Westfield Culver City

Request for Proposal: Level Count and Dynamic Signage System

Prepared by: Aberdeen Management Group
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1 Notice
Westfield Culver City (the “Owner”) invites proposals from qualified vendors (the “Vendor”) interested in providing the Owner with a Level Count System (LCS) and Variable Messaging System (VMS), cloud-based software, signage, configuration, installation, acceptance testing, training, and annual support services (“Services”). The Owner is interested in awarding a contract for up to eight (8) years. The Owner is seeking a Vendor whose combination of experience and expertise will provide timely and cost-effective services to the Owner.

For questions related to this RFP, please contact:

Steven Grant
Aberdeen Management Group (AMG)
steven@aberdeenmg.com

All questions regarding this RFP shall be directed in writing to AMG via e-mail. Only inquiries in writing will be accepted by AMG and the Owner, and only written responses will be binding upon the Owner.

All binding answers to inquiries will be distributed to all bidders via email.

2 Submittal Schedule, Pre-Proposal Meeting, and Questions

2.1 Schedule

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issuance of RFP</td>
<td>August 28th, 2017</td>
</tr>
<tr>
<td>Pre-Proposal Meeting/Teleconference</td>
<td>September 19th, 2017</td>
</tr>
<tr>
<td>Questions Due Date</td>
<td>September 22nd, 2017</td>
</tr>
<tr>
<td>RFP Response Due Date</td>
<td>September 29th, 2017</td>
</tr>
<tr>
<td>Onsite Interviews/Demonstration (if required)</td>
<td>October 5th, 2017</td>
</tr>
<tr>
<td>Selection Date</td>
<td>October 6th, 2017</td>
</tr>
<tr>
<td>Notice To Proceed</td>
<td>October 9th, 2017</td>
</tr>
<tr>
<td>Go-Live Date</td>
<td>Thanksgiving Season 2017</td>
</tr>
</tbody>
</table>

The Owner reserves the right to revise the schedule at its sole discretion.

Attendance at the Pre-Proposal Conference Call is not mandatory, but Vendors are strongly encouraged to attend. Call in information will be provided by AMG, via email, one week before the Pre-Proposal Conference.

Written questions concerning this RFP will be received until 5pm PDT on September 22nd by AMG. Questions must be submitted to AMG, in writing, via email. Please insert “Culver City LCS” as the subject for the email. AMG will prepare responses to written questions submitted as appropriate and email responses. Oral responses are not binding upon AMG or the Owner.
2.2 Submittal of Proposal, Modifications, Withdrawal, and Statement of Qualifications

Proposers must submit an electronic version of the original complete proposal via email in searchable Adobe Acrobat .pdf format to AMG. The original proposal must be signed by a company official authorized to make a legal binding offer. Proposals must be received by the Due Date and Time specified above and delivered via email to steven@aberdeenmg.com. There is no requirement for a paper version of the proposal to be submitted.

Proposals shall clearly state the following information:

All items required to be included with the proposal submission must be included, or the proposal may be subject to rejection. It is the responsibility of the Vendor to ensure that the proposal package is complete and received by AMG at the proper time.

Failure to execute/sign proposal prior to the submittal deadline shall render the proposal invalid. Regardless of cause, late proposals will not be accepted and will be automatically disqualified from further consideration.

AMG will permit modifications to a proposal after submittal until the specified due date and time for accepting proposals. To submit a modified proposal, the Vendor must:

1. Send an email to AMG with the Subject line “Revised Proposal Submittal’
2. List in the email the file names(s) of the original proposal to be discarded
3. List in the email the file names(s) of the revised proposal being submitted
4. Attach the new proposal file(s) to the email
5. Note: For proposal modifications, all original proposal documents will be disposed. For modified proposal, the Vendor must resubmit the complete proposal with the modified documents. It is the proposing Vendor’s responsibility to resubmit before the deadline. All proposal modifications shall be electronically delivered to AMG.

A proposing Vendor may withdraw a proposal without prejudice prior to the submittal deadline, provided that the request is in writing, is executed by the proposing Vendor or his/her duly authorized representative, and is filed with AMG.

From the date that this RFP is issued until the selection and the announcement, Vendors shall only contact AMG with respect to any facet of this procurement. Proposing Vendors shall not be permitted to contact any Owner Board Member, Officer, employee, agent or selection committee member with respect to this procurement.

All costs incurred by any Vendor in responding to this RFP shall be borne by such Vendor. AMG and the Owner shall have no responsibility whatsoever for any associated direct or indirect costs.

By submitting a proposal, the proposing Vendor agrees that the Vendor’s proposal shall remain effective for 90 days after the deadline for submitting the proposal.
2.3 Evaluation Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Assessment and Technical Solution</td>
<td>50%</td>
</tr>
<tr>
<td>Background/Qualifications/References</td>
<td>15%</td>
</tr>
<tr>
<td>Implementation and Support Plan/Schedule</td>
<td>15%</td>
</tr>
<tr>
<td>Pricing</td>
<td>20%</td>
</tr>
<tr>
<td>Total:</td>
<td>100%</td>
</tr>
</tbody>
</table>

Proposals will be evaluated based on the Vendor’s responses to the requirements of this RFP. Evaluations will focus on relative strengths, weaknesses, deficiencies and risks associated with the proposal. Interviews and demonstrations of system functionality with Vendors may be held at the option of the Owner. The Owner reserves the right to select a responsive, responsible Vendor or Vendors on the basis of the best value that is most advantageous to the Owner. Vendors who submit proposals will be notified of the selection results.

The Owner reserve the right to request product demonstrations and interviews with proposing Vendors. If the Owner decides that product demonstrations and interviews are in its best interests, the Owner will develop a short list based on the scores of the proposals to determine which Vendors will participate in interviews and product demonstrations. The Owner may send a list of product features to be included in the demonstration.

AMG will notify the successful Vendor of the award by telephone to begin to negotiate the final contract amount. If the negotiations are successful, the Owner will award the contract to the selected vendor, and will notify the other vendors of the contract award. AMG will also deliver a notification of award letter by email. If the successful Vendor defaults or otherwise is unable to enter into a contract with the Owner, then the Owner reserves the right to begin negotiations with the next highest ranked proposing Vendor. The successful proposing Vendor will have fourteen (14) calendar days after receipt of the notification of award to furnish the performance and payment bonds required herein.

The Owner reserves the right to reject any and all proposals, in whole or in part; by deeming the offer unsatisfactory as to quality or quantity, delivery, price or service offered; non-compliance with the requirements or intent of this solicitation; lack of competitiveness; error(s) in specifications or indications that revision would be advantageous to the Owner; cancellation or other changes in the intended project, or other determination that the proposed requirement is no longer needed; limitation or lack of available funds; circumstances that prevent determination of the best offer; or any other determination that rejection would be in the best interest of the Owner. The Owner reserves the right to reject any proposal as non-responsive if the proposal fails to include any of the required information in the specified order. If all proposals are rejected, AMG will send a letter to all proposing Vendors informing them that all proposals on the project were rejected.

The Owner reserve the right to cancel this RFP if it is determined to be in the best interest of the Owner to do so.
3 Addenda, Clarifications, Amendments, Modifications, Withdrawals, Waivers

The Owner reserves the right to amend, insert, or delete any item in this RFP if it is determined to be in the best interest of the Owner. If it becomes necessary to revise any part of this RFP, a written addendum to the solicitation will be emailed to all proposing vendors. The Owner will not be bound by, and the Vendor shall not rely on, any oral or written communication or representation regarding this RFP except to the extent that it is contained in an addendum to the RFP or the Questions and Answers as emailed to vendors, and is not superseded by a later addendum to this RFP.

