AGREEMENT

THIS AGREEMENT is made between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado, acting on behalf of its Department of Aviation (the "City"), and **AMADEUS AIRPORT IT AMERICAS, INC.**, a Florida corporation authorized to do business in the State of Colorado, whose address is 501 West Church Street, 3rd Floor, Orlando, FL 32805 (the "Contractor"), individually a "Party" and jointly "the Parties."

RECITALS

WHEREAS, the City owns, operates, and maintains Denver International Airport ("DEN" or the "Airport"); and

WHEREAS, the City issued a Request for Proposal No. PLANE-202367234 on May 11, 2023, (the "RFP") for the installation and maintenance of all required hardware, equipment and software for a Resource Management System (RMS) / Electronic Visual Information Display System (EVIDS) ("System"); and

WHEREAS, Contractor submitted a proposal dated June 23, 2023, ("Contractor's Proposal"), which is incorporated herein by reference; and

WHEREAS, the City awarded this Agreement to the Contractor based upon Contractor's Proposal.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties incorporate the recitals set forth above agree as follows:

1. **LINE OF AUTHORITY / COORDINATION AND LIAISON**: The Chief Executive Officer of the Department of Aviation or their designee or successor in function (the "CEO"), authorizes and directs all work performed under this Agreement. Until otherwise notified in writing by the CEO, the CEO has delegated the authority granted herein to DEN Business Technologies. The relevant Senior Vice President (the "SVP"), or their designee (the "Director"), will designate a Project Manager to coordinate professional services under this Agreement. Reports, memoranda, correspondence, and other submittals required of Contractor hereunder shall be processed in accordance with the Project Manager's directions.

2. **DEFINITIONS**

2.1. "City Data" means all data (other than Personal Data) and information generated, inputted, or stored in the Contractor platforms and solutions as a result of the Services and relating specifically to City or its Authorized User(s), and its or their operations, facilities, personnel, assets, and programs in whatever form that information may exist and be processed through the Services, excluding:

(a) Contractor Performance Data;

(b) Contractor Systems Level Data;

(c) Contractor Data; and

(d) Third Party Data."

2.2. "**Data**" or "**data**" means information, regardless of form, that can be read, transmitted, or processed.

2.3. "**Deliverable(s)**" means the outcome to be achieved or output to be provided, in the form of a tangible object or software that is licensed as a result of the Contractor's Work that is intended to be delivered to the City by the Contractor.

2.4. "**Effective Date**" means the date on which this Agreement is fully approved and signed by the City as shown on the City's signature page.

2.5. "**Service(s)**" means the services to be performed by the Contractor as set forth in this Agreement and shall include any services to be rendered by the Contractor in connection with any goods or Deliverables.

2.6. "Specifications" means the functionalities of the application services identified by the parties in writing during the design phase of the implementation plan.

2.7. "**Subcontractor**" means any third party engaged by the Contractor to aid in performance of the Work.

2.8. "**Work**" means the Deliverables provided and Services performed pursuant to this Agreement.

2.9. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Term that is used, without modification, in the performance of the Work.

3. **HARDWARE, SOFTWARE, SOFTWARE AS A SERVICE, SUPPORT, AND SERVICES TO BE PERFORMED**: As the City directs, the Contractor shall diligently undertake, perform, and complete the Work set forth on the attached **Exhibit A**, Scope of Work ("SOW") to the City's satisfaction. The City shall have no liability to compensate the Contractor for Work that is not specifically authorized by this Agreement. The Work shall be performed as stated herein and shall conform to the Specifications of the attached exhibits (collectively, "Exhibits"). The Parties acknowledge that they may further define the SOW in writing, and any alterations to the initial SOW shall become a part of this Agreement by incorporation. If any alteration to the initial or subsequent SOW materially alters the terms contained therein, the Parties agree to amend this Agreement in writing. The Contractor is ready, willing, and able to provide the technology related Work required by this Agreement. The Contractor shall faithfully perform the Work in accordance with the standards of care, skill, training, diligence, and judgment provided by highly competent individuals performing services of a similar nature to those described in this Agreement and in accordance with the terms of this Agreement.

4. **ON-CALL SERVICES TO BE PERFORMED**: The Contractor agrees to cooperate with the City in the preparation of detailed Task Orders in accordance with the Scope of Work, and the rates, contained therein, attached hereto as **Exhibit A**. Each Task Order shall include a detailed scope of

Services, level of effort, schedule, rates, and payment schedule, including a "not to exceed" amount, specific to each the Task Order. Task Orders shall be construed to be in addition to, supplementary to, and consistent with the provisions of this Agreement. In the event of a conflict between a particular provision of any Task Order and a provision of this Agreement, this Agreement shall take precedence. A Task Order may be amended by the Parties by a written instrument prepared by the Parties jointly and signed by their authorized representatives. The City may execute Task Orders in its sole discretion, and the City is not required to execute any minimum number of Task Orders under this Agreement. The City shall have no liability to compensate the Contractor for any Work not specifically set forth in this Agreement or a properly executed Task Order. In no event shall a Task Order term extend beyond the Term unless the City has specifically agreed in writing. If this Agreement is terminated for any reason, each Task Order hereunder shall also terminate unless the City has specifically directed otherwise in writing. The Contractor agrees to fully coordinate its provision of Services with any third party under contract with the City doing work or providing Services which affect the Contractor's performance. The Contractor represents and warrants that all Services under a Task Order will be performed by qualified personnel in a professional and workmanlike manner, consistent with industry standards; all Services and/or Deliverables will conform to applicable, agreed upon specifications, if any; and, it has the requisite ownership, rights and licenses to perform its obligations under this Agreement fully as contemplated hereby and to grant to the City all rights with respect to any software and Services free and clear from any and all liens, adverse claims, encumbrances and interests of any third party.

5. **TERM**: This Agreement will commence on the Effective Date, and will expire, unless sooner terminated, THREE (3) Years thereafter (the "Term"). The Term of this Agreement may be extended for two additional one (1) year periods, on the same terms and conditions, by written notice from the CEO to Contractor. However, no extension of the Term shall increase the Maximum Agreement Liability stated below. Subject to the City's prior written authorization, the Contractor shall complete any work in progress as of the expiration date and the Term will extend until the work is completed or earlier terminated by the City.

6. **COMPENSATION AND PAYMENT**

6.1. **Budget**: The City shall pay, and the Contractor shall accept as the sole compensation for Work provided, and costs incurred and paid, under this Agreement payment not to exceed the line budget amounts set forth in **Exhibit B**. Payment shall be made in accordance with any agreed upon payment milestone set forth herein.

6.2. **Fees**: The City shall pay, and the Contractor shall accept as the sole compensation for services rendered and costs incurred under this Agreement the fees described in the attached **Exhibit B**. Amounts billed may not exceed rates set forth in **Exhibit B** and will be made in accordance with any agreed upon payment milestones.

6.3. **Reimbursement Expenses**: There are no reimbursable expenses allowed under this Agreement. All the Contractor's expenses are contained in the budget in **Exhibit B**. The City will not be obligated to pay the Contractor for any other fees, costs, expenses, or charges of any nature that may be incurred and paid by the Contractor in performing services under this Agreement

including but not limited to personnel, benefits, contract labor, overhead, administrative costs, operating costs, supplies, equipment, and out-of-pocket expenses.

6.4. **Invoicing**: The Contractor must submit an invoice which shall include the City contract number, clear identification of the Work that has been completed, and other information reasonably requested by the City. Payment on all uncontested amounts shall be made in accordance with the City's Prompt Payment Ordinance.

6.5. **Payment Source**: For payments required under this Agreement, the City shall make payments to Contractor solely from funds of the Airport System Fund and from no other fund or source. The City has no obligation to make payments from any other source.

6.6. **Maximum Agreement Liability**

6.6.1. Notwithstanding any other provision of this Agreement, the City's maximum payment obligation will not exceed Seven Million Dollars and Zero Cents ($7,000,000.00) (the "Maximum Agreement Amount"). The City is not obligated to execute an Agreement or any amendments for any further services, including any services performed by the Contractor beyond that specifically described in the attached Exhibits. Any services performed beyond those in the attached Exhibits are performed at the Contractor's risk and without authorization under this Agreement.

6.6.2. The City's payment obligation, whether direct or contingent, extends only to funds appropriated annually by the Denver City Council, paid into the Treasury of the City, and encumbered for the purpose of this Agreement. The City does not by this Agreement irrevocably pledge present cash reserves for payment or performance in future fiscal years. This Agreement does not and is not intended to create a multiple-fiscal year direct or indirect debt or financial obligation of the City.

7. **STATUS OF CONTRACTOR**: The Contractor is an independent contractor retained to perform professional or technical services for limited periods of time. Neither the Contractor nor any of its employees are employees or officers of the City under Chapter 18 of the Denver Revised Municipal Code, or for any purpose whatsoever.

8. **TERMINATION**

8.1. The City has the right to terminate this Agreement or a product under this Agreement with cause upon written notice effective immediately and without cause upon twenty (20) days prior written notice to the Contractor. However, nothing gives the Contractor the right to perform services under this Agreement beyond the time when its services become unsatisfactory to the City.

8.2. Notwithstanding the preceding paragraph, the City may terminate this Agreement if the Contractor or any of its officers or employees are convicted, plead nolo contendere, enter into a formal agreement in which they admit guilt, enter a plea of guilty or otherwise admit culpability to criminal offenses of bribery, kickbacks, collusive bidding, bid-rigging, antitrust, fraud, undue influence, theft, racketeering, extortion or any offense of a similar nature in connection with the Contractor's business. Termination for the reasons stated in this paragraph is effective upon receipt of notice.

8.3. The City is entering into this Agreement to serve the public interest. If this Agreement ceases to further the City's public interest, the City, in its sole discretion, may terminate this Agreement, in whole or in part, for convenience by giving written notice to the Contractor.

8.4. Upon termination of this Agreement, with or without cause, the Contractor shall have no claim against the City by reason of, or arising out of, incidental or relating to termination, except for compensation for work duly requested and satisfactorily performed as described in this Agreement and shall refund to the City any prepaid cost or expenses.

8.5. If this Agreement is terminated, the City is entitled to and will take possession of all materials, equipment, tools, and facilities it owns that are in the Contractor's possession, custody, or control by whatever method the City deems expedient. The Contractor shall deliver all documents in any form that were prepared under this Agreement that have been paid for by the City to the City. These documents and materials are the property of the City. The Contractor shall mark all copies of work product that are incomplete at the time of termination "DRAFT-INCOMPLETE."

9. EXAMINATION OF RECORDS AND AUDITS:

9.1.1. Any authorized agent of the City, including the City Auditor or his or her representative, has the right to access, and the right to examine, copy and retain copies, at City's election in paper or electronic form, any pertinent books, documents, papers and records related to the Contractor's performance pursuant to this Agreement, provision of any goods or services to the City, and any other transactions related to this Agreement. The Contractor shall cooperate with City representatives and City representatives shall be granted access to the foregoing documents and information during reasonable business hours and until the latter of three (3) years after the final payment under this Agreement or expiration of the applicable statute of limitations. When conducting an audit of this Agreement, the City Auditor shall be subject to government auditing standards issued by the United States Government Accountability Office by the Comptroller General of the United States, including with respect to disclosure of information acquired during the course of an audit. No examination of records and audits pursuant to this paragraph shall require the Contractor to make disclosures in violation of state or federal privacy laws. The Contractor shall at all times comply with D.R.M.C. 20-276.

9.1.2. In the event the City receives federal funds to be used toward the services performed under this Agreement, the Federal Aviation Administration ("**FAA**"), the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of Contractor which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. Contractor further agrees that such records will contain information concerning the hours and specific services performed along with the applicable federal project number.

10. WHEN RIGHTS AND REMEDIES NOT WAIVED: In no event shall any action by either Party hereunder constitute or be construed to be a waiver by the other Party of any breach of covenant or default which may then exist on the part of the Party alleged to be in breach, and the non-breaching Party's action or inaction when any such breach or default shall exist shall not impair or prejudice any

right or remedy available to that Party with respect to such breach or default; and no assent, expressed or implied, to any breach of any one or more covenants, provisions or conditions of this Agreement shall be deemed or taken to be a waiver of any other breach.

11. INSURANCE

11.1. Contractor shall obtain and keep in force all of the minimum insurance coverage forms and amounts set forth in **Exhibit C** ("Insurance Requirements") during the entire Term of this Agreement, including any extensions of the Agreement or other extended period stipulations stated in **Exhibit C**. All certificates of insurance must be received and accepted by the City before any airport access or work commences.

11.2. Except with respect to cloud providers (e.g. Azure), Contractor shall ensure and document that all subcontractors performing services or providing goods hereunder procure and maintain insurance coverage that is appropriate to the primary business risks for their respective scopes of performance. At minimum, such insurance must conform to all applicable requirements of DEN Rules and Regulations Part 230 and all other applicable Laws. With respect to cloud service providers, Contractor will use its good faith efforts to comply with the foregoing.

11.3. Contractor shall ensure and document that all subcontractors performing services or providing goods hereunder procure and maintain insurance coverage that is appropriate to the primary business risks for their respective scopes of performance. At minimum, such insurance must conform to all applicable requirements of DEN Rules and Regulations Part 230 and all other applicable laws and regulations.

11.4. The City in no way warrants or represents the minimum limits contained herein are sufficient to protect Contractor from liabilities arising out of the performance of the terms and conditions of this Agreement by Contractor, its agents, representatives, employees, or subcontractors. Contractor shall assess its own risks and maintain higher limits and/or broader coverage as it deems appropriate and/or prudent. Contractor is not relieved of any liability or other obligations assumed or undertaken pursuant to this Agreement by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

11.5. In no event shall the City be liable for any of the following: (i) business interruption or other consequential damages sustained by Contractor; (ii) damage, theft, or destruction of Contractor's inventory, or property of any kind; or (iii) damage, theft, or destruction of an automobile, whether or not insured.

11.6. The Parties understand and agree that the City, its elected and appointed officials, employees, agents and volunteers are relying on, and do not waive or intend to waive by any provisions of this Agreement, the monetary limitations and any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101 to 120, or otherwise available to the City, its elected and appointed officials, employees, agents and volunteers.

12. DEFENSE AND INDEMNIFICATION

12.1. The Contractor hereby agrees to defend, indemnify, reimburse and hold harmless City, its appointed and elected officials, agents and employees for, from and against all liabilities, claims,

judgments, suits or demands for damages to persons or tangible property arising out of, resulting from, or relating to the work performed under this Agreement ("Claims"), unless such Claims have been specifically determined by the trier of fact to be the sole negligence or willful misconduct of the City. This indemnity shall be interpreted in the broadest possible manner to indemnify City for any acts or omissions of the Contractor or its Subcontractors either passive or active, irrespective of fault, including City's concurrent negligence whether active or passive, except for the sole negligence or willful misconduct of City.

12.2. The Contractor's duty to defend and indemnify City shall arise at the time written notice of the Claim is first provided to City regardless of whether Claimant has filed suit on the Claim. the Contractor's duty to defend and indemnify City shall arise even if City is the only party sued by claimant and/or claimant alleges that City's negligence or willful misconduct was the sole cause of claimant's damages.

12.3. The Contractor will defend any and all Claims which may be brought or threatened against City and will pay on behalf of City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation. Such payments on behalf of City shall be in addition to any other legal remedies available to City and shall not be considered City's exclusive remedy.

12.4. Insurance coverage requirements specified in this Agreement shall in no way lessen or limit the liability of the Contractor under the terms of this indemnification obligation. The Contractor shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

12.5. The Contractor shall indemnify, save, and hold harmless the indemnified parties, against any and all costs, expenses, claims, damages, liabilities, and other amounts (including attorneys' fees and costs) incurred by the indemnified parties in relation to any claim that any Deliverable or Service, software, or Work Product provided by the Contractor under this Agreement (collectively, "IP Deliverables"), or the use thereof, infringes a patent, copyright, trademark, trade secret, or any other intellectual property right. The Contractor's obligations hereunder shall not extend to the combination of any IP Deliverables provided by the Contractor with any other product, system, or method, unless the other product, system, or method is (i) provided by the Contractor or the Contractor's subsidiaries or affiliates; (ii) specified by the Contractor to work with the IP Deliverables; (iii) reasonably required in order to use the IP Deliverables in its intended manner and the infringement could not have been avoided by substituting another reasonably available product, system, or method capable of performing the same function; or (iv) is reasonably expected to be used in combination with the IP Deliverables.

12.6. The Contractor shall indemnify, save, and hold harmless the indemnified parties against all costs, expenses, claims, damages, liabilities, court awards and other amounts, including attorneys' fees and related costs, incurred by the indemnified parties in relation to the Contractor's failure to comply with §§ 24-85-101, *et seq.*, C.R.S., or the *Accessibility Standards for Individuals with a Disability* as established pursuant to § 24-85-103 (2.5), C.R.S.

12.7. This defense and indemnification obligation shall survive the expiration or termination of this Agreement.

12.8. LIMITATION OF THE CONTRACTOR'S LIABILITY: To the extent permitted by law, the liability of the Contractor, its Subcontractors, and their respective personnel to the City for any and all claims, liabilities, or damages in the aggregate relating to this Agreement shall be limited to damages as follows: (i) damages resulting from direct losses shall not exceed three (3) times the Maximum Agreement Amount payable by the City under this Agreement (the "General Limitation of Contractor's Liability"); (ii) damages resulting from direct losses, including those costs referenced in Section 22.10.4 (Costs), arising from a Security Breach shall not exceed six (6) times the Maximum Agreement Amount payable by the City under this Agreement (the "Data Security Breach Limitation of Contract's Liability"), and (iii) damages resulting from consequential, special, indirect, incidental, punitive or exemplary loss, loss or unauthorized disclosure of City Data shall not exceed ten percent (10%) of damages subject to the applicable General Limitation of Contractor's Liability or Data Security Breach Limitation of Contract's Liability (otherwise, for clarification, in no event is Contractor liable for consequential, special, indirect, incidental, punitive or exemplary damages under this Agreement). The liability caps in subsections (i) and (ii) of this Section 12.8 shall not limit or affect: (i) the Contractor's indemnification obligations to the City under this Agreement except, with respect to Security Breach Claims, such exclusion only applies to indemnities for third-party Claims against City; (ii) claims or damages arising out of bodily injury, including death, or damage to tangible property of the City; or (iii) claims or damages resulting from the recklessness, bad faith, or intentional misconduct of the Contractor or its Subcontractors. For clarification, insurance coverage requirements specified in this Agreement shall in no way lessen or limit the liability caps stated in this Section 12.8.

13. **COLORADO GOVERNMENTAL IMMUNITY ACT**: The Parties hereto understand and agree that the City is relying upon, and has not waived, the monetary limitations and all other rights, immunities and protection provided by the Colorado Governmental Act, § 24-10-101, *et seq*., C.R.S. (2003).
14. **COMPLIANCE WITH APPLICABLE LAWS AND CITY POLICIES**: The Contractor shall comply with all applicable existing and future laws and DEN Rules and Regulations and policies in performing the Services under this Agreement. Any of the Contractor's personnel visiting the City's facilities will comply with all applicable City policies regarding access to, use of, and conduct within such facilities. The City will provide copies of such policies to the Contractor upon request.
15. **SERVICE LEVEL AGREEMENTS** To the extent the Contractor provides service level commitments in connection with its provision of any Work purchased hereunder, the Contractor shall be fully responsible for the delivery and maintenance of the Work, in whole and/or in part, in accordance with and subject to the terms of the service level agreement attached hereto as Attachment 3 to Exhibit "E" (Additional Agreement Terms).
16. **TECHNOLOGY SPECIFICATIONS**

16.1. **Vendor Supported Releases**: The Contractor shall maintain the currency of all Third Party software, provided that the applicable Contractor solutions are compatible with such Third Party software, used in the development and execution or use of the Work with third-party vendor approved and supported releases, including, but not limited to, all code libraries, frameworks, components, and other products (by way of example, but not limitation: Java JRE, code signing certificates, .NET, jQuery plugins, etc.), whether commercial, free, open-source, or closed-source.

16.2. **Additional Products or Services**: The Parties acknowledge that the Contractor will continue to enhance and/or modify its existing products or services. To use those enhanced products or services, the City shall be entitled to order those offerings at any time throughout the duration of this Agreement provided the pricing is set out in this Agreement. Once agreed upon by the Parties, additional products or services shall be subject to the same terms and conditions as contained herein and any order placed by the City shall not create any additional binding conditions on the City and shall not act as an amendment of the terms and conditions of this Agreement. If additional products or services are requested by the City, the Parties shall follow the agreed upon order process and if no process is outlined, then the SVP, or other designated DEN personnel, shall be authorized to sign any necessary forms to acquire the products/services on behalf of the City. Additional licenses shall be prorated and co-termed with current licensing contained in this Agreement.

16.3. **Reoccurring Security Audits**: Prior to the Effective Date of this Agreement, the Contractor, will at its expense conduct or have conducted the following, and thereafter, the Contractor will at its expense conduct or have conducted the following at least once per year, and immediately after any actual or reasonably suspected Security Breach: (i) a mutually agreed upon audit of the Contractor's security policies, procedures and controls; (ii) a quarterly external and internal vulnerability scan of the Contractor's systems and facilities, to include public facing websites, that are used in any way to deliver Services under this Agreement. The report must include the vulnerability, age, and remediation plan for all issues identified as critical or high; and (iii) a formal penetration test performed by qualified personnel of the Contractor's systems and facilities that are used in any way to deliver Work under this Agreement. The Contractor will provide the City the reports or other documentation resulting from the above audits, certifications, scans, and tests within thirty (30) calendar days of the Contractor's receipt of the City's request. The report must include the vulnerability, age, and remediation plan for all issues identified as critical or high. Based on the results and recommendations of the above audits, the Contractor will, within thirty (30) calendar days of receipt of such results, promptly modify its security measures to meet its obligations under this Agreement and provide the City with written evidence of remediation. In addition, the Contractor shall comply with the City's annual risk assessment and the results thereof. The City may require, at the Contractor's expense, that the Contractor perform additional audits and tests, the results of which will be provided to the City within seven (7) business days of Contractor's receipt of such results. The Contractor will provide the City the results of the above audits. If additional funds are required to perform the tests required by the City that are not accounted for in this Agreement, the Parties agree to amend this Agreement as

necessary. The Contractor shall also protect data against deterioration or degradation of quality and authenticity by, at minimum, having a third party perform annual data integrity audits

16.4. **Transition of Services**: Upon expiration or earlier termination of this Agreement or any Work provided hereunder, the Contractor shall accomplish a complete transition of the Services from the Contractor to the City or any replacement provider designated solely by the City without any interruption of or adverse impact on the Services or any other services provided by third parties under this Agreement. The Contractor shall cooperate fully with the City or such replacement provider and promptly take all steps required to assist in effecting a complete transition of the Services designated by the City. All Services related to such transition shall be performed at no additional to the City. The Contractor shall extend this Agreement monthly if additional time is required beyond the termination of this Agreement, if necessary, to effectuate the transition and the City shall pay a proration of the subscription fee.

