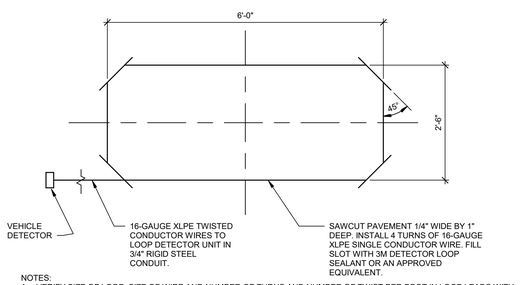
AG	AUTOMATIC GATE
ENS	ENTRANCE STATION 1-30A, 120V CIRCUIT
ENS	EXIT STATION 1-30A, 120V CIRCUIT
POF	PAY-ON-FOOT STATION 1-30A, 120V CIRCUIT
AVI	AUTOMATIC VEHICLE IDENTIFICATION, CEILING MOUNT
LFS	LOT FULL SIGN
PWS	PEDESTRIAN WARNING SIGN
	PROTECTIVE BOLLARD

PARCS LEGEND



4 PARCS BOLLARD

1" = 1'-0"



NOTES:
A. VERIFY SIZE OF LOOP, SIZE OF WIRE AND NUMBER OF TURNS AND NUMBER OF TWIST PER FOOT IN LOOP LEADS WITH DETECTOR SUPPLIER BEFORE INSTALLATION.
B. LOOP LEAD RUNS SHALL HAVE (4) TWIST PER FOOT AND ARE LIMITED TO 100 FEET.
C. LOOP AND LOOP LEADS SHALL BE LOCATED AT LEAST 18" FROM ANY ELECTRICAL POWER OR RUNS, AND STEEL REINFORCING IF POSSIBLE.
D. LOOP LEADS SHALL BE IN SEPARATE RIGID STEEL CONDUIT BETWEEN LOOP AND DETECTOR. IT MUST NOT SHARE CONDUIT WITH OTHER WIRING OR LEADS FROM OTHER LOOPS.
E. LOOP AND LOOP LEAD WIRE SHALL BE 16-GAUGE XLPE CONDUCTOR STRANDED WIRE. ALL WIRE TO BE CONTINUOUS WITHOUT SPLICES.
F. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.

3 CONDUCTOR LOOP

3/4" = 1'-0"

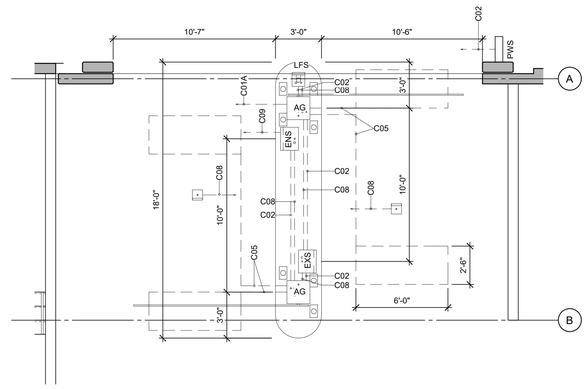
PARCS CONDUIT SCHEDULE		
MARK	SIZE	DESCRIPTION
C01A	1"	POWER FEEDER, TWO 120V 30A CIRCUITS FROM POWER SOURCE
C02	1"	POWER CONDUIT FROM EQUIPMENT TO GATE
C05	3/4"	RIGID STEEL LOOP LEAD
C08	1"	DATA TO GATE
C09	1 1/2"	FROM FACILITY MANAGEMENT SYSTEM TO GATE

PARCS GENERAL NOTES:

1. DRAWINGS ARE SCHEMATIC. PARCS CONTRACTOR TO COORDINATE FINAL CONDUIT QUANTITIES, SIZES, LOCATION OF CONDUIT STUB UPS, PROTECTIVE BOLLARDS, AND EQUIPMENT MOUNTING LOCATIONS.

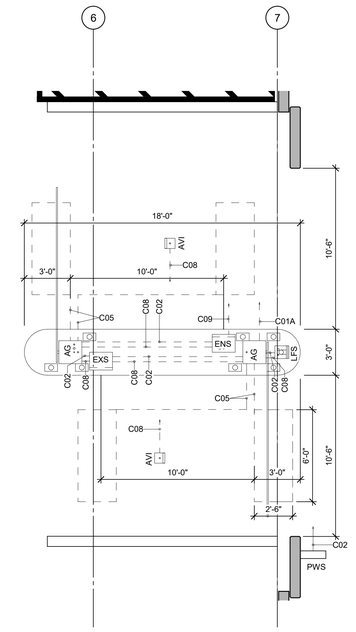
PARCS ELECTRICAL NOTES:

1. ALL EXPOSED CONDUIT TO BE RIGID HOT DIPPED GALVANIZED.
2. SEE EQUIPMENT LEGEND FOR POWER REQUIREMENTS.
3. COORDINATE WITH CIVIL AND ELECTRICAL DRAWINGS FOR POWER SUPPLY AND DATA LINE INTERFACES.
4. POWER AND COMMUNICATIONS SHALL BE ROUTED IN SEPARATE CONDUITS. VOLTAGE DROP SHALL BE LESS THAN 3%. CONDUIT AND CONDUCTORS SHALL BE SIZED PER THE NATIONAL ELECTRICAL CODE REQUIREMENTS. CONSULT ELECTRICAL ENGINEER FOR DETAILS.



2 ENTRY-EXIT PLAN AT N. CHURCH STREET

1/4" = 1'-0"



1 ENTRY-EXIT PLAN AT 5TH AVENUE W.

1/4" = 1'-0"

WALKER CONSULTANTS
13860 Ballantyne Corporate Place, Suite 140
Charlotte NC 28277
704.247.6230 Ph
www.walkerconsultants.com
NC CORPORATE LICENSE NO F-0518

NORTH CAROLINA PROFESSIONAL SEAL 42607 ENGINEER JOEL D. ROWLAND 8.11.21

CITY OF HENDERSONVILLE

DOWNTOWN PARKING DECK

415 N. CHURCH STREET
HENDERSONVILLE, NC

MARK	DATE	DESCRIPTION
REVISIONS		

SHEET ISSUE:	FOR BIDS AND CONSTRUCTION
ISSUE DATE:	08-11-2021
PROJECT NO:	19-001228-00
DRAWN BY:	RCG
CHECKED BY:	BMF/KBD

SHEET TITLE:
ENTRANCE / EXIT PLANS

AG401

8/11/2021 2:27:16 PM BIM 360://19-001228-00-City of Hendersonville/Hendersonville Church-5th parking garage_r20.rvt