AMG and the Owner may request written clarifications to proposals. Proposing Vendors shall provide the requested information in writing by the date and time indicated in the schedule. If the requested information is not timely received, the proposing Vendor’s ratings may be adversely affected and/or the proposal may be declared non-responsive and not eligible for award.

The Owner will not be bound by oral explanations or instructions given by anyone at any time during the proposal process or after award. AMG and the Owner will not consider Vendor information indicated by reference as part of the RFP response. However, AMG and the Owner may consider other sources in the evaluation of proposals, such as references, for example.

The Owner may waive minor informalities or irregularities in proposals received where such is merely a matter of form and not substance, and the correction or waiver of which is not prejudicial to other proposing Vendors. Minor irregularities are defined as those that will not have an adverse effect on the Owner’s interest and will not affect the price of the proposals by giving a proposing Vendor an advantage or benefit not enjoyed by other proposing Vendors.

4 Proposal Format and Content and Submittal Requirements

Interested Vendors shall submit one electronic copy, with a maximum of fifty (50) pages, excluding Price Proposal Form and the report samples.

Vendors are to submit their information addressing qualifications, expertise, competence and capability. Proposals should use a maximum of size 12-point font. The submittal must address and include:

1) Executive Summary: The executive summary shall consist of the proposal cover letter highlighting the contents of the proposal (no longer than two pages).

2) Corporate Background and Qualifications: Provide qualifications and evidence of financial soundness/viability as an ongoing business concern. This section shall include background information on the organization’s qualifications to undertake this project and certification that the company has the resources available to fully complete this project. Include a statement of qualifications for any sub-Vendor that will perform 10% or more of the value of the contract;

3) Key Personnel: Provide the names, qualifications, experience, and resumes for the key project personnel who will be responsible for providing the services including their professional credentials, capabilities and experience. Provide an Organizational Chart showing names, title, roles of individuals, and percentage of time dedicated to
RFP Instructions for Westfield Culver City Level Count System and Variable Messaging System

this project for those who will be assigned to this project. Show sub-Vendor relationships, if any. Identify the individual who will assume the position of Project Manager and who will be the primary point of contact for the project. These individuals will be considered part of the proposal and any replacements to this group of professionals due to unforeseen or extenuating circumstances must have equal or greater qualifications as the person(s) replaced. All changes to key personnel must be approved by authorized representatives of AMG and the Owner;

4) Experience Qualifications:
   a. Qualification data listed in the “Quality Assurance” section for manufacturers, providers and installers of each primary component.
   b. For the three (3) most recently installed, complete projects that are similar in magnitude, complexity, and dollar value, include names, locations, contacts, telephone numbers, date of installation and acceptance, number of lanes in facility and description and types and quantities of equipment.

5) Technical Approach: Describe your firm’s approach to the project. Identify any unique problems or opportunities perceived by the Respondent to achieve the scope of work, as described within this RFP, and proposed solutions for each problem or opportunity. Provide any additional plans and/or relevant information about Respondent’s approach to providing the required services including narrative descriptions and product information for any add-value propositions or alternative solutions. Provide product data and samples for all significant components of the system as described in Functional Specification, LCS and VMS.

6) Proposed Implementation Plan: This section should propose a high-level anticipated plan and estimated schedule for full implementation. It is the Owner’s desire to have the system completed before Thanksgiving to accommodate the peak shopping season. If this timeline cannot be accomplished, please submit a schedule that begins January 8, 2018. Vendors who submit proposals with a completion date before Thanksgiving 2017 will be given preference. All proposed project phases should be presented with their respective timing and resource requirements from both the vendor and the Owner. Respondents are asked to provide information about their ability to 1) implement the functionality of the solution; and 2) the availability of Vendor resources to begin performing the work efforts of the implementation upon contract award.

7) Materials describing functionality for the proposed software components and cloud-based server solution.

8) Project schedule submitted with LCS Vendor’s proposal including a complete plan for implementation, training and testing. Project Schedule to include:
   1. Milestone dates by project phase clearly identified
   2. Task start and completion dates
   3. Task dependencies
   4. Associated deliverables
   5. Associated travel (show number of site visits)
   6. Narrative description of phasing for each area of Work including installation of field devices, performance of acceptance testing, and activation for public use
   7. Testing schedule relative to system activation
   8. Training schedule relative to system activation
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9) Sample Reports - Provide the Vendor’s standard reports including report descriptions, selectable data fields, and report layouts for all standard reports.

10) Software applications and versions.

11) Manufacturer recommended maintenance procedures.

12) Screen shots of standard dashboards.

13) Forms: The proposal must also include all required forms.

14) Submit features and subsystems available in Vendor’s solution portfolio beyond those listed in the specification document that would benefit the Owner.

15) Cut sheets for all Vehicle Detectors, Dynamic Signs, UPS, relays and Additive/Alternate Components that contain the following:
   a. Equipment dimensions
   b. Equipment mounting requirements, including proposed mounting height for sensors and indicators
   c. Power requirements and load
   d. Communication requirements
   e. Operating temperature ranges
   f. NEMA/IP rating

16) Copy of the service agreement for installation, warranty and post-warranty preventative maintenance and emergency maintenance services. Include an explanation of any instances which may impact warranty coverage.

Proposals will be retained by the Owner. The proposing Vendor shall treat all work product and any other information or knowledge of the Owner related to the specifications, in any form whatsoever, as confidential information of the Owner and shall not disclose or make same available to any third party without the Owner's advance written consent. Third party means any person or entity other than the Owner or the Vendor and includes without limitation any governmental unit, private enterprise or individual.

5 Required Forms

5.1 Form A: Price Proposal Form
An electronic version of the Price Proposal Form will be provided to all Vendors who propose on the project. Vendors shall complete the form by filling in the proposed costs in the yellow highlighted cells. The non-highlighted cells in the form will self-calculate.

Vendors shall not modify any formulas in the form without prior approval from the Owner.

For instances where Vendors wish to include a separate line item that is not already listed, use one of the “Other _____” line items provided.

Vendors shall submit the completed Price Proposal Form, in Microsoft Excel format, as part of their electronic proposal submittal.
5.2 Form B: Exceptions and Substitutions
The Vendor shall detail in their response an inclusive list of clarifications, exceptions, comments, substitutions, and add value propositions to the requirements contained in the technical specification.

1. Substitutions: Where functional performance features or quality of system varies from that specified, identify substitution being proposed. Include catalog sheets, brochures, and/or technical specifications of the proposed substitution.

2. Exceptions: Provide an all-inclusive list of all exceptions taken to any part or parts of these specifications (including substitutions).

Should some, or all, of the items listed be approved by the Owner, the specifications will be amended and the conformed specifications will become part of the Contract Documents.
Level Count System
&
Variable Messaging System
Technical Specification
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1 Definitions and abbreviations

1.1 Abbreviations
1. ANSI American National Standards Institute
2. API Application Programming Interface
3. BI Business Intelligence
4. DAT Device Acceptance Test
5. GUI Graphical User Interface
6. IDF Intermediate Distribution Frame
7. IP Intrusion Protection
8. ISO International Organization for Standardization
9. LCS Level Count System
10. LED Light Emitting Diode
11. NEMA National Electrical Manufacturers Association
12. NEC National Electric Code
13. NTP Notice to Proceed
14. ODBC Open Database Connectivity
15. ODT Operational Demonstration Test
16. QA/QC Quality Assurance/Quality Control
17. RFP Request for Proposals
18. TCP/IP Transmission Control Protocol/Internet Protocol
19. UL Underwriters Laboratories, Inc.
20. UPS Uninterruptible Power Supply

2 Introduction

2.1 Background
Westfield Culver City (previously known as the Fox Hills Mall), is a shopping mall in Culver City, California, owned and managed by the Westfield Group. Situated on a 50-acre site, its anchor stores include Best Buy, J.C. Penney, and Macy’s. A transit center is located in the mall’s parking lot served by Culver City Transit.