16.5. **Disaster Recovery and Continuity**

16.5.1. The Contractor shall maintain a continuous and uninterrupted business continuity and disaster recovery program subject to Attachment 3 (Service Levels) of Appendix "E" ("Additional Terms") with respect to the Work provided under this Agreement. The program shall be designed, in the event of a significant business disruption affecting the Contractor, to provide the necessary and sufficient capabilities, processes, and procedures to enable the Contractor to resume and continue to perform its duties and obligations under this Agreement without undue delay or disruption. In the event of equipment failures, the Contractor shall, at no additional expense to the City, take reasonable steps to minimize service interruptions, including using any back-up facilities where appropriate. Upon request, the Contractor shall provide the City with a copy of its disaster recovery plan and procedures.

16.5.2. Prior to the Effective Date of this Agreement, the Contractor shall, at its own expense, conduct or have conducted the following, and thereafter, the Contractor will, at its own expense, conduct or have conducted the following at least once per year:

16.5.2.1. A test of the operability, sufficiency, and completeness of business continuity and disaster recovery program's capabilities, processes, and procedures that are necessary to resume and continue to perform its duties and obligations under this Agreement.

16.5.2.2. Based upon the results and subsequent recommendations of the testing above, the Contractor will, within thirty (30) calendar days of receipt of such results and recommendations, promptly modify its capabilities, processes, and procedures to meet its obligations under this Agreement and provide City with written evidence of remediation.

16.5.2.3. Upon request, the Contractor shall provide the City with report summaries or other documentation resulting from above testing of any business continuity and disaster recovery procedures regarding the Services provided under this Agreement.

17. DELIVERY AND ACCEPTANCE

17.1. **Acceptance & Rejection**: Software, technology services, or other deliverables created and/or delivered pursuant to this Agreement (collectively, "Deliverables") will be considered accepted ("Acceptance") only when the City provides the Contractor affirmative written notice of acceptance that such Deliverable has been accepted by the City. Such communication shall be provided pursuant to the Implementation Plan and, in any event, shall not be unreasonably delayed or withheld. Acceptance by the City shall be final, except in cases of Contractor's failure to conduct proper quality assurance, latent defects that could not reasonably have been detected upon delivery, or the Contractor's gross negligence or willful misconduct. The City may reject a Deliverable if it materially deviates from its specifications and requirements listed in this Agreement or its attachments by written notice setting forth the nature of such deviation. In the event of such rejection, the Contractor shall correct the deviation, at its sole expense, and redeliver the Deliverable using commercially reasonable efforts to remedy the deviation within fifteen (15) days from confirmation of the deviation or as otherwise provided in the Implementation Plan. After redelivery, the Parties shall again follow the acceptance procedures set forth herein. If any Deliverable does not perform to the City's satisfaction, the City reserves the right to repudiate acceptance. If the City ultimately rejects a Deliverable, or repudiates acceptance of it, the Contractor will refund to the City all fees paid, if any, by the City with respect to any rejected Deliverable. Acceptance shall not relieve the Contractor from its responsibility under any representation or warranty contained in this Agreement, and payment of an invoice prior to Acceptance does not grant a waiver of any representation or warranty made by the Contractor.

17.2. **Quality Assurance**: The Contractor shall provide and maintain a quality assurance system acceptable to the City for Deliverables under this Agreement and shall provide to the City only such Deliverables that have been inspected and found to conform to the specifications identified in this Agreement and any applicable solicitation, bid, offer, or proposal from which this Agreement results. The Contractor's delivery of any Deliverables to the City shall constitute certification that any Deliverables have been determined to conform to the applicable specifications, and the Contractor shall make records of such quality assurance available to the City upon request.

17.3. **License to Deliverables**: Effective upon Acceptance of each Deliverable and only during the Term, the Contractor grants the City a nonexclusive license to reproduce, display, and use such Deliverable, and all intellectual property rights necessary to use the Deliverable as authorized, as necessary for the City's internal business purposes, provided the City complies with any license restrictions set forth in this Agreement and any attachments thereto. The City will not reverse engineer or reverse compile any part of a Deliverable unless agreed by the Parties in writing.

17.4. **Incorporation of Deliverables**: Upon Acceptance, each Deliverable will thereafter be subject to this Agreement's terms, including without limitation license, warranty, and indemnity terms.

18. WARRANTIES AND REPRESENTATIONS

18.1. Notwithstanding the acceptance of any Work or Deliverable, or the payment of any invoice for such Work or Deliverable, the Contractor warrants that any Work or Deliverable provided by the Contractor under this Agreement shall be free from material defects and shall function as intended and in material accordance with the applicable specifications. The Contractor warrants that any Work or Deliverable, and any media used to distribute it, shall be, at the time of delivery, free from any harmful or malicious code, including without limitation viruses, malware, spyware, ransomware, or other similar function or technological means designed to disrupt, interfere with, or damage the normal operation of the Work or Deliverable and the use of City resources and systems. The Contractor's warranties under this Section shall apply to any defects or material nonconformities discovered within 180 days following delivery of any Work or Deliverable.

18.2. Upon notice of any defect or material nonconformity, the Contractor shall submit to the City in writing as soon as reasonably possible, and using commercially reasonable efforts to provide such writing within 10 business days of the notice one or more recommendations for corrective action with sufficient documentation for the City to ascertain the feasibility, risks, and impacts of each recommendation. The City's remedy for such defect or material non-conformity shall be:

18.2.1. The Contractor shall re-perform, repair, or replace such Work or Deliverable in accordance with any recommendation chosen by the City. The Contractor shall deliver, at no additional cost to the City, all documentation required under this Agreement as applicable to the corrected Work or Deliverable; or

18.2.2. The Contractor shall refund to the City all amounts paid for such Work or Deliverable, as well as pay to the City any additional amounts reasonably necessary for the City to procure alternative goods or services of substantially equivalent capability, function, and performance.

18.3. Any Work or Deliverable delivered to the City as a remedy under this Section shall be subject to the same quality assurance, acceptance, and warranty requirements as the original Work or Deliverable. The duration of the warranty for any replacement or corrected Work or Deliverable shall run from the date of the corrected or replacement Work or Deliverable.

18.4. **Customization Services**: The Contractor warrants that it will perform all customization services, if any, in a professional and workmanlike manner. In case of breach of the warranty of the preceding sentence, the Contractor, at its own expense, shall promptly re-perform the customization services in question or provide a full refund for all nonconforming customization services.

18.5. **Third-Party Warranties and Indemnities**: The Contractor will assign to the City all third-party warranties and indemnities that the Contractor receives in connection with any Work or Deliverables provided to the City. To the extent that the Contractor is not permitted to assign any warranties or indemnities through to the City, the Contractor agrees to specifically identify

and enforce those warranties and indemnities on behalf of the City to the extent the Contractor is permitted to do so under the terms of the applicable third-party agreements.

18.6. **Intellectual Property Rights in the Software**: The Contractor warrants that it is the owner of all Deliverables, and of each and every component thereof, or the recipient of a valid license thereto, and that it has and will maintain the full power and authority to grant the intellectual property rights to the Deliverables in this Agreement without the further consent of any third party and without conditions or requirements not set forth in this Agreement. In the event of a breach of the warranty in this Section, the Contractor, at its own expense, shall promptly take the following actions: (i) secure for the City the right to continue using the Deliverable as intended; (ii) replace or modify the Deliverable to make it non-infringing, provided such modification or replacement will not materially degrade any functionality as stated in this Agreement; or (iii) refund 100% of the fee paid for the Deliverable for every month remaining in the Term, in which case the Contractor may terminate any or all of the City's licenses to the infringing Deliverable granted in this Agreement and require return or destruction of copies thereof. The Contractor also warrants that there are no pending or threatened lawsuits, claims, disputes, or actions: (i) alleging that any of the Work or Deliverables infringes, violates, or misappropriates any third-party rights; or (ii) adversely affecting any Deliverables or Services, or the Contractor's ability to perform its obligations hereunder.

18.7. **Viruses**: Each Party shall (and Customer shall ensure the Authorized Users and their Third Parties in connection with the use of the Contractor platform and solutions shall) at all times utilize good industry practices in the information technology industry with respect to comparable services and performance standards to prevent the introduction of Viruses into the Parties' respective platforms, solutions and/or systems environment. If a Party breaches the foregoing obligation and a Virus is found to have been introduced by that Party (or Authorized User or its Third Party) as a result of such event, then such Party shall (at its own cost) provide reasonable assistance to the other Party to mitigate the effects of such Virus. "Virus" shall have the meaning set forth in Exhibit E, Attachment 1, "General Definitions".

19. ACCESSIBILITY AND ADA WEBSITE COMPLIANCE

19.1. **Compliance**: The Contractor shall comply with, and the Work and Work Product provided under this Agreement shall be in compliance with, all applicable provisions of §§ 24-85-101, *et seq*., C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established pursuant to Section § 24-85-103 (2.5), C.R.S (collectively, the "Guidelines"). The Contractor shall also comply with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

19.2. **Testing**: The City may require the Contractor's compliance to be determined by a third party selected by the City to attest that the Contractor's has performed all obligations under this Agreement in compliance with §§ 24-85-101, *et seq*., C.R.S., and the Accessibility Standards for Individuals with a Disability as established pursuant to Section § 24-85-103 (2.5), C.R.S.

19.3. **Validation and Remediation**: The Contractor agrees to promptly respond to and resolve any instance of noncompliance regarding accessibility in a timely manner and shall remedy any noncompliant Work Product, Service, or Deliverable at no additional cost to the City. If the City reasonably determines accessibility issues exist, the Contractor shall provide a "roadmap" for remedying those deficiencies on a reasonable timeline to be approved by the City. Resolution of reported accessibility issue(s) that may arise shall be addressed as high priority, and failure to make satisfactory progress towards compliance with the Guidelines, as agreed to in the roadmap, shall constitute a breach of contract and be grounds for termination or non-renewal of this Agreement.

20. CONFIDENTIAL INFORMATION

20.1. "Confidential Information" means all information or data, regardless of form, not subject to disclosure under the Colorado Open Records Act, § 24-72-201, *et seq*., C.R.S. ("CORA"), and is marked or identified at the time of disclosure as being confidential, proprietary, or its equivalent. Each of the Parties may disclose (a "Disclosing Party") or permit the other Party (the "Receiving Party") access to the Disclosing Party's Confidential Information in accordance with the following terms. Except as specifically permitted in this Agreement or with the prior express written permission of the Disclosing Party, the Receiving Party shall not: (i) disclose, allow access to, transmit, transfer or otherwise make available any Confidential Information of the Disclosing Party to any third party other than its employees, Subcontractors, agents and consultants that need to know such information to fulfil the purposes of this Agreement, and in the case of non-employees, with whom it has executed a non-disclosure or other agreement which limits the use, reproduction and disclosure of the Confidential Information on terms that afford at least as much protection to the Confidential Information as the provisions of this Agreement; or (ii) use or reproduce the Confidential Information of the Disclosing Party for any reason other than as reasonably necessary to fulfil the purposes of this Agreement. This Agreement does not transfer ownership of Confidential Information or grant a license thereto. Each Party will retain all right, title, and interest in its Confidential Information.

20.2. The Contractor shall provide for the security of Confidential Information and information which may not be marked but constitutes personally identifiable information or other federally or state regulated information ("Regulated Data") in accordance with all applicable laws, rules, policies, publications, and guidelines. If the Contractor receives Regulated Data outside the scope of this Agreement, it shall promptly notify the City.

20.3. Disclosed information or data that the Receiving Party can establish: (i) was lawfully in the Receiving Party's possession before receipt from the Disclosing Party; or (ii) is or becomes a matter of public knowledge through no fault of the Receiving Party; or (iii) was independently developed or discovered by the Receiving Party; or (iv) was received from a third party that was not under an obligation of confidentiality, shall not be considered Confidential Information under this Agreement. The Receiving Party will inform necessary employees, officials, Subcontractors,

agents, and officers of the confidentiality obligations under this Agreement, and all requirements and obligations of the Receiving Party under this Agreement shall survive the expiration or earlier termination of this Agreement.

20.4. Nothing in this Agreement shall in any way limit the ability of the City to comply with any laws or legal process concerning disclosures by public entities. The Parties understand that all materials exchanged under this Agreement, including Confidential Information, may be subject to CORA. In the event of a request to the City for disclosure of possible confidential materials, the City shall advise the Contractor of such request to give the Contractor the opportunity to object to the disclosure of any of its materials which it marked as, or otherwise asserts is, proprietary or confidential. If the Contractor objects to disclosure of any of its material, the Contractor shall identify to the City the legal basis under CORA for any right to withhold. In the event of any action or the filing of a lawsuit to compel disclosure, the Contractor agrees to intervene in such action or lawsuit to protect and assert its claims of privilege against disclosure of such material or waive the same. If the matter is not resolved, the City will tender all material to the court for judicial determination of the issue of disclosure. The Contractor further agrees to defend, indemnify, and save and hold harmless the City, its officers, agents, and employees, from any claim, damages, expense, loss, or costs arising out of the Contractor's intervention to protect and assert its claim of privilege against disclosure under this Section, including but not limited to, prompt reimbursement to the City of all reasonable attorney fees, costs, and damages that the City may incur directly or may be ordered to pay.

21. SENSITIVE SECURITY INFORMATION: Contractor acknowledges that, in the course of performing its work under this Agreement, Contractor may be given access to Sensitive Security Information ("SSI"), as material is described in the Code of Federal Regulations, 49 C.F.R. Part 1520. Contractor specifically agrees to comply with all requirements of the applicable federal regulations, including but not limited to, 49 C.F.R. Parts 15 and 1520. Contractor understands any questions it may have regarding its obligations with respect to SSI must be referred to DEN's Security Office.

22. DATA MANAGEMENT, SECURITY, AND PROTECTION

22.1. Compliance with Data Protection Laws and Policies: The Contractor shall comply with all applicable federal, state, local laws, rules, regulations, directives, and policies relating to data protection, use, collection, disclosures, processing, and privacy as they apply to the Contractor under this Agreement, including, without limitation, applicable industry standards or guidelines based on the data's classification relevant to the Contractor's performance hereunder and, *when applicable*, the most recent iterations of § 24-73-101, *et seq.*; C.R.S., IRS Publication 1075; the Colorado Consumer Protection Act, the Payment Card Industry Data Security Standard ("PCI-DSS"), and the Minimum Acceptable Risk Standards for Exchanges (collectively, "Data Protection Laws"). If the Contractor becomes aware that it cannot reasonably comply with the terms or conditions contained herein due to a conflicting law or policy, the Contractor shall promptly notify the City.

22.2. **Safeguarding Protected and Sensitive Information**: "Protected Information" means data, regardless of form, that has been designated as sensitive, private, proprietary, protected, or confidential by law, policy, or the City. Protected Information includes, but is not limited to, employment records, protected health information, student and education records, criminal justice information, personal financial records, research data, trade secrets, classified government information, other regulated data, and personally identifiable information as defined by §§ 24-73-101(4)(b) and 6-1-716(1)(g)(I)(A), C.R.S., as amended. Protected Information shall not include public records that by law must be made available to the public under CORA. To the extent there is any uncertainty as to whether data constitutes Protected Information, the data in question shall be treated as Protected Information until a determination is made by the City or an appropriate legal authority. Unless the City provides security protection for the information it discloses to the Contractor, the Contractor shall implement and maintain reasonable security procedures and practices that are both appropriate to the nature of the Protected Information disclosed and that are reasonably designed to help safeguard Protected Information from unauthorized access, use, modification, disclosure, or destruction. Disclosure of Protected Information does not include disclosure to a third party under circumstances where the City retains primary responsibility for implementing and maintaining reasonable security procedures and practices appropriate to the nature of the Protected Information, and the City implements and maintains technical controls reasonably designed to safeguard Protected Information from unauthorized access, modification, disclosure, or destruction or effectively eliminate the third party's ability to access Protected Information, notwithstanding the third party's physical possession of Protected Information. If the Contractor has been contracted to maintain, store, or process personal information on the City's behalf, the Contractor is a "Third-Party Service Provider" as defined by § 24-73-103(1)(i), C.R.S.

22.3. **Data Access and Integrity**: The Contractor shall implement and maintain all appropriate administrative, physical, technical, and procedural safeguards necessary and appropriate to ensure compliance with the Data Protection Laws applicable to the Contractor's performance hereunder to ensure the security and confidentiality of data. The Contractor shall protect against threats or hazards to the security or integrity of data; protect against unauthorized disclosure, access to, or use of data; restrict access to data as necessary; and ensure the proper and legal use of data. The Contractor shall not engage in "data mining" except as specifically and expressly required by law or authorized in writing by the City. Unless otherwise required by law, the City has exclusive ownership of all City Data under this Agreement, and the Contractor shall have no right, title, or interest in City Data obtained in connection with the services provided herein. The Contractor has a limited, nonexclusive license to access and use data as provided in this Agreement solely for the purpose of performing its obligations hereunder. The City retains the right to access and retrieve City Data stored on the Contractor's infrastructure at any time during the Term. All City Data created and/or processed by the Work, if any, is and shall remain the property of the City and shall in no way become attached to the Work, nor shall the Contractor have any rights in or to the City Data without the express written permission of the City. This Agreement does not give a Party any rights, implied or otherwise, to the other's data, content, or intellectual property,

except as expressly stated in this Agreement. The City retains the right to use the Work to access and retrieve data stored on the Contractor's infrastructure at any time during the Term. Upon written request, the Contractor shall provide the City with a summary of its policies and procedures to maintain the confidentiality of City Data and Protected Information.

22.4. **Response to Legal Orders for City Data**: If the Contractor is required by a court of competent jurisdiction or administrative body to disclose City Data, the Contractor shall first notify the City and, prior to any disclosure, cooperate with the City's reasonable requests in connection with the City's right to intervene, quash, or modify the legal order, demand, or request, and upon request, provide the City with a copy of its response. If the City receives a subpoena, legal order, or other legal demand seeking data maintained by the Contractor, the City will promptly provide a copy to the Contractor. Upon notice and if required by law, the Contractor shall promptly provide the City with copies of its data required for the City to meet its necessary disclosure obligations.

22.5. **Data Retention, Transfer, Litigation Holds, and Destruction**: Using appropriate and reliable storage media, the Contractor shall regularly backup data used in connection with this Agreement and retain such backup copies consistent with the City's data and record retention policies. All City Data shall be encrypted in transmission, including by web interface, and in storage by an agreed upon National Institute of Standards and Technology ("NIST") approved strong encryption method and standard. The Contractor shall not transfer or maintain data under this Agreement outside of the United States without the City's express written permission. For the avoidance of doubt, acceptance by the City of a technical solution and proposal of the Contractor that includes hosting of data outside of the United States will constitute such permission as to the location(s) identified in the technical solution and proposal. Upon termination of this Agreement, the Contractor shall securely delete or securely transfer all data, including Protected Information, to the City in an industry standard format as directed by the City; however, this requirement shall not apply to the extent the Contractor is required by law to retain data, including Protected Information. Upon the City's request, the Contractor shall confirm, by providing a certificate, the data disposed of, the date disposed of, and the method of disposal. With respect to any data in the Contractor's exclusive custody, the City may request, at no additional cost to the City, that the Contractor preserve such data outside of record retention policies. The City will promptly coordinate with the Contractor regarding the preservation and disposition of any data and records relevant to any current or anticipated litigation, and the Contractor shall continue to preserve the records until further notice by the City. Unless otherwise required by law or regulation, when paper or electronic documents are no longer needed, the Contractor shall destroy or arrange for the destruction of such documents within its custody or control that contain Protected Information by shredding, erasing, or otherwise modifying the Protected Information in the paper or electronic documents to make it unreadable or indecipherable. The Contractor must develop and maintain a written policy for the destruction of such records.

22.6. **Software and Computing Systems**: At its reasonable discretion, the City may prohibit the Contractor from the use of certain software programs, databases, and computing systems with known vulnerabilities to collect, use, process, store, or generate data and information received under this Agreement. The Contractor shall fully comply with all requirements and conditions, if any, associated with the use of software programs, databases, and computing systems as reasonably directed by the City. The Contractor shall not use funds paid by the City for the acquisition, operation, or maintenance of software in violation of any copyright laws or licensing restrictions. The Contractor shall maintain commercially reasonable network security that, at a minimum, includes network firewalls, intrusion detection/prevention, and enhancements or updates consistent with evolving industry standards The Contractor shall use industry-standard and up-to-date security tools, technologies and procedures including, but not limited to, anti-virus and anti-malware protections. The Contractor shall ensure that any underlying or integrated software employed under this Agreement is updated on a regular basis and does not pose a security threat.

22.7. **Background Checks**: To the extent legally permitted, the Contractor shall ensure that, prior to being granted access to Protected Information, the Contractor's agents, employees, Subcontractors, volunteers, or assigns who perform work under this Agreement have all undergone and passed all necessary criminal background screenings, have successfully completed annual instruction of a nature sufficient to enable them to effectively comply with all data protection provisions of this Agreement and Data Protection Laws, and possess all qualifications appropriate to the nature of the employees' duties and the sensitivity of the data. If the Contractor will have access to federal tax information ("FTI") under this Agreement, the Contractor shall comply with the background check and other provisions of Section 6103(b) of the Internal Revenue Code, the requirements of IRS Publication 1075, and the Privacy Act of 1974, 5 U.S.C. § 552a, *et. seq*., related to federal tax information.