2.2 Project Understanding
The purpose of this Request for Proposals (RFP) is to establish a Contract with one (1) qualified and experienced Contractor to provide all material, labor, equipment, services and training necessary to furnish and install a cloud-based fully automated on-line, real-time, parking Level Count System (LCS) and dynamic Variable Messaging Signage (VMS) solution at Westfield’s Culver City mall parking facilities. The LCS and VMS shall utilize a vehicle detection system to perform parking level counts in the mall’s west, center and east sections and inside the four-level garage that will send the count data in real-time to signage strategically located at the parking garage entries/exits and helix (see Appendix A for proposed signage locations).

The LCS shall be a fully hosted cloud-based solution that provides the Westfield Culver City (the “Owner”) team with the ability to display to Westfield customers real-time level count space availability within the parking garage and wayfinding direction around the mall as well as exporting the parking data in a common format such as .csv or Excel. By informing Westfield customers of level parking space availability within the parking garage, the intent
is to encourage increased usage of the garage and lessen the stress placed on the surface lot area located at the north side of the property and reduce queuing at peak periods on Fox Hill Drive.

### 2.3 Culver City Parking Data

The parking facilities at Culver City mall is split between the four-level garage and the surrounding surface lot. The following table outlines the current parking counts for both lots.

#### Figure 1: Culver City Parking Counts by Level

<table>
<thead>
<tr>
<th>Level/Area</th>
<th>Parking Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Lot</td>
<td>2,036</td>
</tr>
<tr>
<td>Garage Level 1</td>
<td>492</td>
</tr>
<tr>
<td>Garage Level 1 - Valet</td>
<td>70</td>
</tr>
<tr>
<td>Garage Level 2</td>
<td>455</td>
</tr>
<tr>
<td>Garage Level 3</td>
<td>478</td>
</tr>
<tr>
<td>Garage Level 4</td>
<td>828</td>
</tr>
<tr>
<td>Total No. of Spaces</td>
<td>4,359</td>
</tr>
</tbody>
</table>

The following diagram provides an overview of the mall. Additional drawings and proposed signage locations can be found in the Appendix.

#### Figure 2: Culver City Mall Overview
2.4 Project/Site Conditions
1. The Vendor shall provide a solution such that environmental conditions in any cabinet or inside any device do not cause failure of any installed electronics. All field equipment and components shall be fully protected from the ambient environment when installed in the proper housing provided by the Vendor. The operation of the equipment should not be affected in any way by weather conditions typical to the Los Angeles, California area. In addition, operation of the equipment should not be effected in any way by any of these environmental conditions:
   a. Ambient Temperatures: -10ºF to 120ºF
   b. Humidity: 0% to 90% (non-condensing)
   c. Rain: Intense, blowing rain
   d. Wind: Comply with local building codes
   e. Dust: Accumulating and blowing dust and fine sand
2. The proposed solution shall include provisions to compensate for electrostatic and electromagnetic forces, e.g., non-direct lightning strikes, or other types of power interference so that the circumstances do not affect the integrity or operation of the level count and signage system.
3. The Vendor shall include in their response a proposed solution for preventing power interference to the Owner for approval prior to implementation.
4. The Vendor shall provide and install lightning protection for the LCS through surge arrestors or earthen ground rods or a combination, if required. Based upon the Vendor’s proposed LCS requirements, the appropriate lightning protection method to use for the location where the equipment is installed shall be provided.
5. All equipment shall be UL-approved for use as part of a master labeled lightning protection system and marked in accordance with UL procedures.

2.5 System Design Characteristics
The LCS will be implemented in the parking garage in one phase as follows:
1. Ramp and helix vehicle detection for level counts on all four levels of the parking garage.
2. Monitor and communicate parking availability as described herein.
3. Display real-time parking availability as “OPEN”, “FULL”, or number of available spaces on dynamic signs, at the proposed locations indicated on the drawings in Appendix A. The Owner welcomes the Vendor’s insights on the proposed locations.
4. Provide system intelligence and central control to facilitate management of level counts, real-time reporting and information capabilities to provide:
   a. Occupancy by level
   b. Occupancy by facility
   c. History reports of vehicle entry and exit data garage
5. Provide all necessary level count and signage software.
6. Provide a fully hosted cloud-based solution with data storage requirements defined by the Owner. The solution must have redundancy and failover to maintain a 99.9% uptime. The Vendor shall explain in the proposal response the redundancy and failover provisions to achieve 99.9% uptime.
7. The LCS and signage package will operate seamlessly as a complete system. All equipment components shall function in coordination with other components.
8. The Vendor shall coordinate the LCS component installation with the geometric circumstances of the specific location where they are installed, i.e. garage clearance, drive isle widths, line of sight, etc.

9. The Vendor shall provide LCS software that is browser-based and web-browser enabled, i.e. the LCS software must be accessible by an authorized user through an internet browser of any web-enabled workstation or mobile device. Users shall not require a client version of the software installed on their workstations or mobile devices to access the application. The solution must allow for multiple simultaneous logins by Owner authorized users.

10. The Vendor shall identify any clarifications, deficiencies, exceptions or errors relative to this specification in the design in their proposal. No deficiency or error in the design relieves the Vendor of the responsibility to provide a fully functional LCS as intended by the design. Clarifications and exceptions to the design taken by the Vendor must be clearly stated in the proposal and are subject to Owner approval.

2.6 Vendor’s Scope of Work

1. Fabricate, deliver, and install all LCS and signage equipment as described in this specification.

2. Comply with all applicable State and Federal codes and standards.

3. Review plans and specifications to be certain that all functional requirements, as described, can be achieved with the equipment and software to be supplied.

4. Complete drawings and specifications development for the design development submittal.

5. Provide Submittals as specified in Section 5.

6. Coordinate requirements for device control wiring, communications wiring, and power wiring from electrical rooms to demarcation points on each level of the parking facility for provision and installation by an electrical subcontractor.

7. Coordinate requirements for any electrical and communication conduits from electrical rooms to demarcation points on each level of the parking facility for provision and installation by the Vendor’s electrician.

8. Provide and install all LCS and signage communication and electrical pathways (communication conduit) from the demarcation points on each level of the parking facility to the vehicle detectors and dynamic signs.

9. Provide and install any power conditioning that is required for the operation of the system.

10. Provide and install all electronics and communications equipment for communication network per Owner requirements. Terminate and connect all communications cabling.

11. Coordinate and confirm final and precise layout of signs, conduits, mounting rails, stubs, sensors and anchor bolts with Owner prior to installation.

12. Install all Vendor-supplied equipment and provide interconnection with any Owner-supplied equipment.

13. The Vendor must test, adjust and interface circuits prior to installation of equipment. Make all connections of wiring to components.

14. Authorize and accept responsibility for the application of power to equipment and initiation of operation.

15. Run all initial diagnostics and system testing programs necessary to provide a complete working system.

16. Attend construction meetings, provide schedules as requested, and schedule fieldwork to be coordinated with facility operations.

17. Test equipment in accordance with this specification.

18. Provide record drawings, operating manuals, maintenance manuals, and training sessions as specified herein.
19. Participate in system commissioning as required.
20. Provide warranty services as required.
21. Provide post-warranty maintenance services, if selected by the Owner.

2.7 Future System Expansion
1. Provide an LCS that is easily expandable and upgradeable to accommodate additional parking facilities, nested parking areas, features and configurations.
2. The installed LCS to be capable of the following:
   a. Add additional level count sensors and dynamic signs, if needed.
   b. Add additional parking facilities within the Culver City shopping mall site.
3. The potential to interface with additional third-party systems such as mobile applications and external websites.