22.8. **Subcontractors and Employees**: If the Contractor engages a Subcontractor under this Agreement, the Contractor shall impose data protection terms that provide at least the same level of data protection as in this Agreement and to the extent appropriate to the nature of the Work provided. The Contractor shall monitor the compliance with such obligations and remain responsible for its Subcontractor's compliance with the obligations of this Agreement and for any of its Subcontractors acts or omissions that cause the Contractor to breach any of its obligations under this Agreement. Unless the Contractor provides its own security protection for the information it discloses to a third party, the Contractor shall require the third party to implement and maintain reasonable security procedures and practices that are appropriate to the nature of the Protected Information disclosed and that are reasonably designed to protect it from unauthorized access, use, modification, disclosure, or destruction. Any term or condition within this Agreement relating to the protection and confidentially of any disclosed data shall apply equally to both the Contractor and any of its Subcontractors, agents, assigns, employees, or volunteers. Upon request, the Contractor shall provide the City with summaries of its record retention, data privacy, and information security policies. The Contractor shall ensure all Subcontractors sign, or have signed,

agreements containing nondisclosure provisions at least as protective as those in this Agreement, and that the nondisclosure provisions are in force so long as the Subcontractor has access to any data disclosed under this Agreement. Upon request, the Contractor shall provide copies of those signed nondisclosure agreements to the City.

22.9. **Security Audit Access**: The Contractor shall permit the City reasonable access and shall provide the City with information reasonably required to assess the Contractor's compliance with its security and confidentiality obligations under this Agreement. Such access and information shall include upon request an annual report, such as or similar to SSAE 16/SOC 2 audit, or an alternative audit recommended by the City, and the Contractor shall comply with the City's annual risk assessment and the results thereof, the terms and scope of such audit shall be agreed between the City and the Contractor and will be limited to once every twelve (12) months with forty-five (45) days prior notice to the Contractor. To the extent the Contractor controls or maintains information systems used in connection with this Agreement, the Contractor shall provide the City with the executive summary of security assessment activities when conducted on such information systems, including certain information related to code-level vulnerability scans, application-level risk assessments, and other security assessment activities as required by this Agreement or reasonably requested by the City. The Contractor will remediate any critical, high, and medium vulnerabilities in alignment with CISA remediation timelines to comply with its obligations hereunder. The rights and obligations contained in this section shall be limited to the City Data and the Contractor's control environment and security practices related solely to such data.

22.10. **Unauthorized Data Disclosure**

22.10.1. **Security Breach**: If the Contractor becomes aware of a suspected or unauthorized acquisition or disclosure of unencrypted data, in any form through the services provided by the Contractor, that compromises the security, access, confidentiality, or integrity of City Data, Protected Information, or other data maintained or provided by the City ("Security Breach"), the Contractor shall notify the City in the most expedient time and without unreasonable delay but no less than seventy-two (72) hours. A Security Breach shall also include, without limitation, (i) attempts to gain unauthorized access to a City system or City Data regardless of where such information is located; (ii) unwanted disruption or denial of service; (iii) the unauthorized use of a City system for the processing or storage of data; or (iv) changes to the City's system hardware, firmware, or software characteristics without the City's knowledge, instruction, or consent. Any oral notice of a Security Breach provided by the Contractor shall be immediately followed by a written notice to the City. The Contractor shall maintain documented policies and procedures for Security Breaches including reporting, notification, and mitigation.

22.10.2. **Cooperation**: The Contractor shall fully cooperate with the City regarding recovery, lawful notices, investigations, remediation, and the necessity to involve law enforcement, as determined by the City and as required by law. The Contractor shall preserve and provide all information relevant to the Security Breach to the City; provided,

however, the Contractor shall not be obligated to disclose confidential business information or trade secrets. Unless the Contractor can establish that neither it nor any of its agents, employees, assigns, or Subcontractors are the cause or source of the Security Breach, the Contractor shall indemnify, defend, and hold harmless the City for all claims, including reasonable attorneys' fees, costs, and expenses incidental thereto, which may be accrued against, charged to, or recoverable from the City in connection with a Security Breach and any required lawful notices.

22.10.3. **Reporting**: The Contractor shall provide a written report to the City that identifies: (i) the nature of the unauthorized use or disclosure; (ii) the data used or disclosed; (iii) the parties responsible for the Security Breach (if known); (iv) what the Contractor has done or shall do to mitigate the effect of the Security Breach; and (v) what corrective action the Contractor has taken or shall take to prevent future Security Breaches. Except as expressly required by law, the Contractor will not disclose or otherwise provide notice of the incident directly to any person, regulatory agencies, or other entities, without prior written permission from the City.

22.10.4. **Costs**: Notwithstanding any other provision of this Agreement, and in addition to any other remedies available to the City under law or equity, the Contractor will promptly reimburse the City in full for all costs incurred by the City in any investigation, remediation or litigation resulting from any Security Breach, including but not limited to providing notification to third parties whose data was compromised and to regulatory bodies, law-enforcement agencies, or other entities as required by law or contract; establishing and monitoring call center(s), and credit monitoring and/or identity restoration services to assist each person impacted by a Security Breach in such a fashion that, in the City's sole discretion, could lead to identity theft; and the payment of legal fees and expenses, audit costs, fines and penalties, and other fees imposed by regulatory agencies, courts of law, or contracting partners as a result of the Security Breach.

22.10.5. **Remediation**: After a Security Breach, the Contractor shall take steps to reduce the risk of incurring a similar type of Security Breach in the future which may include, but is not limited to, developing and implementing a remediation plan that is approved by the City at no additional cost to the City. The City may suggest modifications to this plan which shall be considered in good faith by the Contractor. The Contractor shall conduct an internal or external security audit and shall provide the City with the results of such audit and evidence of the Contractor's planned remediation in response to any negative findings. Implementation of corrective actions to remedy the Security Breach and restore the City's access to the Work shall occur without undue delay.

22.11. **Request for Additional Protections and Survival**: In addition to the terms contained herein, the City may reasonably request that the Contractor protect the confidentiality of certain Protected Information or other data in specific ways to ensure compliance with Data Protection Laws and any changes thereto. Unless a request for additional protections is mandated by a change in law, the Contractor may reasonably decline the City's request to provide additional protections.

If such a request requires the Contractor to take steps beyond those contained herein, the Contractor shall notify the City with the anticipated cost of compliance, and the City may thereafter request the Contractor to comply with the request at the City's expense; provided, however, that any increase in costs that would increase the Maximum Contract Amount must first be memorialized in a written amendment complying with City procedures. Contractor will consider such request in good faith and will not unreasonably withhold its consent to proceed with such additional steps. Obligations contained in this Agreement relating to the protection and confidentially of any disclosed data shall survive termination of this Agreement, and the Contractor shall continue to safeguard all data for so long as the data remains confidential or protected and in the Contractor's possession or control.

23. DEN SECURITY:

23.1. Contractor, its officers, authorized officials, employees, agents, subcontractors, and those under its control, shall comply with safety, operational, or physical security of the premises measures required of vendors and contractors generally, including Contractor or the City in the performance of its obligations under this Agreement by the FAA or TSA. If Contractor, its officers, authorized officials, employees, agents, subcontractors or those under its control, fail or refuse to comply with said measures and such non-compliance results in a monetary penalty being assessed against the City, then, in addition to any other remedies available to the City, Contractor shall fully reimburse the City any fines or penalties levied against the City, and any attorney fees or related costs paid by the City as a result of any such violation. Contractor must pay this amount within fifteen (15) days from the date of the invoice or written notice. Any fines and fees assessed by the FAA or TSA against the City due to the actions of Contractor and/or its agents will be deducted directly from the invoice for that billing period.

23.2. Contractor is responsible for compliance with Airport Security regulations and 49 C.F.R. Parts 1542 (Airport Security) and 14 C.F.R. Parts 139 (Airport Certification and Operations). Any and all violations pertaining to Parts 1542 and 139 resulting in a fine will be passed on to and borne by Contractor. The fee/fine will be deducted from the invoice at time of billing.

24. FEDERAL RIGHTS: This Agreement is subject and subordinate to the terms, reservations, restrictions and conditions of any existing or future agreements between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes and the expenditure of federal funds for the extension, expansion or development of the Airport System. As applicable, Contractor shall comply with the Standard Federal Assurances identified in the attached Appendix: Standard Federal Assurances.

25. TAXES, CHARGES AND PENALTIES: The City shall not be liable for the payment of taxes, late charges, or penalties of any nature other than the compensation stated herein, except for any additional amounts which the City may be required to pay under D.R.M.C. § 20-107 to § 20-115.

26. ASSIGNMENT; SUBCONTRACTING: The Contractor shall not voluntarily or involuntarily assign any of its rights or obligations, or subcontract performance obligations, under this Agreement without obtaining the City's prior written consent. Any assignment or on premise work subcontracting without such consent will be ineffective and void and shall be cause for termination of this Agreement by the

City. The City has sole and absolute discretion whether to consent to any assignment or on premise work subcontracting, or to terminate this Agreement because of unauthorized assignment or subcontracting. In the event of any on premise work subcontracting or unauthorized assignment: (i) the Contractor shall remain responsible to the City; and (ii) no contractual relationship shall be created between the City and any subconsultant, Subcontractor, or assign.

27. **NO THIRD-PARTY BENEFICIARY**: Enforcement of the terms of this Agreement and all rights of action relating to enforcement are strictly reserved to the Parties. Nothing contained in this Agreement gives or allows any claim or right of action to any third person or entity. Any person or entity other than the City or the Contractor receiving services or benefits pursuant to this Agreement is an incidental beneficiary only.
28. **NO AUTHORITY TO BIND CITY TO CONTRACTS**: The Contractor lacks any authority to bind the City on any contractual matters. Final approval of all contractual matters that purport to obligate the City must be executed by the City in accordance with the City's Charter and the Denver Revised Municipal Code.
29. **AGREEMENT AS COMPLETE INTEGRATION-AMENDMENTS**: Except for the functional requirements provided in response to a request for proposal and/or any subsequent enhancement of the SOW or other implementation documentation that may be developed after execution of this Agreement, this Agreement is the complete integration of all understandings between the Parties as to the subject matter of this Agreement. No prior, contemporaneous, or subsequent addition, deletion, or other modification has any force or effect, unless embodied in this Agreement in writing. No oral representation by any officer or employee of the City at variance with the terms of this Agreement or any written amendment to this Agreement will have any force or effect or bind the City.
30. **PAYMENT OF CITY MINIMUM WAGE**: The Contractor shall comply with, and agrees to be bound by, all requirements, conditions, and City determinations regarding the City's Minimum Wage Ordinance, Sections 20-82 through 20-84 D.R.M.C., including, but not limited to, the requirement that every covered worker shall be paid no less than the City Minimum Wage in accordance with the foregoing D.R.M.C. Sections. By executing this Agreement, the Contractor expressly acknowledges that the Contractor is aware of the requirements of the City's Minimum Wage Ordinance and that any failure by the Contractor, or any other individual or entity acting subject to this Agreement, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

31. **PAYMENT OF PREVAILING WAGE**: To the extent required by law, Contractor shall comply with, and agrees to be bound by, all requirements, conditions and City determinations regarding the Payment of Prevailing Wages Ordinance, D.R.M.C. §§ 20-76 through 20-79, including, but not limited to, the requirement that every covered worker working on a City owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the Effective Date of this Agreement.

    31.1.1. Prevailing wage and fringe rates will adjust on, and only on, the anniversary of the Effective Date of this Agreement. Unless expressly provided for in this Agreement,

Contractor will receive no additional compensation for increases in prevailing wages or fringe benefits.

31.1.2. Contractor shall provide the Auditor with a list of all subcontractors providing any services under the Agreement.

31.1.3. Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under this Agreement.

31.1.4. Contractor shall prominently post at the work site the current prevailing wage and fringe benefit rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

31.1.5. If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The City may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe benefits.

32. DIVISION OF SMALL BUSINESS OPPORTUNITY PROVISIONS:

32.1.1. This project is covered under D.R.M.C. Chapter 28 Article V. In accordance with the D.R.M.C., the Division of Small Business Opportunity has conducted an analysis examining the scope of work for this project, cost estimate and the existing availability of certified firms in the following NAICS code: 423610 to perform the specified services as stated in the business utilization request form. DSBO has established that no DSBO program will apply.

32.1.2. If directed by DSBO, the Contractor is required to develop and comply with the Equity, Diversity and Inclusion Plan ("EDI Plan") attached as **Exhibit D** and as it may be modified in the future by DSBO. Unless a separate Utilization Plan is required in accordance with § 28-62(b), D.R.M.C, the EDI Plan shall constitute the Utilization Plan required by § 28-62(b). Along with the EDI Plan and Utilization Plan requirements, the Consultant must establish and maintain records and submit regular reports, as directed by DSBO, which will allow the City to assess progress in complying with the EDI Plan and/or Utilization Plan and achieving the MWBE participation goal. The EDI Plan and Utilization Plan is subject to modification by DSBO.

33. SEVERABILITY: Except for the provisions of this Agreement requiring appropriation of funds and limiting the total amount payable by the City, if a court of competent jurisdiction finds any provision of this Agreement or any portion of it to be invalid, illegal, or unenforceable, the validity of the remaining portions or provisions will not be affected, if the intent of the Parties can be fulfilled.

34. CONFLICT OF INTEREST: No employee of the City shall have any personal or beneficial interest in the services or property described in this Agreement. The Contractor shall not hire, or contract for services with, any employee or officer of the City that would be in violation of the City's Code of Ethics, D.R.M.C. § 2-51, *et seq*. or the Charter §§ 1.2.8, 1.2.9, and 1.2.12. The Contractor shall not engage in any transaction, activity or conduct that would result in a conflict of interest under this Agreement. The Contractor represents that it has disclosed any and all current or potential conflicts

of interest. A conflict of interest shall include transactions, activities or conduct that would affect the judgment, actions or work of the Contractor by placing the Contractor's own interests, or the interests of any party with whom the Contractor has a contractual arrangement, in conflict with those of the City. The City, in its sole discretion, will determine the existence of a conflict of interest and may terminate this Agreement in the event it determines a conflict exists, after it has given the Contractor written notice describing the conflict.

35. NOTICES: All notices required by the terms of this Agreement must be hand delivered, sent by overnight courier service, mailed by certified mail, return receipt requested, electronic mail, or mailed via United States mail, postage prepaid, if to the Contractor at the aforementioned address, and if to the City at:

Chief Executive Officer
Denver International Airport
8500 Pena Blvd., 9th Floor
Denver, CO 80249

With a copy to:

Denver City Attorney's Office
DEN Legal
8500 Pena Blvd., 9th Floor
Denver, CO 80249

And to Contractor at:
Chris Keller, Vice President
Amadeus Airport IT Americas, Inc.
7022 TPC Drive, Suite 100
Orlando, FL 32822
E-mail address: Chris.KELLER@amadeus.com
Phone number: (407) 370-4664 EXT 5901
w/ a separate cc: To Legal Department, same address

Notices hand delivered, sent by overnight courier, or electronic mail are effective upon delivery. Notices sent by certified mail are effective upon receipt. Notices sent by mail are effective upon deposit with the U.S. Postal Service. The Parties may designate electronic and substitute addresses where or persons to whom notices are to be mailed or delivered. However, these substitutions will not become effective until actual receipt of written notification.

36. DISPUTES: All disputes arising under or related to this Agreement shall be resolved by administrative hearing under the procedures described in D.R.M.C. § 5-17 and all related rules and procedures. The determination resulting from said administrative hearing shall be final, subject only to the right to appeal the determination under Colorado Rule of Civil Procedure, Rule 106. In the

event of a dispute between the Parties, the Contractor will continue to perform its obligations under this Agreement during the resolution of the dispute until this Agreement is terminated in accordance with its terms.

37. **GOVERNING LAW; VENUE**: This Agreement will be construed and enforced in accordance with applicable federal law, the laws of the State of Colorado, and the Charter, Revised Municipal Code, ordinances, regulations and Executive Orders of the City and County of Denver. Unless otherwise specified, any reference to statutes, laws, regulations, charter or code provisions, ordinances, executive orders, or related memoranda, includes amendments or supplements to same. Venue for any legal action relating to this Agreement will be in the District Court of the State of Colorado, Second Judicial District (Denver District Court).
38. **BOND ORDINANCES**: This Agreement is in all respects subject and subordinate to any and all the City bond ordinances applicable to the Airport System and to any other bond ordinances which amend, supplement, or replace such bond ordinances.
39. **NO DISCRIMINATION IN EMPLOYMENT**: In connection with the performance of work under this Agreement, the Contractor may not refuse to hire, discharge, promote, demote, or discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, ethnicity, citizenship, immigration status, gender, age, sexual orientation, gender identity, gender expression, marital status, source of income, military status, protective hairstyle, or disability. The Contractor shall insert the foregoing provision in all subcontracts.
40. **LEGAL AUTHORITY**: The Contractor represents and warrants that it possesses the legal authority, pursuant to any proper, appropriate, and official motion, resolution or action passed or taken, to enter into this Agreement. Each person signing and executing this Agreement on behalf of the Contractor represents and warrants that he has been fully authorized by the Contractor to execute this Agreement on behalf of the Contractor and to validly and legally bind the Contractor to all the terms, performances and provisions of this Agreement. The City shall have the right, in its sole discretion, to either temporarily suspend or permanently terminate this Agreement if there is a dispute as to the legal authority of either the Contractor or the person signing this Agreement to enter into this Agreement.
41. **LICENSES, PERMITS, AND OTHER AUTHORIZATIONS:** The Contractor shall secure, prior to the Term, and shall maintain, at its sole expense, all licenses, certifications, rights, permits, and other authorizations that Contractor is required to obtain to perform its obligations under this Agreement. This Section is a material part of this Agreement.
42. **NO CONSTRUCTION AGAINST DRAFTING PARTY**: The Parties and their respective counsel have had the opportunity to review this Agreement, and this Agreement will not be construed against any party merely because any provisions of this Agreement were prepared by a particular party.
43. **ORDER OF PRECEDENCE**: In the event of an irreconcilable conflict between a provision of this Agreement and any of the listed attachments or between provisions of any attachments, such that it is impossible to give effect to both, the order of precedence to determine which document shall control to resolve such conflict, is as follows, in descending order:

Appendix: Standard Federal Assurances
This Agreement
Exhibit E Additional Agreement Terms
Contractor's Proposal dated June 23, 2023, incorporated herein by reference.
Exhibit A Scope of Work
Exhibit B Rates
Exhibit C Insurance Requirements
Exhibit D EDI Plan
Exhibit F Personal Data Procession

44. SURVIVAL OF CERTAIN PROVISIONS: The terms of this Agreement and any exhibits and attachments that by reasonable implication contemplate continued performance, rights, or compliance beyond expiration or termination of this Agreement survive this Agreement and will continue to be enforceable. Without limiting the generality of this provision, the Contractor's obligations to provide insurance and to indemnify the City will survive for a period equal to any and all relevant statutes of limitation, plus the time necessary to fully resolve any claims, matters, or actions begun within that period.

45. INUREMENT: The rights and obligations of the Parties herein set forth shall inure to the benefit of and be binding upon the Parties hereto and their respective successors and assigns permitted under this Agreement.

46. TIME IS OF THE ESSENCE: The Parties agree that in the performance of the terms, conditions, and requirements of this Agreement, time is of the essence.

47. FORCE MAJEURE: Neither Party shall be responsible for failure to fulfill its obligations hereunder or liable for damages resulting from delay in performance as a result of war, fire, strike, riot or insurrection, natural disaster, unreasonable delay of carriers, governmental order or regulation, complete or partial shutdown of manufactures, unreasonable unavailability of equipment or software from suppliers, default of a Subcontractor or vendor (if such default arises out of causes beyond their reasonable control), the actions or omissions of the other Party and/or other substantially similar occurrences beyond the Party's reasonable control ("Excusable Delay"). In the event of any such Excusable Delay, time for performance shall be extended for as may be reasonably necessary to compensate for such delay.

48. PARAGRAPH HEADINGS: The captions and headings set forth herein are for convenience of reference only and shall not be construed to define or limit the terms and provisions hereof.

49. CITY EXECUTION OF AGREEMENT:

49.1. City Execution. This Agreement is expressly subject to, and shall become effective upon, the execution of all signatories of the City and, if required, the approval of Denver City Council. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same.

49.2. Electronic Signatures and Electronic Records. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the City and/or Contractor in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its

formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

50. **ADVERTISING AND PUBLIC DISCLOSURE**: The Contractor shall not include any reference to this Agreement or to services performed pursuant to this Agreement in any of the Contractor's advertising or public relations materials without first obtaining the City' written approval. Any oral presentation or written materials related to services performed under this Agreement will be limited to services that have been accepted by the City. The Contractor shall notify the City in advance of the date and time of any presentation. Nothing in this provision precludes the transmittal of any information to City officials.
51. **EXTERNAL TERMS AND CONDITIONS DISCLAIMER**: Notwithstanding anything to the contrary herein, the City shall not be subject to any provision including any terms, conditions, or agreements appearing on the Contractor's or a Subcontractor's website or any provision incorporated into any click-through or online agreements related to the Work unless that provision is specifically referenced in this Agreement.
52. **PROHIBITED TERMS**: Any term included in this Agreement that requires the City to indemnify or hold the Contractor harmless; requires the City to agree to binding arbitration; limits the Contractor's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be *void ab initio*.
53. **USE, POSSESSION OR SALE OF ALCOHOL OR DRUGS**: The Contractor shall cooperate and comply with the provisions of Executive Order 94 and Attachment A thereto concerning the use, possession or sale of alcohol or drugs. Violation of these provisions or refusal to cooperate with implementation of the policy can result in the City barring the Contractor from City facilities or participating in City operations.
54. **ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS**: The Contractor consents to the use of electronic signatures by the City. This Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the City in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of this Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of this Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.
55. **ATTACHED EXHIBITS INCORPORATED**: The following attached exhibits are hereby incorporated into and made a material part of this Agreement:

Appendix: Standard Federal Assurances
Exhibit A Scope of Work
Exhibit B Rates

Exhibit C Insurance Requirements
Exhibit D EDI Plan
Exhibit E Additional Agreement Terms
Exhibit F Personal Data Procession

The following Exhibit is hereby incorporated into and made a material part of the Agreement by reference:

Contractor's Proposal dated June 23, 2023

SIGNATURE PAGES FOLLOW

Contract Control Number: PLANE-202367234-[[This Amendment Number]]
Contractor Name: AMADEUS IT AMERICAS INC

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By: _____

_____

APPROVED AS TO FORM:

Attorney for the City and County of Denver

By: _____

REGISTERED AND COUNTERSIGNED:

By: _____

By: _____

Contract Control Number: PLANE-202367234-[[This Amendment Number]]
Contractor Name: AMADEUS IT AMERICAS INC

By: DocuSigned by: Chris Keller B2BECFB9411A487...