2.8 Codes and Regulations
1. The Vendor shall comply with all applicable Federal, State and local laws, ordinances, rules and regulations pertaining to the performance of the work specified herein and compliant with the Owner internal policies.
2. The Vendor shall 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 Owner’s internal policies for the proper execution of the work specified herein.
3. The Vendor shall comply with Federal and State right-to-know laws if hazardous materials are used. The Materials and Safety Data Sheets (MSDS) shall be made available to all workers and Owner representatives. The Vendor shall report immediately to the Owner any spillage or dumping of hazardous materials on Owner property. The Vendor shall also be responsible for the cleanup and any costs incurred for all such incidents.
4. During the performance of this contract, the Vendor shall keep current and, if requested by the Owner, provide copies of all licenses, registrations or permits required by applicable governing agencies. The Vendor shall keep a copy of all licenses, registrations and permits on the job site while performing the contract work.
5. The following is a list of standards. The list is not all-inclusive and the Vendor shall also be compliant with any Owner internal policies. The latest revision in effect for each standard at the time of Notice to Proceed (NTP) shall be used in conjunction with the contract documents.
   a. ISO 9001
   b. National Electrical Code
   c. National Electrical Manufacturers Association (NEMA) 4X
   d. Intrusion Protection (IP) 65
6. The Vendor shall identify and notify the Owner of any changes to the standards that are instituted between the time of NTP and implementation and certify that their software meets these requirements.
3  Level Count and Signage Products

3.1  Software

1. Provide all software and software licensing required by the system. To the greatest extent possible, use proven, off-the-shelf software (i.e., software already manufactured and available for delivery).
2. Deliver original software documentation to the Owner prior to system acceptance testing.
3. Provide any necessary perpetual licenses and/or authorization for all software used by the Owner along with any expiration dates for the licenses.
4. Level Count System Application Software:
   a. Provide an LCS solution with configurable groups and roles that govern individual access to the system. The assignment of a group/role will control access to the various modules of the LCS, and if the access is update or view only.
      i. Provide role-based access control using the principle of least privilege for all system functions including system administration and security administration.
      ii. Access rights to the system for Owner personnel and others will be defined during implementation.
   b. Install and configure all application software and firmware required by the LCS with all software licenses registered to the Owner.
   c. Provide application software with the following features and functionalities:
      i. Ability to collect, display and report all LCS-related data as outlined in this Specification.
      ii. Browser-based – Provide LCS software that is browser-based and web-browser enabled, i.e. the LCS software is accessible by an authorized user through an internet browser of any web-enabled computer or mobile device. Users should not need a client version of the software installed on their workstation or mobile device to access the application.
      iii. LCS application software to utilize a Graphical User Interface (GUI) that is intuitive and user friendly. Provide a GUI with the following features, at a minimum:
         1) Display of floor maps for the parking facility with real-time level occupancy graphically indicated
         2) Access for authorized users to modify system configurations including:
            a) Manual adjustments to counts
            b) Manual override of signs
         3) Access to view, print, and export (Microsoft Excel and Adobe PDF, at a minimum) all reports
      iv. Automatically detect and report fault conditions – the system can perform a self-check on a routine basis and provides notification for fault conditions and equipment failure. Fault conditions are categorized by severity and the system displays alarm notification on the system GUI as well as provides automatic notification to the designated Owner personnel via email and/or text message for any individual fault condition, category of fault, or Owner-selected group of faults including server failures.
      v. Provide remote monitoring of all field devices, e.g., Vehicle Detectors, Dynamic Signs, etc.
      vi. Provide reporting as outlined in the Reports section.
      vii. Utilize industry standard Application Programming Interface (API) to allow simple interface with third party applications.
d. Provide application software that has been designed for use in LCS systems, and is written in a standard, industry-accepted computer language such as Java, JavaScript, C#, etc.
e. Identify in the proposal the version of LCS software that will be used.

3.2 Reports
1. The solution shall provide reporting data to record parking activity and generate activity reports.
2. All reports shall be available online and on demand for Owner personnel who have proper password access.
3. Compile the LCS stream of data in an ODBC compliant database.
4. Provide the Owner the ability to prepare custom, exportable reports using the LCS data including Microsoft Excel™, at a minimum, via a comma-separated-value file format.
5. Provide the Vendor’s standard reports including report descriptions, selectable data fields, and report layouts for all standard reports. The LCS Vendor will submit a package of standard reports for Owner review as part of their RFP response.
6. Provide a definitions key for every report including a narrative description of what data each column and row represents.
7. Coordinate with the Owner as required during the system design to address the specific reporting needs of the Owner. At a minimum, reports provided to include:
   a. Statistical utilization reports as a whole, by area, and by level in the garage:
      i. Hourly
      ii. Daily
      iii. Day of Week
      iv. Weekly
      v. Monthly
      vi. Annually
   b. Exception Reports
      i. Vehicle Detector failures
      ii. Loss of communication
   c. Third Party Software
      i. Identify any proposed third-party software packages in the Vendor’s proposal.
      ii. Provide the latest available version, at the time of implementation, of all third-party software provided.
      iii. Purchase software maintenance for all third-party software naming the Owner as the software owner and contact. All third-party software maintenance agreements will remain valid throughout the duration of the warranty period and will be extended on an annual basis during post-warranty maintenance period, if post-warranty maintenance is selected by the Owner.
3.3 Power
1. The Vendor shall provide a detailed system design including cut sheets, specifications, and drawings for the final design development submittals.
2. Power conduits, pull cords, junction boxes, and cabling necessary to support the LCS will be provided and installed by the Vendor from Owner specified electrical rooms which are to be the demarcation points on each level of the facility. The Vendor shall coordinate with the electrical subcontractor to ensure proper power is provided to the demarcation points for all LCS equipment. Please refer to Appendix B for the electrical room locations.
3. The Vendor shall provide and install all required power conduits, pull cords, junction boxes, and cabling from the demarcation points to the vehicle detectors and dynamic signs.
4. Provide and install any power conditioning that is required for the operation of the system.
5. The Vendor is responsible for terminating and testing all electrical cables to the end field devices in the parking facility.
6. Configure all field component power connectivity such that no single point of failure of a device causes an operational failure of surrounding devices.
7. Provide LCS components that are powered via hardwired connections or solar power. Batteries are not acceptable as a primary power source.

3.4 Communication
1. Communication conduits, pull cords, junction boxes, and cabling necessary to support the LCS will be provided and installed by the Vendor from Owner specified electrical rooms which will be the demarcation points at the facility. The Vendor shall ensure proper communication media is provided to the demarcation points for all LCS equipment.
2. The Vendor shall provide and install all required communication conduits, pull cords, junction boxes, and cabling from the demarcation points to the vehicle Detectors and Dynamic Signs.
3. The Vendor is responsible for polishing, terminating and testing all communication cables to the field devices.
4. Configure all field component communications such that no single point of failure of a device causes an operational failure of surrounding devices.
5. If wireless communication is proposed, the Vendor shall provide evidence, approved by the Owner, that up-time and data transmittal of 99.9% will be achieved.

3.5 Equipment and Sub-systems
1. Provide newly manufactured equipment and associated materials utilized in the LCS. Installation of used or refurbished equipment is now allowed.
2. Provide fully interchangeable components without the requirement for physical modification for all equipment performing a like function and of the same part number.
3. Provide LCS configuration with device autonomy such that no single point of failure of a device causes an operational failure of surrounding devices. Equipment at a single location that fails causing a shutdown of that device should not affect the operational status or functionality of any other device.
3.6 Application and Data Servers

3.6.1 System Architecture
1. Provide to the Owner documentation for the hosted solution architecture including server, database, redundancy, failover, and archiving and system update processes.
2. Utilize TCP/IP for LCS data communication.