Name: Chris Keller
(please print)

Title: Secretary
(please print)

ATTEST: [if required]

By: _____

Name: _____
(please print)

Title: _____
(please print)

APPENDIX
Federal Aviation Administration Required Contract Provisions
ALL CONTRACTS – NON-AIP FUNDED

Federal laws and regulations require that recipients of federal assistance (Sponsors) include specific contract provisions in certain contracts, requests for proposals, or invitations to bid.

Certain provisions must be included in all sponsor contracts, **regardless of whether or not the contracts are federally funded**. This requirement was established when a sponsor accepted the Airport Improvement Program (AIP) grant assurances.

As used in these Contract Provisions, "Sponsor" means The City and County of Denver, Department of Aviation, and "Contractor" or "Consultant" means the Party of the Second Part as set forth in Contract / Lease / Agreement to which this Appendix is attached.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Issued on June 19, 2018

GENERAL CIVIL RIGHTS PROVISIONS

Clause that is used for Contracts:

The contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the contractor and subtier contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A5.3.1, Issued on June 19, 2018

Clause that is used for Lease Agreements or Transfer Agreements:

The (tenant/concessionaire/lessee) agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance. If the (tenant/concessionaire/lessee) transfers its obligation to another, the transferee is obligated in the same manner as the (tenant/concessionaire/lessor).

This provision obligates the (tenant/concessionaire/lessee) for the period during which the property is owned, used or possessed by the (tenant/concessionaire/lessee) and the airport remains obligated to the Federal Aviation Administration. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A5.3.2, Issued on June 19, 2018

CIVIL RIGHTS – TITLE VI ASSURANCE

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or

indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

    a. Withholding payments to the contractor under the contract until the contractor complies; and/or

    b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.1, Issued on June 19, 2018

Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program:

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the Sponsor pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a Federal Aviation Administration activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Nondiscrimination Acts and Regulations listed in the Pertinent List of Nondiscrimination Authorities (as may be

amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, Sponsor will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the Sponsor will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of Sponsor and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.3, Issued on June 19, 2018

Title VI Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program:

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by Sponsor pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the List of discrimination Acts And Authorities.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above nondiscrimination covenants, Sponsor will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above nondiscrimination covenants, Sponsor will there upon revert to and vest in and become the absolute property of Sponsor and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.4, Issued on June 19, 2018

Title VI List of Pertinent Nondiscrimination Acts and Authorities:

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq*., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq*.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq*.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.5, Issued on June 19, 2018

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The [*contractor* | *consultant*] has full responsibility to monitor compliance to the referenced statute or regulation. The [*contractor* | *consultant*] must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A17.3, Issued on June 19, 2018

APPENDIX
Federal Aviation Administration Required Contract Provisions
ALL CONTRACTS – NON-AIP FUNDED

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A20.3, Issued on June 19, 2018

For additional information, please refer to:
https://www.faa.gov/airports/aip/procurement/federal_contract_provisions/

Exhibit A

Resource Management System (RMS) / Electronic Visual Information Display System (EVIDS)

Statement of Work

Denver International Airport
Aviation Department

December 7, 2022

Table of Contents

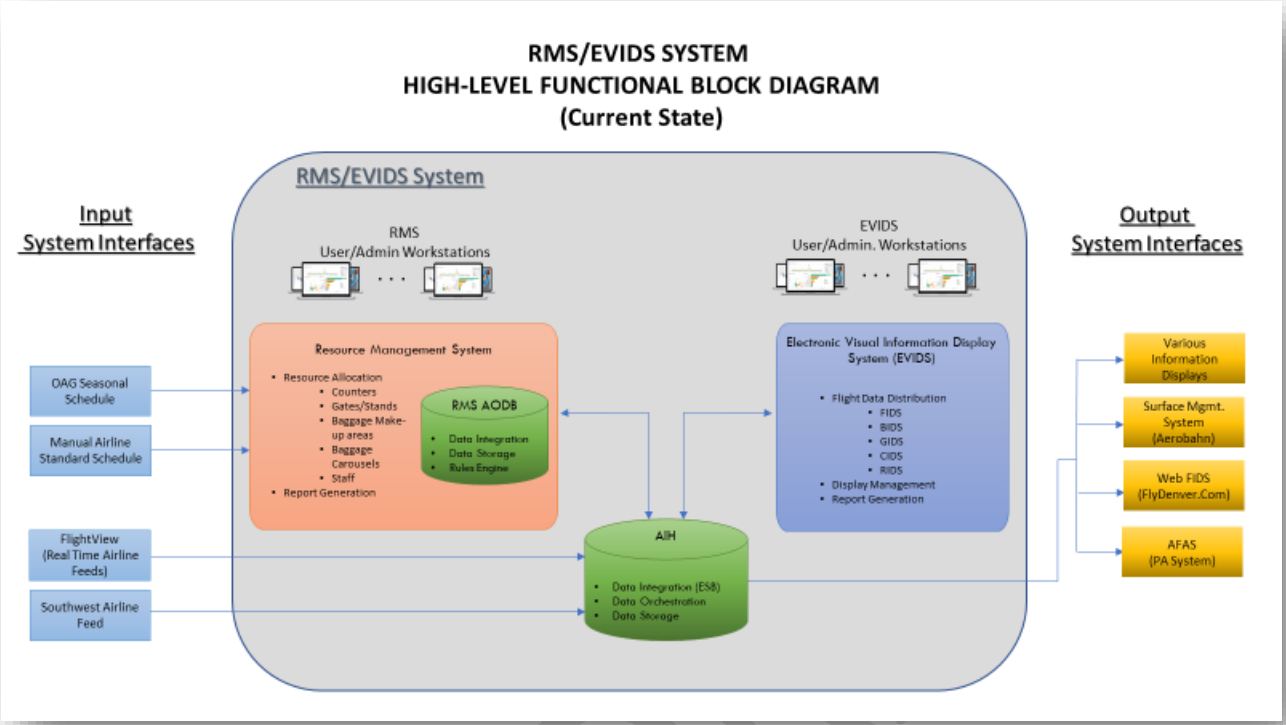
1 Introduction

The Department of Aviation, Denver International Airport, desires to implement a replacement Resource Management System (RMS), Flight Information Display System (FIDS) – which also includes other content displays such as advertising, wayfinding, etc., and associated supporting database(s). These systems are crucial to aircraft operations and passenger processing activities at the airport. These systems shall provide accurate and current data regarding flight arrivals and departures, as well as gate/resource availability, assignments, and schedules. At DEN, the RMS is primarily used by Airport Operations (Ramp Tower group), as well as approximately 10 of the current airline tenants.

1.1 Existing Conditions

The current RMS/EVIDS*/Database environment is graphically shown below. The RMS application has direct interfaces to the OAG Seasonal Flight Schedule and Manual Flight Standard Schedule from some airlines. The RMS has its own Airport Operations Database (AODB). Real-time updates in terms of flight data are provided to the RMS by the Airport Information Hub (AIH) via FlightView and Southwest Airlines data feeds. The existing FIDS application obtains flight data and resource management data from the Airport Information Hub (AIH). Data sharing between the RMS/FIDS solution and third-party applications is handled by the AIH.

**Note: the information display system at DEN has historically been referred to as "FIDS" (Flight Information Display System). As the system will support various content, in addition to flight information, it will be referred to as "EVIDS" (Electronic Visual Information Display System) herein.*



1.1.1 RMS

The current RMS/AODB environment resides on a virtual infrastructure spread across dual datacenters, in an active-standby high availability configuration. Airport Systems-ADB Safegate manages the infrastructure and licensing while DEN owns the server and endpoint hardware and provides datacenter support services.

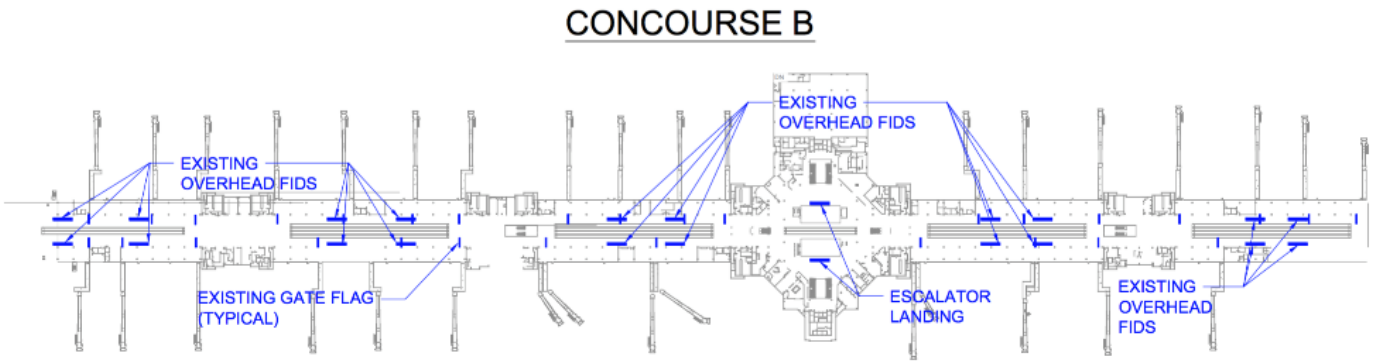
The RMS is currently comprised of 11 modules for end -users and system administrators. The end user modules include Baggage Reclaim Planner, Gate Planner, Resource Layout, Rulebase Configuration, and Stand Planner. The administration modules include Administration, Alarm and Logging, Flight Handler, Reports, Seasonal Scheduler, and User Config. DEN has invested in the establishment of a modern Airport IT and information services architecture, driven by user needs and the efficient flow of information between business processes. DEN IT architecture builds on existing industry protocols to permit the development of data aggregation, applications by different solution providers, and the implementation of shared processes. The core of this architecture includes the Airport Operational Database (AODB), and the Enterprise Service Bus known as the Airport Information Hub (AIH). Key components of the AIH include Java Messaging Services (JMS) and SOAP web services, integration middleware, etc.

1.1.2 FIDS/EVIDS

Denver International Airport (DEN) currently utilizes a flight information display system (FIDS) known as AirportVision (APV) version 7.4, a SITA product. The system includes the following hardware and software:

A. Hardware

APV runs on a multi-core room, VMWare platform. The head end is distributed between two communication rooms on the same campus. The platform utilizes an application server, a database server as well as an EMC Storage Area Network (SAN) for redundancy. The infrastructure is owned by DEN and provided to SITA for use. The following graphic shows the locations of public display devices in Concourse B, as an example:



The display and workstation hardware that is currently in place includes the following:

EVIDS Displays*:

Display	Quantity
LCD - 46-49"	1201
LCD - 40-43"	148
LCD - 55+"	97
LED-textual	352
LED-large format	26**
Total	**1824**

*The small format LCD displays (46-55+ inches) are manufactured by NEC and include various model numbers; the LEDs are manufactured by Daktronics and NanoLumens.
**Represents the total number of LED Controllers. The number of individual LED signs is higher as a single controller can support multiple displays.

EVIDS Media Players*:

Media Player	Quantity
Intel NUC PCs	1474

Dell server	4
Total	**1478**

*The Intel NUC PCs are used to drive content on the LCD displays. They are currently running the Windows 10 OS and are capable of running Windows 11. The Dell Servers are used as media players to drive content on the video walls (large format LEDs).

RMS PCs:

RMS PCs	Quantity
Intel NUC PCs	15
Dell desktop PCs (not dedicated to RMS)	15
Total	**30**

B. Software

DEN utilizes software developed by SITA for the FIDS environment and owns the following perpetual-use licenses for:

- AirportVision Display Manager (Core Application)
- AirportVision View – Site License (Display Application)
- AirportVision Monitor (Application Monitor)
- AirportVision Design (Visual Page Designer)
- MediaManager (Content Management System)
- AirportIntegrator – Collaborative (AIH Interface)

1.1.3 SUPPORTING INFRASTRUCTURE

DEN provides the communications infrastructure to support the RMS/EVIDS. This includes the communications cabling for connectivity of end devices as well as the local area network to support data connectivity. Coordination with DEN Business Technologies shall be performed by the Vendor to define the communications infrastructure requirements to be provided by DEN for the new system. The following provides a high-level description of the DEN enterprise LAN.

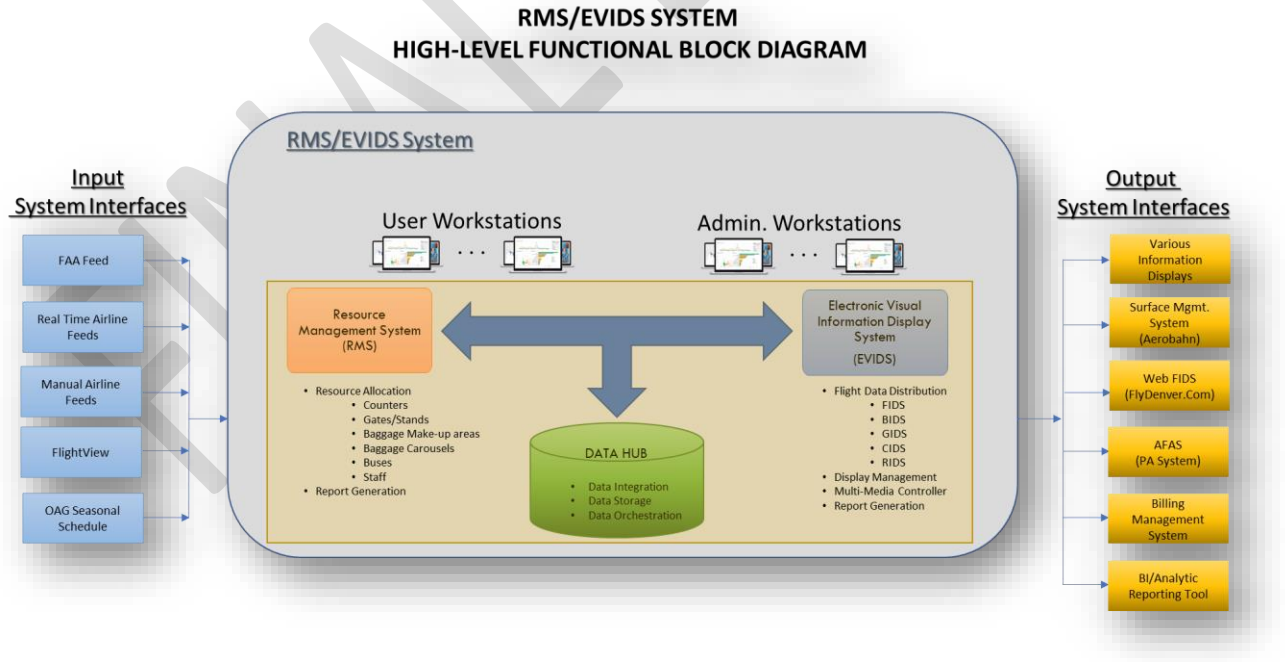
Denver Enterprise Local Area Network: DEN runs a classic three-tier Enterprise Network design (Core, Distribution, and Access Layer). This design separates IP space at the Distribution level, which is given unique IP space which could be defined as the Main Terminal, Concourse A, Concourse B, Concourse C, and so on.

Each region has an independent /16 of IP space and routing is required to traverse between physical regions. No layer 2 inter-region connectivity is permitted – only routed. Routed traffic is handled by DEN and segmentation is offered via access list or the preferred method, MPLS Virtual Route Forwarding tables- a service that is transparent to the user and service and would require a layer three firewall to traverse between it and the DEN primary network.

Connections to the internet can be offered in two ways. First is the use of the DEN infrastructure and firewall to push traffic internet-bound out safely. The second option is to assign a /30 of public IP address space to the Vendor and use that for all internet-bound traffic.

1.2 Desired Future State

A unified database platform shall be the central component of integration with the RMS/EVIDS solution and other airport operational systems as it relates to flight, resource, and other related data. This database platform (also referred to as the data hub) shall support the real-time data warehousing and retrieval of data from IT systems and provide message broker capability. The specific database platform and database(s) configuration shall be dictated by the Vendor's proposed solution. In the longer term, it is anticipated that DEN will utilize this platform to eventually replace the current Airport Information Hub (AIH). The following provides a high-level graphic depiction of the desired future state (*Note: this is not intended to depict the complete system(s) configuration*).



RMS will be provided to assist DEN in the assigning of shared use resources, including gates, ticket counters, baggage claim carousels, baggage makeup conveyors, computers on wheels (COW), and other identified shared resources. The RMS will provide planning functions, 'best fit' recommendations, and real-time conflict warnings to assist DEN in the management of these resources.

The EVIDS will provide flight and baggage information to the traveling public, operational information to other systems, and to aviation and airline staff members and will also support the display of "other" content, including but not limited to, visual messaging (paging), wayfinding, and advertising. The EVIDS component is required to provide the ability to administer and manage all display devices as well as the content that is displayed on these devices.

DEN prefers an off-premises cloud-hosted RMS/EVIDS solution. Refer to the functional, technical, and performance requirements specified herein for complete system requirements.

1.3 Statement of Work

1.3.1 IMPLEMENTATION SERVICES

The Denver International Airport (DEN) is soliciting competitive proposals from qualified firms to design and implement a resource management system, an electronic visual information display system, and supporting database(s) and infrastructure as necessary to support the system requirements stated herein. The Vendor shall provide a complete turnkey solution that includes all necessary software, software licenses, hardware, supporting components, and professional services. The services required include, but are not limited to, the following:

A. The Vendor shall provide all necessary hardware, software, software licenses, materials, supplies, and labor to design, configure, and implement the RMS/EVIDS in accordance with the specifications provided herein. The turnkey RMS/EVIDS solution shall meet the identified technical, functional, and performance requirements.

B. The Vendor shall perform coordination with DEN stakeholders (including, but not limited to, Denver Business Technologies Division, Denver Operations Division (Ramp Tower), Global Communications and Marketing, Airline Affairs, airlines, tenants, Construction Project Representatives, etc. as required) to finalize all design requirements. The Vendor shall coordinate with the designed DEN program manager to identify all stakeholders.

C. The Vendor shall be responsible for the design, implementation, and configuration that meets or exceeds the requirements of the Technical, Functional, and Performance Specifications provided herein. In doing so, the Vendor shall provide the following services including, but not limited to:

D. For all cloud services, the Vendor shall identify the geographic location of any data center where DEN data will be processed and/or stored. U.S.-based data centers shall be used for this project to the extent possible.

1. Project management and coordination
2. System design services, including coordination with DEN staff to develop system rules through a knowledge engineering process.
3. System installation, configuration, interface, and integration.
4. Coordination with DEN and alignment with DEN processes, procedures, etc. for change management and information security.
5. Interface and Integration with existing systems as required.
6. System testing, including the development of a test environment that is coordinated with DEN BT and Airline user stakeholders.
7. System training
8. System commissioning
9. System warranty and support

E. Project implementation will be a phased approach and the Vendor shall be required to develop a phased implementation plan and schedule. The Vendor and DEN will discuss and coordinate, before design phase completion, the development of the final phased implementation approach in terms of the final deployment schedule. Nonetheless, the Vendor will be required to submit preliminary phasing plans to support the evaluation process.

F. In designing the RMS/EVIDS solution, it is desired to standardize hardware, operating systems, network protocols, etc. to facilitate long-term maintenance of the systems. In keeping with this, the systems shall be designed to meet the overall goals of the DEN Stakeholders

G. Any design requirements specified herein are provided for general guidance and standardization. The Vendor may propose alternative solutions to any of the design requirements. In addition to the base design requirements, the Vendor shall provide any additional functionality that it deems beneficial to DEN. These additional elements and/or alternatives shall be proposed as options.

H. The Vendor shall prepare the necessary documents required for installing, configuration, testing, and bringing the systems online. Such documents include, but are not limited to:

1. Project management and quality assurance plans
2. Testing plans
3. Component and system submittal documents (such as product specs, cut sheets, etc.)
4. System Management Plan
5. Phased Installation plans
6. Component design plans
7. Commissioning plan
8. End User Test and Acceptance plan
9. System user training plan and user documentation
10. As-built drawings and documentation

11. Warranty, maintenance, and support plans including recommended Service Level Agreements (SLA), final SLA to be negotiated with DEN.

I. The Vendor shall coordinate with representatives of DEN to ensure the system meets the stated requirements as well as the goals of all stakeholders. As such, the Vendor shall conduct workshops with Airport stakeholders to finalize the following design components, as a minimum. Workshops include but are not limited to:

1. System and component functionality
2. Display hardware
3. Reporting requirements and canned report configurations
4. Resource Management System rules and requirements for resources
5. Resource Management System Reports
6. Electronic Visual Information Display System Reports
7. Overall System Performance Management Reports
8. Screen formats and displayed information (all system displays)
9. Electronic Visual Information Display System (ADA requirements, display formats, and user interfaces)
10. Overall System Performance Management workshops

J. Supporting Infrastructure – Supporting communications infrastructure, including cabling and local area network (wired and wireless) will be provided by DEN. The Vendor shall perform all required coordination with DEN Business Technologies to identify all end-user and system connectivity requirements for the interconnection of system equipment and connection to the campus-wide telecommunications infrastructure. The DEN Enterprise LAN/WLAN shall be used for all data distribution requirements, and coordination with DEN shall be performed to support the network configuration.