3.6.2 LCS Servers
1. Provide a hosted cloud environment solution. The cloud solution will be owned and managed by a hosting company which provides a dedicated environment to the Owner.
2. Redundant information shall be stored so that no subsystem failure shall compromise copies of the data.
3. Stipulate the hard disk capacity for the server system as part of the LCS Vendor’s proposal.
4. Sufficiently configure the database server such that the following features and functionalities are attainable:
   a. Maintain five (5) years of on-line data of all LCS data. Data is readily accessible without any delay in processing.

3.6.3 LCS Workstations and Mobile Devices
1. Workstations and mobile devices will be web-enabled and provided by the Owner per the LCS Vendor’s specifications.
2. Ability for any web-enabled workstation or mobile to access the LCS based on access rights of the user.

3.7 Ramp/Helix Vehicle Detectors
1. A critical element of the LCS is accurate detection of vehicles entering and exiting the various parking levels within the parking garage.
2. Provide Ramp/Helix Vehicle Detectors, as indicated in the Appendices, to detect vehicle entries and exits to/from the garage’s levels.
3. Communicate via a hardwired connection utilizing readily available, commercially common, wire and cable.
4. Provide Ramp/Helix Vehicle Detectors that continue to operate when the sensor goes into an offline condition. All activity occurring while the detector(s) is (are) offline to be uploaded to the LCS server upon reestablishment of communication.
5. Powered via a hardwired connection utilizing readily available, commercially common, wire and cable. Preferably, sensors will be powered on the same conductors as the data.
6. If mounted overhead, mount on the ramp/helix to and from the applicable level, secured to the ceiling or LCS Vendor-provided structure above.
7. Maintain a minimum clearance 4” greater than the posted clearance where sensor is installed.
8. Detect any passenger vehicle passing through the intended count zone from a distance of 0.0 ft. down to 15.0 ft. below the sensor.
9. Provide directional logic to identify the travel direction of a vehicle and track the occupancy counts appropriately.
10. Display each sensor’s indicator status on the GUI and update via the network in real-time. Please refer to Appendix C for the current IDF room locations.
11. Sensor calibration:
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- Automatically initiate self-calibration upon power up or reboot
- Manually initiated self-calibration via push button on the sensor
- Manually initiated self-calibration via remote connection from a web-enabled workstation or mobile device.
- Provide functionality for workstations or mobile devices to initiate calibration through the LCS GUI of an individual sensor, selected group of sensors, or all networked sensors.

12. Sensor detection unaffected by:
   - Vehicles parked in adjacent spaces
   - Detection signals of adjacent sensors
   - Changes in ambient lighting conditions including direct sunlight as well as complete darkness
   - Vehicle color
   - Changes in temperature
   - Changes in humidity
   - Wind
   - Surface color variations such as oil stains, painted surfaces, standing or flowing water, etc.
   - Vehicle speeds up to 25 miles per hour
   - Rain

13. The LCS Vendor shall provide traffic delineation on the level to level ramps within all parking structures to force vehicles to pass through the intended count zones in a valid movement. Traffic delineation shall include but may not be limited to concrete jersey barriers, metal pipe bollards, speed bumps, polyethylene surface-mounted guide posts and traffic curbs, static signs, concrete islands, and traffic paint. Traffic delineation at each count zone shall force the approaching vehicles to drive through the intended count zone of the non-loop vehicle detector in a manner that maximizes the count accuracy for the zone. Traffic delineators shall be painted and marked to the Owner’s preference. Count zones shall be signed with static signs, provided by the LCS Vendor, that warn the approaching vehicles of the count zone and the intended vehicle path.

14. As part of their Proposal, the LCS Vendor shall submit shop drawings of all proposed LCS ramp vehicle detection devices and ramp traffic delineation plan.

3.8 Uninterruptible Power Supplies

1. The Vendor shall provide conditioned/emergency power through UPS units for the LCS field components to protect components from loss of power, power spikes, and power sags.
2. UPS battery back-up sized to run all connected devices without degradation in performance for a minimum of thirty (30) minutes.
3. The Vendor shall provide an on-line, solid state UPS for both backup power and transient surge protection.
4. The Vendor shall provide the UPS backup requirements for each of the locations where UPS backup is required based upon the equipment that is being supplied. The Owner shall review and approve the UPS units to be provided by the LCS Vendor.
5. Properly size the UPS with 50% spare capacity and facilitate 30% expanded load with an 80% continuous load factor.
6. Test all UPS system components during the DAT.
7. Submit the manufacturer’s recommended UPS battery refresh cycle.
3.9 Dynamic Signs
1. Garage Entry Dynamic Signs
   a. Provide signage inserts for entry dynamic signs, as indicated on the Drawings.
   b. Sign housings with static text, mounting hardware, and communication equipment to be provided by the Vendor.
   c. Remove any existing signage, where approved by the Owner, and replace with new dynamic signage as indicated on the drawings in Appendix A. The signage components shall include the following:
      i. Arrow/cross for direction (variable LED) to be placed at outer ends of the sign
      ii. Digits for space counters (variable LED)
      iii. Backlit wayfinding signage
      iv. Signs displaying “FULL” shall visually display the cross only with the arrow to be blanked out.
   d. Entry dynamic signs to indicate total space availability for public parking spaces in the vicinity of the parking garage.
   e. The final locations of the signage placement shall be coordinated with, and approved by, the Owner.
   f. The design of the dynamic signs shall reflect space availability by facility and level using arrows and digits.
   g. For signs number #1 and #2 in Appendix A, these signs are optional but pricing shall be included in the Price Proposal Form.
   h. The Vendor shall propose a sign box casing design based on their typical installation method.

2. Helix/Ramp Individual Level Dynamic Signs
   a. Provide signage inserts for Helix/Ramp Individual Level Dynamic Signs, as indicated in the Appendix. Sign housings with static text, mounting hardware, and communication equipment to be provided by Others. Coordinate with sign insert requirements with signage Contractor.
   b. Coordinate signage design with the Owner.
   c. Remove existing signage and replace with new dynamic signage as indicated on the drawings.
   d. Helix/Ramp Individual Level Dynamic Signs to indicate space availability, for the respective level, at the entry/re-entry point onto the level.

3. Helix/Ramp Dynamic Signs
   a. Provide sign inserts for Helix/Ramp Up Dynamic Signs, as indicated in the Appendix. Sign housings with static text, mounting hardware, and communication equipment to be provided by the Vendor.
   b. Coordinate signage design with the Owner.
   c. Remove existing signage and replace with new dynamic signage as indicated on the drawings.
   d. Helix/Ramp Up Dynamic Signs to indicate the space availability, for the respective groups of levels above at the entry point from each level.

4. Utilize Red/Green LED type signs for all LCS dynamic signs. The number of dynamic characters per sign type are as described in Appendix A.

5. Propose proper sign matrix size to fit within the geometric circumstances of each installation location. Coordinate signage design with the Owner’s parking consultant team.
6. Provide functionality for LCS software to control the message that is displayed on all signs and automatically update the respective number of available spaces displayed based on user configurable thresholds.

7. Provide functionality for authorized users to override the automated messages through the LCS GUI including the status displayed and to change the predetermined occupancy number that triggers a change from one status to another displayed status.

8. Provide a built-in light sensor for each dynamic sign that automatically adjusts the LED brightness in changing lighting conditions to ensure all dynamic signs are legible in all ambient lighting conditions ranging from direct sunlight to complete darkness.

9. In the event of a loss of communication, sign displays will go blank or display dashes or another symbol indicating that the sign is out of order. Signs will not continue to display inaccurate counts while offline. Upon re-establishment of communication, signs will automatically update and display the current occupancy.

### 3.10 Ramp/Helix Vehicle Detector Accuracy

1. Detect vehicles passing through count zone with 99% accuracy, exclusive of invalid counts, as tested in a controlled environment to prevent invalid counts. Invalid counts include vehicles or other objects that enter detection zones in a manner that defeats the intent of the system. For example, a vehicle that backs out of a space and activates the count detectors can generate a false vehicle count or a vehicle that bypasses the count zone delineation can fail to produce a count. Invalid counts can also be generated by pedestrians, carts, bicycles and various other foreign objects that enter the detection zones.

2. During acceptance testing, each vehicle detector will be tested to ensure counting of valid vehicular movements with 99% accuracy over the testing period. The accuracy testing procedures to establish passing test criteria will be determined prior to system testing with approval from the Owner.

### 3.11 LCS Performance

1. Receive and record count signals within one second from the count event.

2. Maintain hosting service uptime of 99.9%.

3. Update the LCS GUI display and Dynamic Signs every ten seconds. This frequency to be user configurable.

4. At any given point in time, no variance is allowed between the counts shown on the Dynamic Signs, the counts shown in the LCS GUI, and the counts recorded in the LCS database.

### 3.12 Report Processing Times

1. Report generation for data less than 12 months old: less than 10 seconds

2. Report generation for data 12 months or older: less than 20 seconds

### 4 Source Quality Control

#### 4.1 Internal LCS Vendor Testing

1. Perform formal manufacturing tests and quality assurance inspections to validate compliance with the Contract prior to the start of installation.
2. Maintain Records for formal internal LCS Vendor testing and inspection for performance, materials quality and/or workmanship and make documentation available if requested by the Owner prior to the start of installation or at any point during the execution of the Contract.

3. Provide proof of product reliability analysis and testing should reliability become a problem at any time from the beginning of installation testing through the final operational test period.

5 Submittals

5.1 Proposal Submittals

1. Submittals Due within fourteen (14) calendar days of Vendor’s receipt of written NTP.
   a. Shop Drawings to include:
      i. Dimensioned drawings showing plans, elevations, sections and details indicating coordination and relationships with other construction.
      ii. Garage Dynamic Signs design drawings.
      iii. Mounting details for Dynamic Signs and Vehicle Detectors.
      iv. Wiring diagrams detailing wiring requirements for power, communication, and control systems.
      v. Locations for electrical and communications connection points and pathways including conduit runs, concentration points, network access points, power panels and circuits, and connection to cloud-based server.
      vi. Clearly indicate any work that is “not in contract”.
   b. Testing Plan to include:
      i. Testing procedures including tests for all system functionalities that are described in this Specification as well as any other functionalities performed by the system (e.g. standard functionalities for the LCS) that are not specifically described within this Specification.
      ii. Review comments will be returned to the LCS Vendor by the Owner.
      iii. Incorporate the Owner’s review comments into the Test Procedures. This revised document will be resubmitted for verification that all comments have been incorporated. The approved document is termed the Test Procedures Document.
      iv. No test commences until the finalized Test Procedures Document is received and approved by the Owner.
      v. Develop all test procedures for the tests that are listed below:
         1) Device Acceptance Tests (DAT):
            a) Vehicle Detector Acceptance Tests
            b) Dynamic Signage Acceptance Tests
            c) Additive/Alternate Component Tests
         2) Operational Demonstration Test (ODT)

2. Submittals Due within fourteen (14) calendar days prior to the start of LCS installation
   a. LCS manuals to include:
      i. Instructional manuals for the LCS detailing the complete operation and maintenance of the LCS.
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ii. Owner will review the structure and contents of the manuals and return comments to the LCS Vendor, and the LCS Vendor will incorporate all comments into revised manuals.

iii. Submit the revised manuals for approval prior to commencing system installation.

iv. Submit the following manuals in both hardcopy and electronic (PDF or Microsoft Word) format:
   1) LCS user manuals
   2) LCS maintenance manual
   3) Training manuals

3. Disaster Recovery Plan to include:
   a. Plan that provides step-by-step procedures for disaster recovery for each point of failure.
   b. The first steps will be in diagnostics. The remaining steps will provide procedure for resolution in order to bring the system back to full operational status.
   c. Should disaster occur immediately following, or as a result of, a patch or software update the disaster recovery plan will return the system to the software version in effect prior to the patch or update being applied.
   d. Points of failure include each component and sub-components in complex units, such as servers.
   e. The disaster recovery plan will include requirements for and location of spares.

4. Closeout Submittals
   a. As-Built Documentation: Submit as-built documentation of all systems and components installed as part of this project. As-built documents include depiction of the actual installed conditions of all equipment and cabling components. In addition, as-built documentation includes configuration settings of each system upon the completion of any acceptance test. Update the most recent as-built documentation submitted as further changes occur in the field or as a result of a patch or upgrade to an installed system throughout installation warranty, and post-warranty maintenance periods.

6  Spare Parts

1. Propose a list of spare parts (type and quantity) to be maintained on site. Identify and include the list of all spare parts required to maintain the system under the submitted preventative maintenance program in the proposal.

2. Submit a price list for the proposed spare parts inventory that lists the cost of each part on the spare parts inventory.

3. Provide guaranteed component pricing for two (2) years following NTP. Prices will be valid prices for the Owner to purchase the spare parts through a service agreement between the Owner and the LCS Vendor.

4. The Owner reserves the right to order additional parts and manage the LCS spare parts inventory as required to maintain the system.

5. The proposed spare parts list is subject to the approval of the Owner, and the Owner reserves the right to modify the spare parts inventory throughout the term of the Contract.

6. The Owner will provide a storage location of the spare parts, exact location to be identified by the Owner after Contract Award. The LCS Vendor will have access to the spare parts inventory and is responsible for ordering replacement components or parts as components or parts are used prior to completion of the warranty or post-warranty maintenance service period.
7. LCS Vendor responsible for replacing used spare parts immediately upon use.
8. Provide newly manufactured equipment and parts that have been manufactured within the past 6 months and never installed in any other operational system other than for factory test purposes.
9. Provide an itemized list of manufacturer's part numbers, model numbers, pricing, supplier's address, supplier's telephone numbers, and any single source components when parts are delivered to the site.

7 Warranty
1. Warranty all parts, materials, and workmanship following Final System Acceptance for a minimum period of 36 months (3 years). All-inclusive costs (parts, labor, maintenance, software support, warranty repairs, LCS Vendor travel time, LCS Vendor expenses, etc.) incurred during the warranty period to be provided without additional cost to the Owner.
2. Costs (time and material) for repair or parts replacement, components, etc., damaged or rendered unserviceable due to apparent and provable misuse, abuse, vandalism or negligence by Owner or the using public are excluded as a warranty item. Also excluded from the warranty are damages due to Acts of God.
3. The warranty period on the LCS begins upon notification from the Owner of Final System Acceptance.
4. Maintain all systems that are operating prior to starting the warranty period. Maintenance services are defined within the Manufacturer's recommended maintenance procedures manual submitted with the Proposal as accepted by the Owner.

8 Preventative Maintenance Service during the Installation and Warranty Period
1. Provide preventative maintenance services for all systems throughout the installation (for completed work) and the warranty period. Preventative maintenance procedures and frequencies are defined within the Manufacturer's recommended maintenance procedures manual submitted with the LCS Proposal as modified and accepted by the Owner.
2. Preventative maintenance services include, but are not limited to, inspection, testing, necessary adjustment, alignments, calibration, parts cleaning, communication system maintenance, server administration and database administration of the LCS hardware provided as part of this project by the Vendor.
3. Perform all preventative maintenance at non-peak periods during regular business hours.