1. Passive Infrastructure: Provide final equipment connection to the network. Provide the necessary patch cables, equipment cables, and work area cables. It is the Vendor's responsibility to fully review the passive infrastructure components not provided by this project and identify in writing where the infrastructure does not meet the Vendor's requirements.
2. Hardware Structures: The Vendor shall be responsible for reviewing any hardware and case work either existing or by others. The Vendor shall be responsible for performing the appropriate coordination with DEN to ensure all RMS/EVIDS solution equipment (display devices, workstations, gate, and ticket counter equipment, etc.) will be accommodated by the case work provided by others, or existing. In addition, the Vendor shall provide all dimensions and interconnectivity requirements of all components to be located within the casework to assist in the coordination effort.
3. Equipment racks/cabinets: The Vendor shall be responsible for the supply and installation of any additional equipment racks or cabinets that may be required for equipment installation with the communication rooms. The Vendor shall coordinate with DEN's

Project Manager to determine the installation location for all equipment that is to be placed within the communication rooms.

a) Equipment located in the communication rooms shall be rack mounted in standard 19-inch racks within a cabinet enclosure.
b) The Vendor shall provide the appropriate factory or custom rack mount adapters for all equipment installed in the equipment rack, whether specifically itemized or not.
c) The Vendor shall cover unused slots using blank panels.

4. Internet Access / WAN Connectivity – The Vendor shall coordinate and provide all equipment and services (including coordination with service providers) to facilitate remote access and/or a cloud-based solution (if an on-premises solution is not proposed). Coordination shall be performed with DEN for the potential use of existing internet connections through the DEN network. If these DEN connections are utilized in the proposed solution, all DEN specified security and access protocols/procedures shall be adhered to. It is anticipated that no new physical circuit installations will be required to support remote access / WAN connectivityIt shall be the Vendor's responsibility to confirm requirements and provide all components if existing City infrastructure (circuits, City connections/security/access protocols/procedures) is not adequate for a turn-key solution at the charges provided herein.

K. It is desired to re-use the existing display devices and associated display driving hardware to the maximum extent possible in the new solution. The Vendor shall perform coordination with DEN to review and assess the existing displays and associated driver hardware and firmware (as applicable) to confirm compatibility with the proposed solution. The Vendor shall be responsible for any new or modified hardware and software that is required for the proposed solution.

L. Perform coordination with on-going construction projects to identify and locate all RMS/EVIDS solution hardware and equipment that will be in the communications rooms provided by these projects. The Vendor shall provide detailed equipment lists, including rack space requirements, power requirements, and heat load generated by the equipment to the project representatives for coordination. The Vendor shall review the layout and configuration of all communications rooms that will house RMS/EVIDS solution equipment and notify the DEN representative if any elements do not meet the requirements of the RMS/EVIDS solution.

M. Vendor shall secure and pay for plan check fees, permits, fees, and licenses (including all software licensing such as anti-virus software) necessary for the execution of work as applicable for the project.

N. The Vendor shall provide all required notices to the Airport Representative.

O. The Vendor shall comply with codes, ordinances, statutes, rules, regulations, and other legal requirements of public authorities which bear on the performance and execution of work both in effect at the time of proposal and as may later be adopted.

P. Specific technical system requirements are specifically outlined in the respective technical requirements sections of this document. The Vendor is required to meet all specified requirements.

Q. Warranty and License

1. General – The Vendor shall provide a jointly written warranty by the manufacturer(s) and the installer(s) of all equipment and services identified in this RFP on a single document. The warranty shall warrant the complete installation of the equipment, system, and software to be free from defects in materials and workmanship for a period of no less than twelve (12) months. The starting point for the warranty shall be from the final system acceptance of the complete system as documented in writing between the Vendor and DEN. All labor shall be thoroughly competent and skilled, and all work shall be executed in strict accordance with the best practice of the trades. The Vendor shall be responsible for and make good, without expense to DEN, all defects arising during this warranty period that are due to imperfect materials, appliances, improper installation, or poor workmanship.
2. Hardware Warranty – All hardware supplied as a part of this RFP shall include a warranty throughout the entire duration of the Vendor contractual agreement. The Vendor shall manage all third-party warranties and renew them, as applicable, throughout the life of the contract. In the event Vendor fails to renew any third-party warranty, Vendor shall assume all warranty obligations which would otherwise have been provided by such third-party.
3. Software Warranty – All software supplied as a part of this RFP shall include a warranty throughout the entire duration of the Vendor contractual agreement. The Vendor shall manage all third-party warranties and renew them, as applicable, throughout the life of the contract. In the event Vendor fails to renew any third-party warranty, Vendor shall assume all warranty obligations which would otherwise have been provided by such third-party.
4. Software License – Commercial software packages shall have all registration and licensing documentation filed indicating the City and County of Denver as the owner of the software. Costs for commercial off-the-shelf software licenses shall be included for the duration of the contract at a minimum.

R. The Vendor shall perform the following services:

1. Project Management as described herein.
2. Site Survey/System Requirements Validation – conduct site surveys, and stakeholder interviews to refine the requirements contained herein. Validation of the System Requirements includes at a minimum, the activities listed below:
    a) Validate that locations for system head-end equipment and servers have ample space and environmental conditions to support the proposed/planned system

equipment, as necessary for the proposed solution (if an on-premises solution is proposed).

b) Validate test/development lab hardware requirements.
c) Validate test/development lab peripheral hardware requirements to support functional testing of all systems.
d) Validate locations of existing equipment as necessary based on new equipment requirements.
e) Determine new space allocation throughout the airport as required for deployment of the systems.
f) Validate that the DEN LAN connectivity is available to support new locations.
g) Validate airline host connectivity methodology and data feeds with each airline as applicable for the systems.
h) Determine how much new equipment is required, including consideration of space necessary to accommodate equipment.
i) Determine detailed interface requirements for any existing airport system required to integrate/interface to the RMS/EVIDS solution.
j) Validate the locations for the system hardware components to ensure they have ample space and proper environmental conditions.
k) Determine which Airport systems and users that need to interface with the RMS/EVIDS solution and determine the data to be exchanged, data validation rules, workflow procedures, and business rules for the interface. The information for each interface will be documented in an interface control document.
l) Validate airlines to be supported for all systems and capture specific interface requirements both physically and logically.
m) Validate reporting requirements.
n) Coordinate with airport stakeholders as necessary to ensure system requirements are fully captured and validated for the RMS/EVIDS solution systems.
o) Conduct System Requirements Review before commencing System Design Phase.

3. System Design – The Vendor will develop the system design for all required system elements. At a minimum, the following documents will be provided to DEN:

a) System Design Document (SDD): The SDD will describe the system architecture, functional capabilities, and all aspects of system communications, system interfaces, system security, system software, system hardware, system performance, and system maintainability. The Vendor is responsible for coordinating with DEN, system vendors, and airlines, as required, to develop system interfaces to the systems. SDD will contain diagrams for both the physical and logical architecture of their solution.
b) Interface Control Document ("ICD"): An ICD will be developed for each system. The ICD will describe in detail all the interfaces to each system. Data exchanged, the mechanism for exchange, and business rules and triggers for the interface shall be included.

c) Hardware and System Software Requirements Document: The Vendor shall provide DEN with a bill of materials for the required hardware and COTS system software necessary for Systems implementation. This will be an update based on the final requirements and design activities.
d) Conduct a Systems Design Review
e) The Vendor shall complete the most current version of the PCI-DSS Security Standards Council Prioritized Approach Tool at the time of substantial completion (where applicable) for all software, hardware, and networking to indicate progress towards PCI-DSS compliance, along with other security requirements, as outlined in the SDD. The Vendor shall indicate if any software or hardware components used are required to be Payment Application Data Security Standard (PA-DSS), PCI Point-to-Point Encrypted (PCI-P2PE) or PCI End-to-End Encryption (PCI-E2EE) certified.
f) The Vendor shall indicate if maintenance and operational services can comply with PCI Data Security Standards, and if they can procure and obtain a PCI Service Provider Report on Compliance (ROC).
g) The Vendor shall comply with, and the work and work product provided under the contract shall be in compliance with, all applicable provisions of §§ 24-85-101, et seq., C.R.S., and the Accessibility Standards for Individuals with a Disability, as established pursuant to Section § 24-85-103 (2.5), C.R.S (collectively, the "Guidelines"). The vendor shall also comply with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards. The City may require the Vendor's compliance to be determined by a third party selected by the City to attest that the Vendor has performed all obligations under this Agreement in compliance with §§ 24-85-101, et seq., C.R.S., and the Accessibility Standards for Individuals with a Disability as established pursuant to Section § 24-85-103 (2.5), C.R.S.
h) As airports are considered critical infrastructure by The Department of Homeland Security, DEN's Information Security programs use NIST as its foundation for data privacy, IT risk management, and protecting DEN from cybersecurity threats. Since all IT services at DEN leverage NIST as a security standard, we ask that any proposers to this RFP outline which of the NIST 800-53r5 security controls are in place for the IT components of your service.

4. Acceptance Test: The Vendor shall develop an Acceptance Test Plan that encompasses all testing required for DEN to fully accept the System. The ATP shall address the functional requirements, system interfaces, system access, and security requirements, system admin functions, system performance, system monitoring, and reporting functions for each System to ensure compliance with the specification requirements and the final SDD. The ATP shall identify test procedures, test steps, test sequences, expected results, and test acceptance criteria with a sign-off area for each test by the DEN and Airline representatives. The ATP shall include end-to-end testing between the Systems. The ATP shall be submitted to the DEN for review and approval in accordance with the submittal schedule

5. Configuration Management: The Vendor shall develop a Configuration Management Plan for tracking and controlling changes in the software. It shall cover procedures for revision control and the establishment of baselines. It shall identify the following:
    a) Configuration identification - Identifying configurations, configuration items, and baselines.
    b) Configuration control - Implementing a controlled change process. The Vendor shall follow DEN's written change management process when software or hardware changes are made to the production environment.
    c) Configuration status accounting - Recording and reporting all the necessary information on the status of the development process.
    d) Configuration auditing - Ensuring that configurations contain all intended parts and are sound with respect to their specified documents, including requirements, architectural specifications, and user manuals.
    e) Build management - Managing the process and tools used for builds.
    f) Defect tracking - Making sure every defect has traceability back to the source.
6. Disaster Recovery: The Vendor will document the process or set of procedures to recover and protect the System in the event of a disaster. DEN's recovery objective after a disaster is four (4) hours for the system to return to operational status. A disaster is declared when all primary and secondary System(s) are not operational. It will specify procedures to follow in the event of a disaster and actions to be taken before, during, and after a disaster. The primary objective is to protect DEN and airlines if all or part of its operations and/or computer services are rendered unusable. The Disaster Recovery Plan shall minimize the disruption of operations and ensure that some level of organizational stability and an orderly recovery after a disaster will prevail. A Disaster Recovery Plan shall answer at least three basic questions: (1) what its objective and purpose is, (2) who will be the people or teams who will be responsible in case any disruptions happen, and (3) identify what these people will do (the procedures to be followed) when the disaster strikes. The Vendor shall design and document all processes and procedures of the Disaster Recovery Plan. The Disaster Recovery Plan shall be provided to DEN in an electronic format for review and approval. The final Disaster Recovery Plan shall be provided to DEN in electronic and hard copy format.
7. System Transition/Cutover: The Systems shall be implemented with no loss of operations for DEN. A highly detailed transition plan is critical to ensure a smooth cutover to the new Systems. The Vendor shall deliver a Transition/Cutover Plan describing the schedule for a phased System implementation, testing, Airport coordination activities, and tasks for cutover to operational service. It shall include implementation in a non-production environment and after successful testing, data migration of the live System data to production. A schedule of activities for both Vendor and DEN shall be provided to DEN thirty (30) days before the System cutover. Preferred hours for transition activities are 2am-4am, seven (7) days a week, but the Vendor shall coordinate with DEN and receive written approval before performing any cutover tasks. Dependencies between tasks shall be included. The Transition Plan/Cutover shall address the following:
    a) Prerequisites to system cutover

b) Site readiness criteria
c) Notification plan and procedures to all stakeholders involved in the cutover process
d) Responsibilities of all Parties involved in cutover
e) Schedule of step-by-step activities to migrate from old systems to the new ones
f) Tasks and dependencies of all Vendor, DEN, and subcontractor responsibilities
g) Implemented measures to ensure there are no outages of the existing system
h) Fall back process and procedures if cutover does not go as planned.

8. System Procurement – The Vendor shall be responsible for ordering and delivery on-site to DEN of all hardware and COTS software required for System implementation. Quantities shall be documented in the hardware and System software requirements document and approved by DEN. Quantities shall include 10% sparing levels unless otherwise specified or agreed to by DEN. Existing quantities of hardware currently in place are contained in Appendix A. These quantities will be validated during the requirements validation phase. Any hardware installed on-site will become the property of DEN.
9. System Installation and Test - Two environments shall be installed and tested for each system regardless of whether servers are hosted on-site or off-site. These are the Test/Development Lab Environment and the Production Environment. It will be up to the Vendor to determine if the System is implemented sequentially or concurrently. The sequence of installation and test for the System is as follows:

    a) Installation of test/development lab environment
    b) Preliminary Acceptance Test in Test/Development Lab
    c) Server installation in the Production Environment
    d) Validation Test of Production Environments
    e) Cutover Readiness Review
    f) System Cutover in accordance with Transition/Cutover Plan
    g) Endurance Test
    h) Final System Acceptance.

10. Training – The Vendor shall be responsible for providing overall user, maintenance, and system administrator training. Below are the specific training requirements which are part of the scope of work:

    a) Training Plan developed by Vendor shall include the types of training, course syllabuses, number of classes of each type, and a recommendation to Personnel on who should attend the training ("Training Plan"). shall develop a comprehensive Training Plan for all users and systems administrators. The Training Plan will cover user training, systems administration, systems configuration, and systems maintenance.
    b) The Vendor shall fully instruct DEN and key stakeholders in the operation, administration, and maintenance of all products, equipment, and Systems. Training shall be accomplished in a classroom setting augmented by individual instruction as requested by DEN. The Vendor shall provide all training aids, e.g., notebooks, and manuals. The Vendor shall keep a log of all DEN personnel receiving and completing training for each System and note the type of training received.

c) Training shall include the use of the system's reporting tool to allow end-users to develop customized reports without Vendor support.
d) All training shall be completed a minimum of two (2) weeks before System cutover. The training schedule is subject to DEN's approval and shall have enough flexibility to accommodate Airline staff, Airport Operations, and shift operations. Each training class shall be offered at least once during each shift.
e) Training shall be conducted by experienced Vendor staff and supported by training aids. An adequate number and amount of training material shall be provided by the Vendor. The following minimum documents shall be provided as part of the training:
    1. functional flow-charts, overall block diagrams, and descriptive material for all software
    2. schematic drawings for each of the hardware components
    3. all procedure manuals, specification manuals, and operating manuals; and as-built drawings.
    4. Participants shall receive individual hard copies of technical manuals and pertinent documentation at the time the training is conducted. Training shall be scheduled such that DEN and Airline personnel can participate in all courses with no overlap.
f) At least four (4) weeks before the training courses are offered to DEN and airline personnel, the Vendor shall provide DEN with a final course schedule and syllabus for review and approval by DEN before distribution.
g) The Vendor shall conduct the required training at times and locations as determined by DEN. The class schedules shall accommodate the shift schedules of DEN and airline personnel and shall be approved by DEN in advance. If thirty (30) days or more elapse between training and System cutover, the Vendor shall retrain all previously trained DEN personnel.
h) Each course outline shall include, in addition to the subject matter, a short review of the prerequisite subjects (where appropriate); how this course fits into the overall training program; the course objective; the standards of evaluation; and any other topics that will enhance the training environment.
i) The Vendor shall deliver a video recording of each training course to DEN. All course materials shall be provided to DEN for use in future training, and course videos shall be delivered on a USB storage device two (2) weeks before the training.
j) The Vendor will offer additional/refresher training sessions on new software and application releases as part of the warranty/maintenance fee throughout the term of the contract.

11. Vendor Submittals

a) Pre-Award Submittals (submitted with proposal documentation):
    1. Refer to the base RFP for all submittals that are required to be included with the proposal.

b) Post-Award Submittals (submitted after contract award): All submittals are subject to DEN approval. Contract submittals shall be submitted for one round of review and comment by DEN. The Vendor shall be responsible for incorporating all comments and resubmitting. If a revised submittal is rejected by DEN, additional review and comment of the submittal shall be conducted by DEN at the Vendor's expense.

c) The delivery dates of submittals will be negotiated unless specified herein. The Vendor shall supply any submittal within five (5) working days if requested by DEN.

d) The Vendor shall provide the following submittals in addition to those already required throughout the document:

1. Submittal Schedule
2. Detailed Project Schedule as defined herein.
3. System Design Document (SDD): The SDD will describe the system architecture, functional capabilities, and all aspects of system communications, system interfaces, system security, system software, system hardware, system performance, and system maintainability. The Vendor is responsible for coordinating with DEN, system vendors, and airlines, as required, to develop system interfaces to the systems. SDD will contain diagrams for both the physical and logical architecture of their solution.
4. System Environmental Requirements: Provide the environmental specifications for each system component that will be in a DEN communications room. This information shall include heat load documentation, electrical requirements, equipment dimensions and weight, and any special requirements or limitations of each system component.
5. Phased Implementation/Deployment Plan: Provide before finalizing the design phase, a mutually agreed plan with DEN for the phased implementation and deployment of the system solution.
6. Proposed Products List: Include the name of the manufacturer, trade name, model number, related section number, specification paragraph numbers, and reference standards for each listed product.
7. Interface Design Documents (IDDs) and Interface Control Documents (ICDs) for each identified interface/integration.
8. System Drawings: The Vendor shall submit drawings that clearly illustrate the proposed system(s) architecture and show the normal flow of data throughout the system(s).
9. Head-end Configuration: The Vendor shall submit drawings and documentation indicating the system and server configuration. Configuration details shall include rack layout, server hardware and software configuration, and storage configuration.
10. System Administration Documentation: The Vendor shall supply ISO-certifiable and ITIL best practices-based System Administration documentation, including

draft Service Level Agreements to be provided to users or user groups, which detail the operation and performance requirements of RMS/EVIDS solution. This documentation shall provide complete information on the operation, maintenance, performance, and troubleshooting of the systems and shall include a parts list and sources of supply for parts. Electronic copies in a DEN Representative approved format, shall be provided.

11. User Documentation: The Vendor shall supply User operation and procedures documentation that explains how the system(s) operate from a user perspective, along with procedures for use and draft SLAs regarding performance levels that may be desired. This documentation shall be in accordance with and contain at least as much information as that included within the system(s) online help system. The information included in this documentation shall be covered during system training provided by the Vendor. Electronic copies in a DEN Representative approved format, shall be provided. The manual shall be integrated into the online help system for RMS/EVIDS solution.
12. As-built drawings: The Vendor shall supply system as-built drawings before final system acceptance. These drawings shall be in a drawing format approved by the DEN Representative and shall detail system component interconnectivity, component locations, and room/rack layouts.
13. Parts List: The Vendor shall supply complete parts lists and breakdowns that identify each hardware component (to the lowest repairable unit) as well as ordering information for these parts. A separate spare parts list shall be provided and include an itemized list of manufacturers' part numbers, model numbers, budgetary pricing, supplier's address, supplier's phone numbers, and any single source components identified as such.
14. Documentation Reference: The Vendor shall supply a complete list and cross-reference of all supplied documents (i.e., name, brief description, and document number).
15. Test Plans: The Vendor shall supply system test plans for each phase of testing (i.e., factory acceptance, performance testing, and endurance testing) as well as all related test results and reports. Each test shall include a purpose/goal, detailed procedure, and clear pass or fail criteria. Each specification requirement shall be tested and referenced. A summary cross-reference between each test and the specification shall be provided and sorted in the order of the specification requirements. The testing plans shall include all required testing scripts for the performance of testing.
16. Training Plan: The Vendor shall supply training plans and course materials for all required training as described herein.
17. COTS Software Report: The Vendor shall provide a document identifying each Common Off-The-Shelf (COTS) software package. The submittal shall state the

purpose of the software package, where it shall be used, and how it shall be used. The software license information shall be included.

18. Maintenance Schedule: A recommended schedule for preventative, routine, and emergency maintenance indicating frequency and response time shall be provided. Preventative maintenance services during peak activity periods shall be avoided. The Vendor shall coordinate with DEN to define peak activity periods. The Vendor shall submit a finalized preventative maintenance schedule for DEN approval.
19. Response Escalation Plan: The Vendor shall submit a recommended response escalation plan that defines the level of severity of a problem and the associated service response times. The use of this response plan and its details will be negotiated with DEN. Repairs are to be made as expeditiously as possible. If parts are immediately unavailable, the fastest means of shipment shall be used, including overnight-expedited shipping.
20. Disaster Recovery Plan: Due to the critical nature of airport operations, the Vendor shall prepare a disaster recovery plan. The Vendor shall include a description of how the Vendor will be able to respond with the necessary labor, hardware, software, technical support, materials, equipment, and other requirements to ensure that the DEN systems are up and running properly throughout a disaster scenario. Provide a timetable detailing actions in a "cause and event" scenario. A summary description of the Vendor's plan shall be provided with the proposal response, and a detailed "disaster recovery plan" shall be delivered to DEN within 90 days of notice to proceed.
21. Software Documentation and Utilities: All software shall be delivered with full documentation. Documentation shall include software error messages, description, and troubleshooting guide. The documentation shall include textual explanations and instructions and be supported by appropriate graphs, flowcharts, and/or block diagrams. Adequacy of the flowcharts and the block diagrams shall be at the discretion of the DEN Representative.
22. Software Backup Copy: The Vendor shall provide software configuration backup copies and/or other mechanisms for the restoration of the implemented solution in the event of system failures with the overall goal of eliminating/minimizing any disruption to service.
23. Maintenance Manuals: Manuals including maintenance instructions, procedures, and other descriptive material as received from the manufacturers shall be provided, stored, and managed by the Vendor to support on-going maintenance and support activities.
24. Preventative Maintenance Manual: Instructions shall be provided for preventive maintenance procedures that include examinations, tests, adjustments, and periodic cleaning. The manuals shall provide guidelines for isolating the causes of hardware malfunctions and for localizing faults. The

manuals shall provide thorough instructions on the use of any specialized test equipment needed for hardware maintenance.