8.1 Emergency Maintenance Service during the Installation and Warranty Period:
1. Emergency Maintenance Service includes both on-site service and remote service support.
2. Provide three (3) methods of notification to be used for emergency contact information (ex: telephone, email, SMS text message). Acknowledge receipt of any emergency service request within 30 minutes of notification by the Owner.
3. The Vendor shall provide customer support via telephone from 9am – 7pm each day including holidays and weekends.
4. The Vendor will call back with the proposed solution within one (1) day of receiving the Owner’s call and begin the emergency repair service the following day. If the repair is not resolved within three (3) days of Owner’s call, the Vendor will call the Owner with daily updates until the repair is complete. A temporary solution is acceptable in the event replacement parts are not available in inventory.

5. Factors beyond the control of the Vendor, such as unexpected delays in parts, accidents, severe weather, and unusual traffic, to be thoroughly documented and reported to the Owner the next business day. The Owner may grant relief for the service hour requirement after reviewing these factors.

8.2 Software Support during the Installation and Warranty Period

1. Make available to the Owner normal LCS software improvement releases (updates) when they become available at no additional cost to the Owner.

2. Provide all LCS software patches and updates free of charge during the installation and warranty period; however, after System Acceptance, the Owner has the option of implementing the updates or not. Seven (7) calendar days prior to all LCS software modifications, patches, updates, and upgrades, the LCS Vendor, provide accurate and complete documentation that describes:
   a. Patch/update release designation
   b. Proposed date and time of implementation
   c. Detailed description of what the patch/update accomplishes
   d. Vendor test plan that shows the change has been successfully tested and has passed internal unit, end-to-end testing
   e. Full disaster recovery procedures that return the system to its pre-patch/update condition

3. Provide operating system support and database administration services including adherence to the recommended operating system patches and updates as they are made commercially available by the operating system developer.

4. Coordinate the testing and implementation of all patches and updates with the Owner.

5. Support upgrades to the LCS application based on operating system patch and upgrade requirements. (For example, if the LCS runs on a Microsoft operating system, the software is able to be patched according to the Microsoft patch and upgrade schedule without breaking any application. If Microsoft decommissions an operating system, the Vendor must be capable of releasing code compatible with next operating system upgrade prior to Microsoft ending support for current operating system.)

6. If at any time the Vendor ceases to do business or ceases to make their LCS software product commercially available, the Owner will assume full ownership of the LCS software. Thirty days prior to ceasing to do business, the Vendor will provide the most current version of the LCS software source code to the Owner.

7. Provide corrective patches and upgrades in the event security vulnerability or system availability issues are discovered.

9 Post-Warranty Maintenance Services

1. Include costs in the proposal to provide post-warranty maintenance services for the LCS on an annual basis for five (5) years following expiration of the warranty period with pricing valid for the Owner to purchase the Post-Warranty Maintenance Services through a service agreement between the Owner and Vendor. Pricing for the post-warranty maintenance services will be valid through the end of the Warranty Period.
2. Post-warranty maintenance services to conform to the preventative, emergency, and software support warranty service requirements as defined for the warranty period.

10 Execution

10.1 Examination
1. Site Verification of Conditions:
   a. The Vendor shall verify all existing conditions in the field prior to implementation.
   b. In the event that conditions in the field are different from the existing conditions described herein, the Vendor shall notify the Owner in writing of the exact differences, and inform the Owner in writing of any implications the differences have on the installation.

10.2 Installation
1. The Vendor shall verify that the installation location is prepared and ready to have the installation completed.
   a. The Vendor shall notify the Owner, in writing, if the Vendor finds that the installation location is not prepared for installation due to any unfinished work outside of the Vendor’s scope of work.
2. The Vendor shall coordinate with the Owner to correct unsatisfactory conditions.
3. The Vendor shall coordinate with the sign housing provider, if different than the Vendor, to ensure proper fit and function of the Dynamic Signs.
4. The Vendor shall coordinate with electrical subcontractor, if different than the Vendor, to ensure proper power and communication is provided for all LCS and signage components.
5. Any patch, upgrade, update, or modification to the software during the installation period requires appropriate documentation and Owner approval before the modification is made.

10.3 Field Quality Control

10.3.1 Device Acceptance Test (DAT)
1. The Vendor shall conduct DATs as a demonstration to the Owner or its representatives that the installed equipment complies with the Contract, the Vendor’s product data, and to other documentation, such as user manuals.
2. When a device installation has been completed, the Vendor will conduct its internal testing of the installed equipment. Internal testing will follow the identical DAT test procedures that are used during DATs observed by the Owner.
3. Upon successful completion of the Vendor’s test, the Vendor and the Owner shall review the DAT to verify the performance. The DAT will be observed by the Owner after a fully completed and signed test script verifying successful completion of the Vendor’s internal testing is submitted. Signed internal test scripts to be submitted at least three calendar days prior to the scheduled test with the Owner.
4. The Vendor shall conduct DATs for all vehicle detectors and dynamic signs. The LCS will not be activated for service until all DATs have been successfully completed, and the Owner has notified the Vendor that it is ready to put the equipment into operation.
5. The Vendor shall provide test procedure documents for the DATs in accordance to the submittal guidelines.
6. The Vendor shall provide DAT test procedures documents for each device type and test procedure to include the following sections:
   a. Narrative describing the general procedures to be followed
   b. Definition of all minor and major deviation types
   c. Checklist of all items necessary to conduct the test (e.g., vehicles, motorcycles, etc.)
   d. Checklist for the components of each device
   e. Signature page for all DAT participants’ signatures
   f. Step-by-step instructions for testing each functionality
   g. Tests for verifying the reporting requirements
   h. Area within each test section to denote “pass” or “fail”
   i. Section for listing and describing test deviations

7. The Vendor will provide all ancillary items necessary to complete the DATs for testing purposes. In addition, make available sufficient personnel to perform the DAT in an efficient and timely manner.

8. Successful completion of a DAT occurs when all components have passed their respective test procedures and all test documents have been signed by the Owner and Vendor.
   a. Any minor deviations resulting in the creation of punch list items are not to be considered grounds for failure of the overall DAT.
   b. Major deviations found during the DAT will result in the retest of the device.

9. The Vendor will agree to credit the Owner from its total contract value for any travel and/or labor costs incurred by the Owner or its representatives as a result of additional effort required to retest failed devices.

10.3.2 Operational Demonstration Test
1. The ODT is comprised of all equipment, systems, and subsystems performing under actual conditions, e.g., patron use, normal activity recording, and reporting procedures. The ODT demonstrates, over a period of 30 consecutive calendar days, the successful performance of all aspects of the solution.

2. During the ODT, only routine maintenance procedures as defined by the preventative maintenance manual and according to industry standards, are permitted. All other maintenance procedures must be approved in writing by the Owner before they are performed; otherwise, they constitute a failure of the ODT and a mandatory restart.

3. The Owner reserves the right to be present for all maintenance services during the ODT.

4. For purposes of the ODT, a subsystem is defined to be any one of the following:
   a. Application Servers
   b. Data Servers
   c. Data Communication System
   d. LCS Application and User Interface
   e. Dynamic Signs
   f. Vehicle Detectors

5. The ODT begins after successful completion of all DATs on a date mutually selected and agreed to in writing by the Owner and the Vendor at a time designated by the Owner. The ODT monitors system performance of the entire system operating as a single unit.