12. Equipment Certification

    a) Provide materials that meet the following minimum requirements:

        1) Electrical equipment and systems shall meet UL Standards (or equivalent) and requirements of the NEC. This listing requirement applies to the entire assembly. Any modifications to equipment to suit the intent of the specifications shall be performed in accordance with these requirements.

13. Delivery, Storage, and Handling

    a) Equipment shall be delivered in original packages with labels intact and identification clearly marked.
    b) Equipment and components shall be protected from weather, humidity, temperature variations, dirt, dust, or other contaminants.
    c) Equipment damaged, lost, or stolen before system acceptance shall be replaced at no cost to the DEN.
    d) The Vendor shall protect equipment from theft and vandalism.

S. Project Management Requirements – Within 30 calendar days after execution of the Notice to Proceed, the Vendor shall develop and submit to DEN a detailed Draft Project Management Plan (PMP) addressing all aspects of implementing and accomplishing the services as described herein. It shall be a comprehensive plan for assisting DEN to control, direct, coordinate, and evaluate the work performed during each project phase. In developing this plan and its updates, the Vendor shall work closely with DEN, DEN Consultants and representatives, and other appropriate firms and individuals involved with the project. Following a DEN review of the Draft PMP, the Vendor shall incorporate comments and issue a final PMP within 10 days of receipt of comments.

T. Project Coordination

1. The Vendor's project management related equipment and software shall be compatible with the systems and software used by DEN, including the appropriate version of Microsoft Office, Auto-CAD/Revit, Bluebeam Revu, and Electronic Project Management Systems.
2. The Vendor shall coordinate with DEN at all times.
3. Provide a Project Directory/Contact List. A detailed directory of the team and contact points, including (but not limited to) company, name, title, address, telephone number, fax number, and email address.
4. The Vendor shall coordinate implementation activities included under the various Sections of these specifications to assure efficient and orderly installation of each part of the Work.

5. Coordinate installation of different components to assure maximum performance and accessibility for required maintenance, service, and repair of all components. Make adequate provisions to accommodate items scheduled for later installation.
6. Coordinate construction/implementation activities to ensure that operations are carried out with consideration given to the conservation of energy, water, utilities, and materials.
7. DEN will have other contracts in progress at these sites with which this Vendor will have to coordinate and cooperate during the performance of this Work. DEN will coordinate this effort as required.
8. DEN may award additional separate contracts for additional work to be performed at the site with which this Vendor may have to coordinate and cooperate during the performance of the Work.
9. Schedule
    a) Within 30 calendar days after the Notice to Proceed, submit to DEN an implementation schedule for effectively planning and reporting on the status of the project to ensure completion within the approved schedules. The schedule shall include computer-generated reports and master Critical Path Method (CPM) milestones of all project activities.
    b) The schedule shall identify activities, scheduling, and show relationships between activities such as "approve the final design, completion of the implementation plan, system commissioning" and similar milestone activities. The level of detail shall be satisfactory to DEN and sufficient to identify:
        1) The work components of the project and their associated costs.
        2) The types of work and services involved.
        3) Design and Program Development phases of work
        4) Procurement, fabrication, delivery, installation, and testing of major materials and equipment.
        5) Access to and availability of work areas.
        6) Interfaces and dependencies with other contractors/stakeholders.
        7) Resource, material, and equipment restraints.
        8) Startup and testing activities.
    c) Revisions to Schedules
        1) Indicate the progress of each activity to date of submittal and the projected completion date of each activity.
        2) Identify activities modified since the previous submittal, major changes in scope, and other identifiable changes.
        3) Provide narrative reports to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.
        4) The Vendor is solely responsible for the scheduling of the Contract scope of work. The Vendor's management personnel shall actively participate in the development of the Schedule so that the intended sequences and procedures

are clearly understood by the Vendor's organization. The Vendor is solely responsible for the costs of fulfilling the requirements.

5) The Vendor's Progress Schedule shall begin on the day after issuance of the Notice to Proceed and conclude with the date of Project Completion. Float or slack time within the construction schedule is not for the exclusive use or benefit of either DEN or the Vendor, but is jointly owned, expiring project resource available to both parties as needed to meet the Contract milestones.

d) Three-Week Rolling Schedule

a) The Vendor shall submit a Three (3) Week Rolling Schedule each week to be used as the basis for discussion of Contract progress in the weekly Vendor meetings. The Three (3) Week Rolling Schedule shall represent the actual detailed work plan used by the Vendor in meeting the Progress Schedule and Contract Milestones.

10. Reporting

a) The Vendor shall keep accurate and detailed computerized/written records of progress on the project during all stages. Maintain frequent contact by telephone, site visits, meetings, etc., with all parties involved in the project. Submit weekly hard copy/written progress reports to DEN including, but not limited to, information concerning the work of the project. Initiatives taken by the Vendor to preclude delays, percentages of completion, number and amounts of modifications and claims, analyses of the schedule, and other analyses necessary to compare actual performance with planned performance. The Vendor shall use any applicable DEN forms and procedures.

11. Meetings

a. Pre-Implementation Conference

1) DEN will schedule a Pre-Implementation Conference before the start of implementation.
2) The purpose of the Conference is to review responsibilities and understand Vendor's personnel assignments.
3) The Conference shall be chaired by DEN's representative.
4) Authorized representatives of DEN, the Vendor, the Vendor's proposed project superintendent, and other concerned parties shall each be at the Conference. All attendees shall be persons familiar with and authorized to conclude matters relating to the Work.
5) The Conference agenda will be set by DEN.

b. Weekly Progress Meetings

1) DEN shall set and conduct weekly Progress Meetings at a location designated by DEN.

c. Coordination Meetings

1) From time to time, there may be a need for either DEN or the Vendor to call for a

Coordination Meeting.

2) Coordination will be considered necessary by either or both parties.

3) The subject of the Meeting will be an item or event under their control, or it will be one under the control of others with which DEN and/or Vendor shall coordinate.

4) Attendees shall be determined by DEN and/or Vendor.

5) The meeting agenda shall be determined by DEN and/or Vendor.

6) No later than three (3) days after each Coordination Meeting, DEN or Vendor shall distribute minutes of the meeting to each party present and to other parties as considered appropriate. Included will be a brief summary, in narrative form, of the meeting and its results to be reviewed and commented on by all the meeting attendees within two (2) business days. The comments are to be incorporated by the Vendor and then the meeting minutes shall be distributed to the meeting attendees in their final form.

U. Quality Control

1. General

a) In addition to the requirements set forth, the Vendor will comply with DEN's quality control plan and all applicable local and national codes.

b) Quality control services include inspections and tests and related requirements including administration, management, supervision, reports, record keeping, or other services.

c) Quality control services do not include Quality Assurance or Contract enforcement activities performed by DEN.

d) Quality Control activities as described in the specifications shall be provided by the Vendor unless specifically stated to be provided by DEN.

e) Quality control services are required to verify compliance with the requirements specified or indicated. These services do not relieve the Vendor of responsibility for compliance with Contract Documents.

2. Description of Program

a) The Vendor shall develop and submit for approval, a Quality Control Program to perform inspection and tests of all items of work, including that of any subcontractor team members. This Program shall ensure conformance to applicable specifications and drawings with respect to the materials, codes, workmanship, construction, finish, functional performance, and identification. This Program shall be established for all implementation work performed under this Contract. The Vendor's Quality Control Program shall specifically include surveillance and tests required in the technical provisions of the Specifications.

b) Personnel

1. The Vendor agrees to provide secretarial and/or clerical, administrative, technical, and professional personnel as required herein and as negotiated and agreed upon for performing work specified during all Project Phases. The Vendor shall provide a dedicated, stable, and technically qualified staff to maintain continuity in the level of services. The people named in the proposal shall be those individuals that perform the activities associated with the Contract; requests for substitutions in the original staffing proposed, evaluated, and accepted are undesirable and will be stringently reviewed. The Vendor shall submit requests for any key staff substitutions in writing to DEN 30 days in advance of the expected date of substitution. The Vendor is not allowed to make any key staff substitutions without receiving subsequent written authorization from DEN.
2. Staffing

    a) Before the performance of any Contract work, the Vendor shall provide the most appropriately qualified members of its staff. The Vendor is required to submit for administrative approval by DEN the project team members by names, organizations, and roles along with their resumes, if not provided in the Vendor's proposal.

    b) Subcontractors and Consultants. Substitutions of subcontracted or consultant firms included in the proposal are subject to the written approval of DEN. Changes in individuals employed by these firms will be approved administratively by letter between DEN and Vendor.

    c) Acceptance: In the event that any of the personnel/consultants named are unable to perform because of death, illness, resignation from the Vendor's employ, dissolution of the agreement, or other reasons, the Vendor shall promptly submit (within two weeks) to DEN detailed written explanations of the circumstances necessitating the proposed substitutions, complete resumes for the proposed substitutes, and any other information deemed pertinent to approvals of substitutions. No substitutions shall be made without the prior written approval of DEN.

    d) Removal: DEN shall have the right to effect removals of any Vendor employees at any time during the life of this Contract, if those employees are deemed not to possess the proper level of competence or abilities, or who are otherwise found to be unsuitable for work required under this Contract. In such cases, the Vendor shall promptly submit the names, complete resumes for the proposed substitutes, and any other information pertinent to approvals of substitutions.

    e) Special Personnel Qualifications - Personnel possessing unique technical specialties may be required for supplementary services related to the scope of regular services. Such personnel shall have qualifications as required and approved by DEN which are appropriate to the nature of the services that will be

provided.

V. Quality Assurance

a) All hardware, software, firmware, and/or operating system requirements given are the minimum requirements. The Vendor's product shall meet or exceed these requirements.
b) Equipment and materials shall be standard products of a manufacturer(s) regularly engaged in the manufacture of equipment specified herein and shall be the manufacturer's latest standard design.
c) The Vendor shall not install any new software types, versions, or patches on the active (production) system or DEN network, without written approval from the DEN. The Vendor shall be responsible for testing the software change item before submission to DEN for approval.
d) Installations not meeting the approval of DEN shall be reworked or replaced until acceptable to DEN.
e) Standards of workmanship shall meet or exceed IATA industry installation practices.
f) Provided products shall meet the following requirements:
    1) Electrically powered equipment shall be UL-approved.
    2) Electronic equipment shall meet the requirements of CFR 47 Part 15.
g) Items of the same classification shall be identical. This requirement Includes equipment, modules, assemblies, parts, and components.
h) All similar types of personal computers and servers shall be of the same manufacturer.
i) All similar types of peripherals shall be of the same manufacturer.

W. Project Record Documents

a) The Vendor will provide record documentation to DEN at the completion of each phased installation and at the Closeout of the implementation phase. To ensure that this submittal reflects proper record keeping by the Vendor during the course of the Work, The Vendor shall maintain on-site one (1) set of the Contract Drawings, specifications, addenda, change orders, and other modifications to the Contract, and reviewed shop drawings and product data.

b) The Vendor shall store Record Documents separate from documents used for construction.

c) The Vendor shall legibly mark and record at each specification section a description of actual Products installed, including the manufacturer's name and product model number, Product substitutions or alternates approved and utilized, and changes made by Addenda and Modifications.

d) Vendor shall legibly mark Record Documents and shop drawings to record actual

construction including communication conduit, cabling, and pathways used, field changes of dimensions and detail, changes in details from those indicated on drawings, details not on original Contract Drawings, and provide make and model of the actual product installed.

e) The Vendor shall mark whichever drawing is most appropriate to showing "field" conditions fully and accurately. If necessary, provide scaled drawings of modifications and give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change order numbers where applicable. The Vendor may organize record drawing sheets into manageable sets, and print suitable titles, dates, name of Construction Company, name and signature of job superintendent, and other identification on the cover of each set.

f) The Vendor shall provide to DEN at each stage of the phased installation and at project closeout the above records including "Record Drawings" with all "As-Built" information.

1.3.2 WARRANTY AND LICENSE

A. General – The Vendor shall provide a jointly written warranty by the manufacturer(s) and the installer(s) of all equipment and services identified in this RFP on a single document. The warranty shall warrant the complete installation of the equipment, system, and software to be free from defects in materials and workmanship for a period of no less than twelve (12) months. The starting point for the warranty shall be from the final acceptance of the complete system as documented in writing between the Vendor and DEN.

B. All labor shall be thoroughly competent and skilled, and all work shall be executed in strict accordance with the best practice of the trades. The Vendor shall be responsible for and make good, without expense to DEN, any and all defects arising during this warranty period that are due to imperfect materials, appliances, improper installation, or poor workmanship.

C. Hardware Warranty – All hardware supplied as a part of this RFP shall include a warranty throughout the entire duration of the Vendor contractual agreement. The Vendor shall manage all third-party warranties and renew them, as applicable, throughout the life of the contract. In the event Vendor fails to renew any third-party warranty, Vendor shall assume all warranty obligations which would otherwise have been provided by such third-party.

D. Software Warranty – All software supplied as a part of this RFP shall include a warranty throughout the entire duration of the Vendor contractual agreement. The Vendor shall manage all third-party warranties and renew them, as applicable, throughout the life of the contract. In the event Vendor fails to renew any third-party warranty, Vendor shall assume all warranty obligations which would otherwise have been provided by such third-party.

3. Software License – Commercial software packages shall have all registration and licensing documentation filed indicating the DEN as the owner of the software. Costs for commercial off-the-shelf software licenses shall be included for the duration of the contract at a minimum.

E. Perform monthly, semi-annual, and annual preventive maintenance.

F. Provide warranty and break-fix support on a 24x7x365 basis for the duration of the Vendor agreement. The base maintenance/warranty services shall include:

1. Installation/configuration of all software updates and patches
2. 24/7/365 monitoring and on-call support
3. Response times that are consistent with the baseline requirements as defined in Service Level Agreement.
4. The Vendor shall describe any additional elements that are recommended for the base maintenance services agreement as part of their response.

1.3.3 SLA / MAINTENANCE SERVICES (DURING IMPLEMENTATION)

A. General

1. This project includes the requirements for the Vendor to provide service to the Airport and airport tenants throughout phasing and construction for all systems, which are brought online with software furnished under this project's scope of work. This on-site support shall provide the necessary installation and support services required for successful migration from the existing to the new environment with minimal impact to airport operations and the traveling public.
2. The scope of work requires the Vendor to maintain any and all software systems furnished and activated by the Vendor throughout the project duration.
3. During any operational period before Final System Acceptance, the Vendor shall provide SLA / maintenance services at the base levels defined herein, it is anticipated that a final SLA agreement will be negotiated with DEN as a separate agreement as part of future on-going maintenance and support.
4. Any maintenance performed on the system shall be accomplished during the Airport's designated maintenance period. This has been designated to be between the hours of 2:00 AM and 4:00 AM, Monday through Thursday Mountain Standard Time (MST). On other days, the Vendor shall only provide maintenance for emergencies and any other similar type of situation. Any maintenance performed on the system shall be coordinated with DEN and DEN shall provide approval before performing any work.

B. Support Personnel – The Vendor shall commit approved support personnel for the duration of the installation and future maintenance and support phases. Technicians performing installation and maintenance on the proposed system shall meet the following requirements:

   a) Manufacturer-certified on all hardware/software applications with at least 2 years post-certification work experience.

   b) Be approved by DEN.

   c) Personnel shall attend a one (1) week manufacturer training class each year.

C. The final SLA shall be negotiated with DEN, but is anticipated to include the following hardware and software support, as a minimum:

   1. Level - 1 support being defined as on-premises field support requiring user operating knowledge; Level - 1 technical support functions include:
      a) monitoring and receiving system alerts.
      b) answering system trouble calls.
      c) creating system trouble call tickets.
      d) Issuing system trouble call tickets to field technicians

      It is anticipated that Level 1 support will be provided by DEN after final system acceptance. The Vendor shall be required to coordinate with DEN to integrate the specific RMS/EVIDS requirements into the DEN help desk processes and procedures.

   2. Level - 2 support is defined as off-premises engineering support requiring detailed system technical knowledge and expertise. Level - 2 technical support functions include troubleshooting and resolving system trouble call ticket(s). If the Level 2 staff are unable to resolve said ticket within four (4) hours of the initial notification of said ticket, it shall be escalated to Level – 3 technical support.

   3. Level - 3 is defined as remote support by Vendor personnel. Level - 3 technical support functions include the Vendor's software/hardware engineers to resolve a system trouble call ticket in the event said ticket is not resolved by Level 2 support personnel. Level – 3 technical support also includes advanced level diagnostics to determine the cause of said ticket, its unexpected results, and performance issues related to the system and submit the results of said diagnostics to the maintenance team and designated DEN representative.

D. Help Desk Requirements – The Vendor shall coordinate with DEN BT to integrate the RMS/EVIDS support requirements in the existing DEN BT help desk environment. During the installation phase, system support for the RMS/EVIDS will be provided by the Vendor and Vendor personnel using the DEN BT help desk's processes and procedures

E. System Failure Definitions

1. Inoperative: A device shall be considered inoperative when the device does not perform its intended function(s) within defined performance criteria. Response services shall include inspections and necessary tests to determine the causes of equipment or software malfunction or failure. The failure services shall include the furnishing and installation of components, parts, or software changes required to replace malfunctioning system elements.
2. Operational Failure – Defined as a system end device (display, input workstation, etc.) that is inoperative.
3. Critical Failure – Defined as 1) a redundant component that is inoperative; 2) when a system failure results in two (2) or more simultaneous operational failures, but less than five percent (5%) of entire system; or 3) the fourth and subsequent recurrence of an operational failure with same unresolved root cause.
4. Emergency Failure – A system failure is considered an emergency if any of the key components are inoperative to the extent the system cannot function in a normal manner. Emergency services shall include inspections and necessary tests to determine the causes of equipment or software malfunction or failure. The emergency services shall include software changes and the furnishing and installation of components and parts required to replace malfunctioning system elements. The Vendor shall specify a maximum amount of time to get the system up and operational in the event of an emergency failure. This time period shall be subject to DEN Representative approval.

F. On-site Personnel Requirements

1. The on-site personnel requirements during the additional maintenance period(s) shall be identical to the requirements established for the implementation period. Any proposed modifications to this requirement shall be clearly delineated in the proposal response and include the advantages for any modifications.

G. Other Service Requirements

1. System Monitoring: The Vendor shall provide tools for system monitoring capability of all the applications and hardware components. Monitoring includes receiving alerts and notifications, monitoring dashboards of all tools and applications for problems, and creating a trouble ticket when necessary to start a remedial action.
2. Support Availability: The Vendor shall commit to making available support for the RMS/EVIDS for five (5) years after final system acceptance.
3. Warranty / Maintenance Log: The Vendor shall maintain an electronic maintenance log of all preventative maintenance and corrective / repair services performed during the installation and warranty period. The Log shall be in a DEN Representative approved format. The Log shall be available for inspection by DEN at any time during the time period that it covers. The Maintenance Log shall be turned over at the completion of the installation and first year warranty. The Log shall be kept on a component-by-component (equipment number) basis, with separate sections or volumes, as appropriate, for each component. The Log shall itemize the history of

preventative maintenance and corrective/repair activities, stating the character, duration, cause, cure of all malfunctions, and the individual's name that completed the repair. The Log shall record all software and hardware updates.

4. Spare Components and Parts Replacement: The Vendor shall provide a store of consumables and spare parts as required. The consumables and spare parts shall be available to the Vendor for use during the warranty period. The Vendor shall replenish the store as it is used so that at the end of the warranty period, the store shall be equal to that initially provided. Based upon the maintenance experience of the warranty period, the Vendor shall recommend, at the end of the warranty period, any changes in spare components and small part stores that may prove to be appropriate. The spare component store shall be turned over to DEN's designated representative at the end of the Vendor's warranty period.

1.3.4 SLA / MAINTENANCE SERVICES (POST SYSTEM ACCEPTANCE - OPTIONAL)

A. General

1. The Service Level Agreement / Maintenance Services described herein provides complete service and support for RMS/EVIDS during the implementation phase through Final System Acceptance. The additional maintenance and support following final system acceptance shall provide the same level of maintenance services provided during the installation phase. The Vendor shall submit with their Proposal information that will allow DEN to evaluate the Vendor's Maintenance Program to ensure the continued reliable operations after the expiration of the initial service level period. The Vendor shall commit to being available to provide complete maintenance service for all equipment, hardware, and software installed under this contract for a minimum period of five (5) years from the date of final system acceptance. The Vendor shall provide pricing for maintenance and support for the period following final system acceptance. The Vendor shall provide these services based on a fixed monthly cost plus the cost of parts (based on a 'Unit Price List') and separately for any extra work and/or emergency work services. The pricing shall be given as a guaranteed maximum annual cost. This service is to include parts, labor, licenses, software upgrades, and all other Vendor costs required to keep the equipment operational.
2. The Vendor shall be prepared to provide complete maintenance service for the entire RMS/EVIDS, as described in this specification, starting the day after final system acceptance.
3. The Vendor shall provide the following information and pricing for maintenance services:
   a) Information and pricing annual escalation to apply to maintenance contracts and associated unit pricing.
   b) The Vendor shall provide an updated 'Unit Price List' for each one (1) year maintenance period. In preparing the one (1) year maintenance options, the

Vendor shall take into account and include normal system component life-cycle replacement costs.

c) Pricing shall be broken down by Level - 2 and Level - 3 support.

B. On-site Personnel Requirements – The on-site personnel requirements during the additional service level agreement maintenance period(s) shall be identical to the requirements established for the initial service level agreement / maintenance during the implementation. Any proposed modifications to this requirement shall be clearly delineated in the proposal response and include the advantages for any modifications

C. The Vendor shall provide replacement parts and materials and shall provide, exchange, replace, or install new parts for all defective, worn, or missing parts when such replacement is required to maintain proper system operation. These replacement parts shall be charged in accordance with the 'Unit Price List' provided by the Vendor and shall include any markup for administrative, overhead, or profit.

D. Hardware Support

1. Hardware support shall be supplied by the Vendor or manufacturer directly. Support shall cover all equipment and systems referenced in this specification, whether supplied by the Vendor, existing, or supplied by others.

E. Software Support

1. For custom software, the firm that developed the software shall provide the support.

a) Support for COTS software, if different than base system support, shall be specifically identified and approved by DEN.

b) Support Availability: The Vendor shall commit to maintain the system for the entire duration of the Vendor agreement.

c) Response Escalation Plan: The Vendor shall maintain the approved response escalation established during the contractual period.

d) Maintenance Log: The Vendor shall maintain a maintenance log for all software maintenance.

F. Moves, Adds, And Changes (MAC)

1. All MAC work not interfering with normal day-to-day operations shall be performed during standard business working hours, as defined unless otherwise approved by DEN. MAC work shall be performed by the on-site staff unless approved by DEN. MAC work is considered secondary to maintenance and shall not be performed until all service calls have been cleared. If a MAC order shall be performed after hours, it shall be approved by DEN.

2 Functional and Technical Requirements

2.1 General Requirements

A. The RMS/EVIDS solution will provide a unified database platform (data hub) as the central component of integration with the RMS/EVIDS solution and other airport operational systems as it relates to flight, resource, and other related data. This database platform shall support the real-time data warehousing and retrieval of data from IT systems and provide message broker capability. The specific database platform and database(s) configuration shall be dictated by the Vendor's proposed solution. In the longer term, it is anticipated that DEN will utilize this platform to eventually replace the current Airport Information Hub (AIH).

B. The Vendor shall be required to coordinate and work with DEN to ensure that any modifications to the system that arise from any future federal mandates will be implemented to ensure compliance.

C. Performance Management: Vendor shall provide performance monitoring and management capability in the proposed solution including all tools required to perform those duties.

D. System time shall be obtained from the Local Area Network using Network Time Protocol (from an Atomic Clock Interface/time synch) shall be utilized for all systems.

E. A cloud-hosted solution is preferred.

F. Managed services – The Vendor shall be responsible for the management and administration of all cloud-based components and architecture as applicable to the proposed solution.

G. RMS/EVIDS solution will provide a unified data platform for flight schedule, resource, and associated data management and also provide data integration and data orchestration functionality.

H. RMS/EVIDS solution shall facilitate the integration of other applications as future needs arise.

I. Recurrent, annual, training shall be available and offered by the vendor so long as the contract is in place—and documented therein.

2.2 System Software Requirements

A. Software provided shall be at least 64-bit based applications. Software shall be built around a compliant operating system as defined in this Specification.

B. The Vendor shall deliver all required system and application software for a fully functioning RMS/EVIDS solution.

C. If required by DEN, except where the solution provided is as Software as a Service hosted in a data center, Vendor will execute a Software Source Code Escrow agreement for any software designated by DEN. Such agreement shall be supplementary to the contract and to any software license(s).

2.3 User Interface

A. The RMS/EVIDS solution shall have an interface to manage data and individual applications. The user experience shall, to the extent feasible, be web-enabled to provide additional flexibility for the users of the system, including ability to provide remote access from various physical locations and devices (laptop, PC, iPad, mobile device, etc.).

2.4 Security, Performance and Management

A. Security

1. Security for the solution shall be profile/role-based and customizable for individual users. A shared user ID is unacceptable. Authorized users shall log into the system(s) using a unique username and password. Depending on assigned user access privileges, the user shall be either granted or denied access to individual applications. In no case shall any user identified via username and password as an airline employee or any other user without proper authorization gain access to any other airline's data, other than that pertaining to their own flights and baggage. Data that can be viewed at the user's workstation pertaining to data by airlines other than the user's airline shall be limited to data that can be viewed on public displays.
2. The system shall have multiple levels of password security for administrative and user interfaces to prevent unauthorized users from accessing content, databases, and schedules.
3. The System shall not utilize hard-coded passwords, and all passwords shall be able to be modified from their default values prior to implementation.
4. The system shall support multi-factor authentication subject to Contractor sizing this effort and the Parties agreeing to applicable charges.
5. The system shall have role-based users security which provides:

    a) Distinct levels of access (i.e., end user, super user, administrator, etc.)

    b) Segmented participation for different user groups (e.g., DEN, individual airlines, emergency notifications, advertising, etc.) The security shall prevent unauthorized access to another partition.

6. The System Administrator shall be able to add, delete, set, and change user privileges and access authorization. System security parameters shall be configurable by the Vendor's System Administrator.
7. System workstations/interface modules shall have an "inactivity timeout period" such that if any workstation is determined to be inactive by having no input/output performed at that workstation for the defined timeout period, that workstation shall be automatically logged out of the application.
    a) The timeout feature shall support the ability to be turned on or off by the System Administrator. The timeout period shall be configurable by the System Administrator.
8. The occurrence of an inactivity timeout occurring as described above shall be recorded in the fault log, showing the date, time, workstation identifier, and username of the user who was logged in at the time when the inactivity timeout occurred.
9. The system shall prevent a username from being logged in more than one time concurrently.
10. The System shall provide an audit trail of all transactions. The audit trail shall track transactions on a per-user basis. The audit trail file shall indicate any changes that occurred to applications configuration, data structure, or database fields/records, and shall contain the date and time of the change, the user identification of the user who made the change, and the details of the change.
11. The System shall allow for the continuous exporting or streaming of audit and system event log files to the DEN Security Information and Event Management (SIEM) system subject to Contractor sizing this effort and the Parties agreeing to applicable charges.
12. If remote access is required for system administration, a security feature such as secure VPN encryption shall be used. Any remote access shall be in accordance with all DEN networking and access requirements.
13. The solution shall have the ability to import existing gate/resource management data into the new database, through user-verified means, to ensure the quality of the data imported. This ability includes all flight operational data and rules.
14. The system shall be AD/LDAP Compatible.
15. The system shall provide the ability for the user to define the archive criteria.
16. Roles and Permissions – The system shall have the ability to define and update user security roles and permissions.
17. Data access constraints – The system shall support role-based row-level and column-level data access restrictions such as view only, update, delete.
18. The System shall be configured with end-point detection and response agents for all on-premises and / or cloud-based infrastructure.

19. The System shall be configured with vulnerability scanning agents for all on-premises and / or cloud-based infrastructure.
20. The Vendor's proposed solution for system security, including but not limited to; end-point detection and response agents, vulnerability scanning agents, and baseline security configuration shall be coordinated with and approved by DEN.

    DEN is currently utilizing specific software/systems: CrowdStrike to provide end-point detection and response and Tenable to provide vulnerability scanning services and the preference is for the Vendor solution utilize these components.

    As part of the implementation process the Vendor shall facilitate a system security workshop with DEN stakeholders to coordinate a security solution that is acceptable to DEN.
21. The Vendor must submit policies and / or procedures for cybersecurity incident management for the proposed solution that outline the acceptable and preferred methods to receive reported cybersecurity incidents from customers (such as DEN), an outline of the response plan the Vendor executes upon receiving reported incidents, and a prioritized timeframe for vulnerability remediation.
22. Upon award, as part of their security program, the Vendor must attest that they subscribe to National Cyber Awareness System's current activity announcements (managed by US-CERT) https://www.cisa.gov/uscert/ncas/current-activity and to all updates to the Known Exploited Vulnerabilities Catalog produced by CISA https://www.cisa.gov/known-exploited-vulnerabilities-catalog, and agree to remediate any reported vulnerabilities reported through these information channels by the timelines specified by CISA (if they apply to the solution in use at DEN).

B. System Availability Requirements

1. At any given time, the overall solution shall be considered unavailable if two (2) percent or more of the end devices are non-operational, not fully functional, or do not meet response time criteria.
2. Software and system devices shall execute, without degradation, at the scheduled periods and response times for the systems to be considered available.
3. The systems shall operate as specified twenty-four (24) hours per day, seven 7 days per week.
4. The availability of the overall solution shall be at least 99.99 percent.

C. Device Availability:

1. A system server and PC shall be considered available only if all components are operating and fully functional.
2. A peripheral device shall be considered unavailable if it cannot be placed on-line and perform its intended function(s).

3. Besides scheduled downtime, as identified below, individual device availability shall exceed 99.80 percent (17 hours 30-minute maximum downtime per year).

D. Scheduled Downtime:

1. Downtime to update the computer operating system or repair a component shall be acceptable reasons for downtime, but at no time shall more than 5 percent of the system be non-operational.
2. Scheduled downtime shall be anticipated to be between 2:00 am and 4:00 am, or during DEN approved hours and shall be coordinated with DEN a minimum of 48 hours in advance of any work being performed.
3. If the operating system of the servers requires maintenance or updates, or if the servers require system maintenance, each server shall be brought down individually to be updated/maintained, such that at no time is more than one server down at the same time.
4. If the operating system of the end device computer requires maintenance or updates, or if the end device computers require system maintenance, the end device that requires the maintenance shall be brought down during non-peak hours of operation.
5. It shall be acceptable to perform maintenance/updates on an end device computer system during other than non-peak hours if the particular end device is non-functional without having the maintenance or updates performed. Any work of this type shall be coordinated with and approved by DEN before performing.

E. Performance Requirements

1. The system shall be capable of supporting the performance requirements as outlined herein.
2. Capacity: RMS/EVIDS system solution shall be designed to support the operational, functional, and performance requirements, specified herein, for a minimum of 2,000 simultaneous transactions (input updates). Additional capacity requirements are specified in the individual RMS and EVIDS sections.
3. Visual transaction /messaging display – The system shall provide the ability to view the volume of messages flowing through the system from inbound feeds to outbound external systems, and visual indicators.

F. System Management

1. Reported/Acknowledged system failures shall include, but not be limited to, PC failure, display device failure, application failure (server and local applications), network connectivity failure, and server failure. Server failure shall include hardware, software, network, and power-based failure.

2. System failures shall be viewable at a central control point (i.e., the system administrator's workstation/interface). A failure shall initiate an alarm and add a failure record to the failure database table. The system administrator shall receive a warning message on the System Administrator interface, notifying them of the failure. The system shall provide e-mail. The Vendor is responsible for providing all software necessary to support the notification functions.
3. Endpoint devices shall have remote administration and monitoring capabilities. This capability shall allow the specific machine to be remotely configured and to provide a status report to the management system. Data included in the reporting capabilities shall include data pertaining to the machine's memory, storage devices, network connections, and general health of the machine. It shall also be possible to remotely restart services on the devices and/or reboot the devices, if needed.
4. Alerting thresholds – The integration sub-system shall send alerts when inbound feeds have stopped, any internal queues get too large, or outbound messaging targets return unexpected errors.
5. Logging and error tracing – The system shall provide the ability to easily review logs and trace messaging (both inbound and outbound) through the system.
6. It shall be possible to generate an audit report for a given flight ID that shows all inbound updates and the source of the update (i.e., manual user change, data feed update, etc.).
7. The Vendor shall provide a formal Issue resolution process – Issue triage and regular issue reporting and communications.

2.5 Reporting Requirements

A. RMS/EVIDS system solution shall have full reporting capabilities. The System shall support the utilization of a generic report writer module providing the ability to develop customized reports. The reporting tool shall be capable of building reports from any fields in the database and on any subset of records that user authority allows. All software and hardware, as required, shall be provided by the Vendor to support this functionality. The Vendor shall provide all required training to allow the DEN system users to develop reports utilizing this tool.

B. In addition to canned reports, all system components shall include the ability to develop ad-hoc reports.

C. The Vendor shall detail the capabilities, functionality, and user interface for both types of reporting that is available through the proposed solution.

D. For any and all reports, including both "canned" reports and "ad hoc" reports, only authorized users shall have access to the reporting features and the datasets associated with their username/login credentials.

E. The reporting function shall allow the system operator to select the data in the reports to produce customized reports, to display the reports on the client workstation, to send the reports to any printer on the DEN domain, and to save the reports.

F. The System shall be capable of running reports on demand or automatic report generation based or predefined parameters.

G. For any and all reports, including both "canned" reports and "ad hoc" reports, only the System Administrator, or users with a sufficient level of security access authorization shall be able to see all airlines' information on the reports. Airline users shall be limited to reporting data from their airline only.

H. To ensure DEN's reporting requirements are fully met, the Vendor shall be required to coordinate and administer workshops with the appropriate airport and tenant stakeholders to define the initial "canned" reports to be provided with the system. Up to three (3) workshops shall be held. These workshops shall be split into functional areas such as RMS, EVIDS, and supporting database components.

I. At a minimum, the following reports are required to be provided by the system. It is expected that, through the workshops stated above, the Vendor will provide additional tailored reports for DEN's operational usage:

1. Flight summary – summary report of all flights, selectable by date/time range; shall include on-time arrival and departure statistics by airline, date, and time of day.
2. Flight detail – detail report of one or more flights, chronological activity timeline, selectable by date/time range.
3. Resource usage report – summary report showing all resource history/utilization for a resource, selectable by date/time range; and resource details/history, selectable by date/time range.
4. Actual gate assignments – historical report for specific periods of time showing planned and actual gate assignments and usage.
5. Resource restrictions – report showing restrictions of specific resources
6. Resource attributes – report showing resource attributes
7. Rules report – report showing the rules and rule bases that have been built into the system.
8. User report – report showing all users, privileges assigned, group configurations, and log-in activities.
9. Remote Parking Log - Detailed list of all aircraft parked on a remote pad or gate belonging to another airline. Shall include Time in, Time out, from gate, airline, tail number, Date out, To Location, and user-added Comments.

10. INOP - Detailed list of each stand that was inoperative including the length of time the asset was down or is forecasted to be down (based on PM cycles).
11. Tow Tracking - Detailed list of each flight that was towed to/from a remote parking location.
12. The solution shall include a Record change log when the schedule has been modified (by who and when).
13. Historical reporting of COW usage (gate, flight, number of units being used at gate).

J. Search Capabilities

1. The systems shall support "ad hoc" query and reporting capabilities, limited to the information logged/archived by the systems, with the ability to build and save queries and reports for future use.
2. The systems shall provide search capabilities on all flight records.
3. The systems shall provide search capabilities on all resource records.
4. The systems shall provide search capability based on flight number.
5. The systems shall display search results in a tabular structure that supports sorting results based on date/time, airline, resource type, or flight number.
6. The systems shall display all flight/resource record details upon request by authorized users.

2.6 Resource Management System (RMS)

2.6.1 RMS OVERVIEW

A. A Resource Management System (RMS) shall be installed to support the passenger processing systems (PPS) related resources within the Airport. The RMS shall be used to allocate and manage DEN controlled resources including spots/gates, ticket counters, baggage makeup conveyors, baggage breakdown carousels, remote parking stands, and computer on wheels (COW). The RMS shall provide the tools to assist the DEN's RMS operators in the allocation and management of DEN controlled resources with the least impact on airlines, ground crews, passengers, and DEN personnel.

B. RMS shall utilize a shared database platform that also supports the EVIDS to ensure consistent data across both RMS and EVIDS.

C. The Resource Management System (RMS) shall include the following software modules:

1. Spot/Gate Allocation and Real-time Management Module (Gate Module)
2. Ticket Counter Allocation and Real-time Management Module (Ticket Module)

3. Baggage Makeup Carousel Allocation and Real-time Management Module (Bag Makeup Module)
4. Baggage Breakdown Carousel Allocation and Real-time Management Module (Bag Breakdown Module).

D. Rule Base

1. The RMS shall include a rule base that allows the definition of DEN specific rules. The rule base shall be flexible enough to consider the many factors involved in assigning resources. The rule base shall assist in both the planning of gates and in real-time conflict resolution. The RMS shall provide user-definable rule definitions including physical limitations (e.g., gate can't support wide-body aircraft), convenience rules (e.g., ground handling equipment location), and carrier preferences or restrictions. The initial configuration of the rule-base shall be performed by the Vendor in direct coordination with the DEN stakeholders and representatives. The rule-base shall provide a simple-to-use rule-definition interface (no programming required) to facilitate long-term maintenance of the rule-base by users without Vendor support. The rule-base shall be coupled with an optimization routine. The optimization routine shall include the necessary algorithms to properly apply the rule-base to produce "best-fit" assignment(s).

E. The Vendor shall provide an RMS with specific modules to allocate and manage the following resources:

1. Spot/Gate Module – The Spot/Gate Module shall assist in the assignment of aircraft to gates/spots and overnight parking positions (RON). The RMS shall facilitate the creation of seasonal schedules via a planning mode. The real-time mode shall assist Operations in managing changes due to various factors including delayed flights, ground equipment failure, and weather delays. This module shall also include the ability to manage Computers on Wheels (COW), and mobile check-in carts that are associated with the common use passenger processing system.
2. Ticket Counter/Check-In Module – The Ticket/Check-In Counter Module shall assist in the assignment of airlines to ticket counters. The system shall consider flight departure schedules and aircraft size to determine ticket counter demand per airline throughout the day, however, the system shall allow assignments to be made and adjusted independently of flight departure schedules.
3. Baggage Claim (Inbound Carousels) Module – The Bag Claim Module shall assist in the assignment of airlines and flights to baggage claim carousels. The system shall consider flight arrival schedules and aircraft size to determine baggage claim carousel demand throughout the day and provide DEN with a recommended assignment schedule. The system shall also include the optional ability to fully automate the assignments of carousels. In this capacity bag claim carousel assignments shall be based on the load balancing of carousels. As a flight arrives at the loading bridge, the bag claim carousel with the least demand shall be assigned. Other requirements such as airline bag claim sharing

restrictions or bag claim out of service shall be accessed by the system when making bag claim assignments.

4. Baggage Makeup Module – The Bag Makeup Module shall provide flight to makeup module assignments. These assignments shall be based on the defined rule set. Assignments will typically be made the day before operation and passed to the Baggage Handling System (BHS) to ensure proper bag routing. This data shall be passed automatically via a BHS- Data Hub interface.

F. Data Hub

1. The Data Hub shall serve as the shared data platform for the RMS. The RMS shall be fully integrated with the Data Hub. The Data Hub development shall include defining control of shared fields between RMS, EVIDS, and other applications.

G. The RMS shall provide the ability to input seasonal flight schedule changes as a result of airport/airline meetings. This includes the annual IATA scheduling conference as well as airline-specific meetings to discuss gate and resource availability.

H. The RMS shall provide the capability to archive data.

I. The RMS shall have a method for load balancing and high availability.

2.6.2 MODULE REQUIREMENTS

A. Spot/Gate Module:

1. The RMS shall have a module for planning/scheduling and real-time management of Gate allocation.
2. The Spot/Gate Module shall provide an integrated planning function and real-time gate allocation function for aircraft spots, gates, and off-gate parking positions.
3. The module shall be able to manage a minimum of 200 gates and 100 off-gate parking positions.
4. The Spot/Gate Module shall optimize the allocation of gates and off-gate parking positions using the RMS software, defined rule-base for the gates, and current flight information, as a minimum.
5. The Spot/Gate Module shall aid in the planning of seasonal gate assignments for a minimum of up to two (2) years in advance. The gate planning shall occur off-line. The ability to save changes off-line and to upload changes into the on-line database shall be provided.
6. The real-time portion of the Spot/Gate Module shall aid ground control personnel in directing aircraft to their assigned gates and in reassigning gates, as conditions require.

The module shall respond to changes in flight data by providing warnings and/or recommendations of optimal solutions.

B. Ticket/Check-In Counter Module:

1. The RMS shall include a module for planning/scheduling and real-time management of Ticket Counter and Re-check Counter allocation.
2. The Ticket Counter Module shall provide an integrated planning function and real-time allocation function for the assignment of ticket counters (i.e., main ticket counters, recheck-in counters, etc.) to specific carriers.
3. The module shall be able to manage a minimum of 400 ticket counter positions.
4. The Ticket Counter Module shall aid in the planning of seasonal ticket counter assignments for a minimum of up to one (1) year in advance. The ticket counter planning shall occur off-line. The ability to save changes off-line and to upload changes into the on-line database shall be provided.
5. The Ticket Counter Module planning function shall allow for planning/scheduling off-line.
6. The real-time function shall actively respond to changes in flight data, equipment failures, etc. by providing warnings and/or recommendations to the operator during the day of operation.

C. Bag Makeup Module

1. The RMS shall include a module for planning/scheduling and real-time management of Bag Makeup Carousel allocation.
2. The Bag Makeup Module shall provide an integrated planning function and real-time function for the assignment of flights to baggage makeup carousels.
3. The module shall be able to manage a minimum of 40 makeup carousels.
4. The Bag Makeup Module shall aid Baggage Handling System (BHS) personnel in efficiently optimizing the allocation of flights to baggage makeup carousels to ensure balanced bag loads on each carousel. The system shall provide the ability to start the planning effort with “default” assignments that are pre-populated.
5. The module shall be capable of both advanced planning and real-time adjustments to compensate for changes in flight schedules, etc.
6. The Bag Makeup Module shall aid in the planning of seasonal bag makeup carousel assignments for a minimum of up to one (1) year in advance. The planning shall occur off-line. The ability to save changes off-line and to upload changes into the on-line database shall be provided.

D. Bag Breakdown Module

1. The RMS shall have an expandable module for planning/scheduling and fully automatic real-time management of Bag Breakdown Pier allocation.
2. The Bag Breakdown Module shall provide an integrated planning function and real-time function for the assignment of flights to baggage breakdown piers.
3. The Bag Breakdown Module shall aid in the planning of seasonal bag breakdown carousel assignments for a minimum of up to one (1) year in advance. The planning shall occur off-line. The ability to save changes off-line and to upload changes into the on-line database shall be provided. The system shall provide the ability to start the planning effort with "default" assignments that are pre-populated.
4. The module shall be able to manage a minimum of 40 breakdown piers.
5. The module shall be able to provide for advanced planning of breakdown pier-to-flight assignments.
6. The module shall provide for adjustments to flight-to-pier assignments in real-time. The module shall have the ability to run fully automatic in real-time optimizing flight-to-pier assignments without user intervention.
7. The system shall provide a configurable cutoff point for changes to the flight-to-claim assignment when operating in fully automatic mode so that the displayed flight and baggage information shall remain constant.

2.6.3 RMS SYSTEM AND SOFTWARE REQUIREMENTS

A. The RMS shall provide planning functions, 'best-fit' recommendations, and real-time conflict warnings to assist Operations in the management of these resources.

B. Additionally, the RMS shall allow for the management of other resources/airport assets - that are not pre-defined in the system. The "other resources/assets" are custom resources/assets that can be created and tracked like any other resource in the RMS system. Potential resources/assets are but are not limited to ground power units, water trucks, fuel trucks, or personnel.