6. The Vendor shall submit an ODT procedures document in accordance with the submittal requirements. ODT procedures document is intended to outline procedures for monitoring the overall performance of
the solution and should not include test procedures for individual components. The ODT procedures
document includes:
   a. Narrative describing the general procedures to be followed
   b. Methodology for calculation of downtime for the various LCS and signage components
   c. Methodology for calculating accuracy of the solution
   d. Electronic tracking document to be used during the ODT period for documenting failures and
downtime
7. The Vendor shall have primary responsibility to manage the ODT process while the Owner will have
   oversight.
8. The ODT continues for 30 consecutive 24-hour periods during which all the performance criteria, stated
   below, have been met. If during the 30-day period the system fails to meet any one of the following
   specified performance criteria, the test will begin anew on a day agreed upon by the Owner and the
   Vendor.
9. The Vendor agrees to credit the Owner from its total contract value for any travel and/or labor costs
   incurred by the Owner as a result of retesting the system.
10. The performance criteria for successful completion of the ODT includes:
     a. No individual subsystem is operationally unavailable for four or more hours cumulative during the
        30-day test period.
     b. No individual subsystem is operationally unavailable for more than two consecutive hours.
     c. If any single component fails more than once during the 30-day period for the same reason, it will
        be replaced upon the second failure with a newly manufactured component of the same type and
        the test will continue.
     d. No component of a given type (e.g., vehicle detection sensor, dynamic sign, etc.) can fail more
        than three times during the 30-day test period for the same reason. Upon the fourth failure, all
        components of that type will be replaced or modified to correct the common deficiency, and the
        test will be restarted from the beginning.
11. In addition to the system reports generated during the ODT, provide the Owner a one-page summary
    report that clearly provides the percentage of system accuracy, overall percentage of downtime, and
    causes of that down time.
12. The Vendor shall provide the Owner a corrective action report that provides a detailed description of each
    failure that occurs during the ODT. The corrective action report to include the type of failure, why the
    failure occurred, what was done to remedy the failure, and whether or not the failure resulted in a restart
    of the ODT.
13. All reports require 100% accuracy and can be reconciled against one another over the 30-day testing
    period, otherwise the test will be deemed a failure, problems will be corrected and the test restarted.
14. A subsystem is considered unavailable if any major component of the subsystem is not functioning. As an
    example, the major components include but are not limited to:
     a. LCS Application and User Interface
     b. LCS Mobile Application
     c. Westfield website Interface
     d. Dynamic Signs
     e. Vehicle Detectors
     f. Data communication
g. Power supply

15. An inoperative subsystem will not be deemed unavailable if it has become inoperative because of:
   a. Outage of line power beyond UPS requirement
   b. Malicious damage or vandalism to a component(s) by employees, patrons or others
   c. Network connectivity issues beyond the LCS
   d. LCS failures due to Owner-provided equipment issues and/or failures
   e. Failures caused by a 3rd party
   f. Act of God

16. Should a failure occur in the system that is caused by normal hardware failure, it will be repaired and the test resumed with downtime accrued. Where the failure causes inadequate test data to be collected or a loss of test data, then the test will be restarted from a point where it can be successfully completed with data to verify compliance with the Contract and the test procedures document.
   a. If the system “crashes” during a test, then the test will be stopped. “Crash” is defined as a failure in which the solution cannot properly process vehicle detection counts and display space availability. The Vendor will analyze the cause of the system “crash,” document the cause in a system problem report, responsively repair the flaw, and document the repair in a corrective action report.

17. Where corrective action impacts delivered documentation, the documentation will be corrected prior to Final System Acceptance.
   a. Upon formal written approval of the corrective action report by the Owner, testing may continue if a problem has been encountered as long as the Vendor can clearly demonstrate that the failure is associated only with one function of the system, corrective action has been taken to remedy the failure, and the corrective action does not impact other areas of the system.

18. Where the system does not perform a function or incorrectly performs the function but the system does not crash, testing may continue, as long as the function is corrected and all of the following conditions are met:
   a. The functionality of the Vehicle Detectors and occupancy indicator lights work properly according to the Contract
   b. The functionality of the Dynamic Signs works according to the Contract
   c. No personnel, vehicle or driver safety issues exist
   d. LCS application and user interface function properly
   e. LCS mobile application functions properly
   f. LCS website interface functions properly
   g. Data archiving operates in accordance with the Contract
   h. Failure does not cause loss or contamination of data
   i. All reports balance and are 100% accurate

19. Where the above criteria are not met, the test will be stopped and corrective action taken and verified prior to testing restart.

20. During the test, the continued availability of the system will be demonstrated. Where a failure occurs that causes data loss, system instability (crash), and/or contamination of the data and the database, the Vendor will immediately correct the problem. Testing will continue until a consecutive 30-day period of stable operation is achieved. Stability is defined as the proper functioning of the solution with a failure having no impact on the continued system operation or on the integrity of data.
10.3.3 Punch List
1. Starting with the beginning of installation through Final System Acceptance, submit a document on a weekly basis showing the status of all outstanding system issues, regardless of severity, including the plan for resolution and estimated completion date. Within 14 days of notice-to-proceed submit the Punch List format and method of recording, closing, and archiving Punch List items for Owner approval.
2. All deviations noted during acceptance testing will be recorded on the Punch List.

10.3.4 Final System Acceptance
1. Final System Acceptance will be submitted by the Owner, in writing to the Vendor, upon successful completion of all acceptance tests, verification by the Owner of complete resolution of all outstanding items on the Punch List, completion of training, and acceptance of required documentation and submittals.

10.3.5 Instruction and Training
1. By means of instructional classes augmented by individual instruction as necessary, fully instruct the Owner’s designated staff in the operation, adjustment, and maintenance of all products, equipment, and systems.
2. Coordinate scheduling of instructional classes with Owner to avoid conflicts and peak-period personnel demands.
3. Submit a proposed instruction schedule at a joint meeting conducted prior to equipment installation. Owner will tentatively approve or suggest changes to the training schedule at that time. Changes in the submitted training schedule must be requested at least fourteen (14) days in advance of the original scheduled date to allow the Owner to re-schedule employees for the training.
4. Seven (7) calendar days prior to each instruction session, submit an outline of the instruction material and approximate duration of the session. Ample time should be allotted within each session for the Vendor to fully describe and demonstrate all aspects of the solution, and allow Owner personnel to have hands-on experience with the solution.
5. All instruction courses will consist of classroom instruction and actual “hands-on” experience. Classes will be set up in a room designated by the Owner.
6. Provide one instructor for the duration of each program that speaks fluent English in a clear precise manner.
7. The class material to include schematics, as well as an overview and descriptions of the equipment.
8. Provide all documentation required for instructing Owner personnel. The Owner retains the right to copy training materials as frequently as required for ongoing internal use only.
9. An instructional notebook or user’s manual to accompany every instruction course. Submit a hardcopy of the user’s manual per the submittal guidelines. In addition, all manuals (instruction and maintenance) will be submitted in electronic format (.PDF).
10. The user manuals will be written in common English with appropriate photos, diagrams, and schematics to supplement the text.

10.3.6 Equipment Locations
1. Refer to Appendix.
Appendix A: Signage and Level Count Locations
1.1 Level Count System Locations

1.1.1 Garage Entry: Level 1

1.1.2 Garage Helix: Entry to Level 2 from Level 1
1.1.3 Garage Helix: Entry to Level 3 from Level 2

1.1.4 Garage Helix: Entry from Level 3 to Rooftop
1.1.5 Level 1 Entry from Fox Hills Drive

1.1.6 Level 3 Entry
1.2 Dynamic Monument Sign Locations

1.2.1 Overview of Monument Sign Locations
1.2.2 Monument Sign 1 (Optional): Surface Lot Entry from Sepulveda Boulevard

1.2.3 Monument Sign 2 (Optional): Replace Existing Sign by JC Penney
1.2.4 Monument Sign 3: Replace Existing Static Sign at Surface Level Entry to Level 1

Monument Sign 3: Level 1 Entry Location

1.2.5 Monument Sign 4: Replace Existing Static Sign at Rooftop Entry from Fox Hills Drive

Monument Sign 4: Rooftop Entry Location
1.2.6 Conceptual Design of Proposed Monument Sign

The Owner welcomes Vendor suggestions on signage design.
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<th>#</th>
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