C. The RMS shall obtain its flight data from the Data Hub to ensure data integrity.

D. The RMS shall be a rules-based system reflecting the business processes of DEN.

E. The RMS shall support both planning and day-of-operations resource management functions.

F. The RMS software shall have a Rules editor to update the business rules when required such as resource restrictions, preferences, dependencies, or user-defined rules constraints or limitations. The editor shall not require programming skills to make modifications to the rule base. Items that can be modified through the rules editor include, but are not limited to, preferred gates from which an airline operates, the hierarchy of data from sources (i.e., FAA,

Aerobahn, Airlines, etc.), types of aircraft allowed at each gate, hat stop bar availability per gate, estimated taxi times, stand association with specific door(s), and access to FIS (Customs).

G. The RMS shall provide a "What If" analysis capability to allow DEN to plan a variety of existing and future resource allocation scenarios.

H. The solution shall be able to track and record all aircraft tows including the scheduling of tows from remote locations.

I. The solution shall be able to quickly display the aircraft attribute information associated with each resource, such as the types of aircraft that are allowed at a specific gate.

J. The system shall have the ability to designate resources as inoperable and provide a resource downtime notification to system users (e.g., disabled gate or ticket counter). The notification shall display in real-time on user interfaces. The system shall support interfaces to external systems such as an asset management system to provide automatic updates to resource availability.

K. The system shall support the ability to identify resource restrictions and attributes in real-time and future/historical. Examples include hard stand, Apron-Loading, Jet Bridge Accessibility, conveyance outages for gates, and maintenance outages.

L. The Vendor shall coordinate with DEN to develop a process to integrate data from/to the existing systems into the new environment. The integration of existing data into the new process shall be seamless to maintain existing gate assignments and control over daily operations. To facilitate this requirement, a workshop shall be facilitated by the Vendor with key DEN stakeholders to develop and finalize the process.

M. The system shall support the ability to prioritize data from specific inputs into the system. This function will allow the development of a data input hierarchy that can be modified by the end user. Additionally, the system shall provide notification to end users when a lower priority input modifies the data set and require acceptance from an authorized user if a lower tier data input modifies the data set. This functionality shall have the ability to be turned off by an authorized user. When the function is turned off, updates to the data set shall be performed automatically, but the system will still provide notifications to the end users. An example of this would be if an airline feed changes a gate assignment that was originally assigned by the airport.

N. The system shall provide a notification mechanism to provide users with notifications when resources are designated as disabled or non-functional. Additionally, the system shall display the disabled/non-functional resources on the graphical displays. The system shall support integration with external systems to provide dynamic resource status updates, however, the ability to manually update individual resource status shall be provided.

O. The RMS shall have an interface to manage data and the individual modules. The user interface shall provide a common look and feel for all RMS modules. Via the user interface, authorized users shall have the ability to select the authorized module(s) to execute. All modules provided as part of the RMS shall have a common look and feel and meet the user interface requirements described below.

P. A color-coded Gantt chart listing each resource (i.e., gate, ticket counter, baggage make-up carousel, baggage breakdown pier) shall be used for each of the resource management modules. Time shall be shown on the horizontal axis and the resource shall be shown on the vertical axis. The Vendor may submit alternative graphical representations of resource assignments; however, final approval is at the discretion of the DEN Representative. The ability to customize what data is visible on the Gantt chart for each flight and the ability to customize views on a per-user basis shall be provided.

Q. When modifications are performed to certain areas of data, the system shall support the "re-building" of the affected areas only (i.e., a complete schedule re-build will not be required).

R. The planning mode of all modules shall support multiple planning scenarios that can be individually saved. All saved scenarios shall have the capability to be input into active mode.

S. Resource status shall be updated using text, color coding, and other graphical coding (e.g., flashing). The color-code shall be user definable.

T. The Gantt chart shall be able to display contiguous resource allocations for multiple days. The User shall be able to easily and dynamically adjust the amount of time displayed from a minimum range of eight (8) hours to four (4) days.

U. The solution shall be able to display Flight time data, including Scheduled, Estimated, and Actual. (STA, ETA, ATA, STD, ETD and ATD)

V. Pan and zoom features shall be provided. The zoom shall allow increasing/decreasing the number of resources and/or time frame displayed up/down to the maximum and minimum time frame. Pan shall allow the User to dynamically change the portion of the Gantt chart being displayed.

W. The real-time Gate Module could provide a graphical representation of an aerial view of the Airport in addition to the Gantt chart view. Aerial views are a "nice to have" but not a mandatory requirement. Display gate status shall be updated using aircraft icons, color-coding, and other graphical coding. The User shall be able to toggle between the Gantt chart and aerial view when in real-time Gate Management mode. The graphical representation for each flight shall include scheduled, actual, and estimated arrival and departure times, flight number, Aircraft Type, and Tail Number- if available.

X. Real-time changes to any flight shall be instantly reflected on the graphical displays.

Y. The solution shall show each carrier with a unique user-defined color, the flight number and the flight also spans the time based on-boarding or un-boarding times.

Z. The system shall provide standard templates for developing schedules and planning. The ability to create User-definable templates shall also be provided

AA. The User shall be able to assign resources to resource groups and easily display one (1) or more resource groups dynamically as needed (for example, shared use system stands may be one (1) group and remote stands another group).

BB. The system shall be able to display both allocated resources and unassigned resources.

CC. The RMS shall provide standard and custom reporting capabilities.

DD. Various levels of access shall be definable and controlled based on User login. The following levels of access shall be provided, at a minimum:

1. View: The user shall only be able to view planning and real-time information. The User shall not be able to make any changes.
2. Planning: The user shall only be able to make changes in the resource planning mode.
3. Real-time: The user shall only be able to make changes in the real-time mode.
4. Full: The user shall be able to make changes in the planning and real-time mode.
5. The system shall have the ability to limit a user's access to a specified set of resources (e.g., gates 1-4, 9 and 10, Airlines A and C, etc.).
6. The solution shall provide the ability to designate read-only attributes.

EE. RMS Performance Requirements

1. Response Time – The Vendor shall state the maximum and minimum time required for a full optimization routine to run and schedule twenty-four (24) hours for 250 gates and 2,500 flight operations (departures and arrivals). Any assumptions shall be noted (e.g., the number of rules evaluated). The following criteria for system response shall be met:
   a) The maximum time for any optimization routine to run from the initiation of the request by the user to the screen update shall not exceed five (5.0) minutes.
   b) The maximum time for the system to respond to a change in flight data in the Data Hub shall not exceed one (1.0) minute.

FF. Interface/Integration Requirements:

1. The RMS shall accommodate the various schedule input methodologies of the airlines present at DEN. Individual airline schedule interfaces to the RMS shall be defined and documented in Interface Definition Documents.

2.6.4 RMS FUNCTIONALITY

A. Changes to data in external systems (e.g., EVIDS) that impact the RMS and changes to data in the RMS that impact external systems (e.g., EVIDS) shall be updated in the RMS in real-time. This data shall be passed via the Data Hub implemented by the Vendor.

B. Planning / Scheduling

1. The RMS shall aid in short- and long-term planning for all resources to prevent committing to over-utilization of resources, to schedule maintenance and construction, and to evaluate future variables (e.g., passenger demand, and marketing requirements).
2. The system shall allow airline seasonal schedules to be loaded. This shall be through an automated interface to allow for the importing of schedule-related data. In no instance shall manual input of schedule data be required.
3. The system shall be able to import the OAG feed for forward-looking Seasonal schedules (generally 6 months out) into the "What-If" tool for use in building seasonal plans.
4. The system shall provide an off-line mode for planning.
5. The system shall allow the schedule created to be saved and then retrieved later for further manipulations.
6. The system shall support the ability to store and work with multiple scheduling scenarios for all resources supported.
7. The ability to transfer the schedule from off-line to on-line shall be provided.

C. Real-Time

1. The RMS shall aid DEN Operations personnel in managing resources during day-to-day operations.
2. The system shall respond to changes in external data that affect the allocation of terminal resources (e.g., flight arrival time updates in EVIDS).
3. The system shall allow authorized users to directly input changes into the RMS (e.g., loading bridge out of commission).
4. The system shall be able to lockdown a resource or set of resources that are managed by the city for a user-defined period of time and use, without being overwritten by airline feeds or airline manual input. The system shall provide logic to only allow certain users or automatic feeds to manage certain resources.
5. The ability to lockdown resources shall be an attribute of Sign-on roles and profiles.

6. The software shall provide warnings/recommendations or automatically adjust resource assignments based on the external system data changes and authorized user input changes. The ability for the software to provide a recommendation or automatically adjust resources shall be a user-configurable option.
7. Changes to resource assignments shall update to external systems via the Data Hub.
8. A minimum of twenty (20) users shall be able to view resource assignments and concurrently modify allocations that are assigned to their control. The Gantt chart shall indicate which user "owns" a resource.
9. The solution shall provide the ability to View, Update, Schedule, and Modify gate, check-in counters, stands, and remote parking assignments for extreme events or weather.

D. Optimization Algorithms

1. The RMS shall utilize optimization algorithms. The optimization routines shall meet the following minimum requirements:
    a) Logically evaluate rules and provide "best-fit" resource assignments.
    b) Consider rule weighting factors.
    c) Account for all time-based information (e.g., flight arrival and departure).
    d) Analyze a minimum of five resolutions when a conflict occurs.
    e) The RMS shall provide the ability to perform "what if scenarios" and retain them for future use. For example, a gate can be temporarily removed as an available gate, then optimization routines can be run.
    f) The solution shall have a special relation calculation for gate proximity to allow the mixing of aircraft sizes at adjacent gates. Note: This is a "Does it Fit?" tool.

E. Modes

1. The RMS shall provide the following modes of control for both planning and real-time operations for all resources. The modes shall be able to be assigned for each individual module and the system shall support the ability for modules to be set to different modes of control (e.g., the spot/gate module can be set to automatic while the ticket module is set to manual). More specifically every distinct airport resource (or asset) can be assigned different modes as required by the user.
    a) Manual Planning – All resource assignments are performed manually. The system shall provide recommended resolutions at the user's request. The system shall provide warnings if any rules are violated by an assignment.
    b) Manual Real-time – All resource re-assignments are performed manually. The system shall automatically detect conflict conditions but only provide a warning.

The system shall provide recommended resolutions at the user's request. The system shall provide warnings if any rules are violated by an assignment.

c) Semi-Automatic Planning – The RMS shall generate step-by-step recommended resource assignments with user confirmation required before committing each assignment.

d) Semi-Automatic Real-time – The RMS shall automatically detect conflict conditions and provide recommended resolutions (in a prioritized list) requiring user confirmation.

e) Automatic Planning – The automatic mode shall generate a complete resource plan for a given schedule. The RMS shall automatically identify and assign the "best fit" resource allocation based on the rule base and schedule.

f) Automatic Real-time – The automatic mode shall automatically detect resource conflicts and rule violations and automatically re-assign the resource(s) as required. The system shall notify the user of any re-assignments as they occur. The system shall have a configurable cut-off time for re-assigning any flight. The system shall allow the manual override of assignments by an authorized user. Additionally, any flight or group of flights can be designated as' fixed' so that it cannot be re-assigned in automatic mode.

2.6.5 RULE BASE

A. Rule-base: The RMS shall have a rule-base defined for each of the modules. The rule-base shall be an expert system as defined herein.

1. The rule-base shall logically define various physical limitations, operational restraints, preferences, etc.
2. The RMS shall utilize the rule-base to optimize resource allocation both for planning and in real-time.
3. Changes to operational conditions (e.g., flight delays, equipment breakdown, etc.) shall generate warnings of resource assignment conflicts, recommendations of optimal solutions, or automatic resource re-assignment (depending on the mode of operation). The warnings, recommendations, and/or re-assignments shall be based on the defined rule-base and the RMS optimization algorithms.
4. The Vendor shall provide the knowledge engineering required to set up the rule base. The system shall allow authorized users to change resource constraints and rule definitions.
5. Rules management (change, remove, add) can be performed by DEN staff without the need for vendor involvement. As such, the Rules module shall be equipped with management tools, including but not limited to:

a) Ability to report on active rules in the system, including interdependencies between the rules

b) Change management log.

c) Error checking capabilities.

6. The solution shall be able to provide logic that will help fill in gate assignments based on a user-defined flight schedule.
7. The rule-base shall be an Expert System thereby providing easy-to-define rules as follows:
    a) The rules shall be formatted with a sentence-like structure.
    b) No programming skills shall be required to define the rule base.
8. Rules shall be definable for the following, as a minimum:
    a) Physical restraints for a resource:
        i. Resource limits (e.g., gate limitations - location of fuel pits, wide-body gate, narrow-body gate, secondary lead-in lines, aircraft adjacency, and pushback conflicts).
        ii. Resource closed or out of commission.
    b) Carrier considerations:
        i. Preferred resource for a carrier.
        ii. Carrier adjacency considerations (two carriers should/should not be placed adjacent)
    c) Ground crew considerations:
        i. Location of ground handling equipment relative to a resource.
        ii. Location of baggage make-up carousels relative to gate.
    d) Passenger convenience (e.g., gate location relative to another gate).
    e) Financial considerations (e.g., tow-on/tow-off costs).
    f) Off-gate parking location relative to a gate.
    g) Flight types (e.g., freight, charter).
    h) Resource preference based on various factors:
        i. Flight arrival/departure time.
        ii. Flight turnaround time.
        iii. Origin/destination of flight.

iv. A flight with multiple flight numbers.

B. Hard and soft rules shall be definable. The ability to weight rules (e.g., the importance of one through ten (1-10)) shall be provided.

C. The ability to logically combine rules shall be provided (e.g., AND, NOT, OR, NOR, XOR). The ability to layer rules shall be provided (e.g., if, then, else).

D. The system shall be able to create and adjust business rules that govern gates, baggage makeup areas, baggage carousels, check-in counters, stands, remote parking positions, or any other defined asset.

E. Rules for "trumping" or prioritization of flight information coming in from various feeds shall be able to be set up for any data field. This provides the ability to determine the correct process for updating data fields with the most accurate information.

F. The solution shall provide administrative capabilities to define and modify business rules without a need to modify the base code.

2.6.6 KNOWLEDGE ENGINEERING

A. The Vendor shall carry-out all work required to develop and implement the rule-base for the RMS. The initial knowledge engineering shall be for a minimum of 200 gates and 100 off-gate parking positions.

B. The Vendor shall provide, at a minimum, the following services related to Knowledge Engineering:

1. Determine the physical constraints of each resource.
2. Conduct personnel interviews as necessary and work closely with the various departments involved such as Airfield Operations Department, Ramp Tower Operators, Business Technology (BT), Airline Affairs, Baggage Handling System Controller, and Terminal Operations Department.
3. Develop Logic.
4. Define rules in the RMS.
5. Document rule development process (shall have detail such that another party could update the rule-base without duplicating effort or consulting the original RMS Vendor).

2.7 EVIDS

2.7.1 EVIDS OVERVIEW

A. An Electronic Video Information Display System (EVIDS) shall be implemented to support the management of all display devices throughout the facilities. The EVIDS shall operate as a completely synchronized system and shall provide control of the entire display ecosystem. The system installed will enhance the existing system and will utilize existing display hardware to the extent feasible.

B. The EVIDS shall be configured to run on a full-time basis, twenty-four (24) hours per day, seven (7) days per week, to provide accurate and timely information. The EVIDS shall be designed, configured, and installed for mission-critical operation. All parts and components shall be designed for operation in a professional commercial facility; the use of consumer-grade components is not acceptable.

C. The EVIDS shall provide flight, baggage, counter, gate, ramp, visual paging, and other DEN-defined information to various displays throughout the campus. Initial content and data to be displayed shall include, but are not limited to:

a) Flight and baggage related data
b) Airline agent position branding (e.g., logo) and position status
c) Advertising content
d) Wayfinding
e) Sign language videos
f) Passenger processing/resource assignment information
g) Web content
h) RSS feeds
i) Safety information
j) Time
k) Full motion video
l) Weather
m) Visual Paging and Emergency Information
n) Other dynamic display information as identified by DEN

D. The EVIDS shall fully support all code share flights and be able to provide mechanisms for displaying the appropriate code share information on public displays. In addition, the system shall not require the duplicate entry of information for code share flights (i.e., single data input will update multiple flight records where code sharing exists). The software will allow flexibility to show solely Origination and Final Destination and, if so desired, multi-city destinations of the same flight number.

E. The information displayed on the displays for the EVIDS will vary depending on the display's location and time of day. The displays shall be configurable:

a) On an individual display basis and on defined groups of displays

b) On individual display "segments" (portions of the display)

c) By the day of the week

d) By the time of the day

e) By triggers provided by external sources (e.g., Resource Management System)

f) By other triggers as identified during the final design phase

F. The system shall provide the ability for end users, including airline tenants, the ability to update flight and other content information. The use of a web browser, or other technologies that do not require dedicated, physical workstations connected to the local area network shall be provided. Coordination shall be performed with the DEN Representative to determine the final functionality required for specific users of the system. System administration capabilities shall also be provided in this manner, based on individual user rights. The system shall provide various forms of user interfaces including, as a minimum, laptops, personal computers, mobile devices, iPad, etc.

a) EVIDS administration interfaces for management, control, development, and update activities.

b) User development interface for comprehensive control and management of content development, display building, display assignment, and content scheduling.

c) End-user interface to provide the ability for users to manipulate display information.

G. The displays located in the baggage claim area (BIDS) display flight baggage carousel assignments. These assignments shall be determined by the RMS and verified before unloading baggage onto a specific carousel. The Vendor shall provide the ability for baggage handling personnel with the ability to verify and/or modify carousel assignments via a user interface that is located in the baggage handling area (baggage input console) or other means.

a) The ground operator shall be able to indicate which flight is being unloaded onto the particular baggage carousel. The EVIDS shall not allow the operator to specify a flight that is not an arriving flight contained in the current day's active flight schedule. After

the operator has specified a valid flight number, the operator shall press a key designated as "first bag on" and shall update all EVIDS information (including BIDS information) pertaining to this flight and carousel.

b) "Canned" messages as defined by DEN shall be selected and displayed via the BIC assigned display.

H. The EVIDS shall fully support concurrent and simultaneous access from multiple users.

I. The EVIDS shall support the display of airline-provided information on display devices (GIDS) located in the gate holding areas. In this instance, the airline assigned the particular gate shall have complete control of the information shown on the display device. This information shall either be provided through the airline's host servers(s) or through local input. NOTE: This project will not provide the display hardware in each of the gate hold room areas. However, the software system shall be configurable to support the identified functionalities. The vendor shall provide tools, software, and methods to generate gate display messages either through EVIDS software or via airline-provided software on the displays. Gate hold room displays shall be capable of using VLANs, PC virtualization, or other tools to obtain the desired airline functionality.

J. The EVIDS system shall conform to all ADA compliance matters, including font size, message initiation, message review, and validation of ADA approval for equipment and processes.

K. The Vendor shall comply with, and the work and work product provided under the contract shall be in compliance with, all applicable provisions of §§ 24-85-101, et seq., C.R.S., and the Accessibility Standards for Individuals with a Disability, as established pursuant to Section § 24-85-103 (2.5), C.R.S (collectively, the "Guidelines"). The vendor shall also comply with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards. The City may require the Vendor's compliance to be determined by a third party selected by the City to attest that the Vendor has performed all obligations under this Agreement in compliance with §§ 24-85-101, et seq., C.R.S., and the Accessibility Standards for Individuals with a Disability as established pursuant to Section § 24-85-103 (2.5), C.R.S.

L. The Vendor shall develop "rules" in the Database to set priority (Order of Precedence) for the source of the flight information to be used by EVIDS. These priority rules shall be defined for each airline in coordination with the DEN Representative and the airlines.

M. The capability to include dynamic wayfinding enhancements (Concourse A redirecting people to A-bridge instead of train or Pena Blvd, East versus West terminal) shall be provided through the system.

N. The EVIDS shall fully support a workflow process that provides the ability for approving any content displayed before the content is displayed in the production environment. This shall

include content that is managed by third parties such as advertising companies. For any content managed by users that are external to DEN, an authorized DEN representative shall approve the content before the content is pushed to the production system. This functionality shall include the following, as a minimum:

a) An email/text notification system for when third-party content needs DEN approval. The ability to "turn off" the approval requirement shall be provided.

b) An email/text notification system alerting the specified user that the content on a specific display or set of displays has been modified.

O. The EVIDS shall not require any third-party applications such as Photoshop, or other outside applications to develop and maintain content.

P. The EVIDS shall control the information on all electronic displays throughout the Airport. All information to be displayed shall be stored in the Data Hub or provided by an external source. The content shall be managed by the EVIDS for display on the specific display device. The content provided through the EVIDS includes but is not limited to; public display banks art features, gate displays (counter, back wall, PBB, and general gate information), ticket counter displays, baggage makeup operational displays, public baggage displays, and visual information displays. A brief description of the functionality of each sign type is provided below. The final functional requirements for each type of signage will be established during the required design workshops.

a) Public display banks – these displays will show information related to flight status including, but not limited to; city of origin/destination, scheduled time of departure/arrival, estimated time of departure/arrival, remarks/comments, baggage carousel assignment, etc. The information displayed on these monitors shall be provided through the PPS databases and information will be updated through automated feeds and manual input.

b) Art features – these displays will show art related material provided by others. The EVIDS system shall support the display and scheduling of this display material on all monitors throughout the airport.

c) Gate displays – these displays will show gate related flight information. The system shall configure these displays to show the appropriate information related to gate usage (i.e., flight number, airline, destination, etc.) when assigned through the RMS. In addition, the local gate operator (with the appropriate login credentials) shall have override capabilities to modify the information displayed.

d) Ticket counter displays – these displays will show ticket counter related information including, but not limited to, airline name and logo, flight information, and position information (e.g., open/closed, first class, ticketing, etc.). Upon assignment from the RMS, the displays shall automatically be configured to display the appropriate airline and their desired “default” display. In addition, the local ticket counter operator (with

the appropriate login credentials) shall have override capabilities to modify the information displayed.

e) Baggage makeup operational displays – these displays will show flight related information that is pertinent to the baggage handling operators. The information displayed on these devices will be from assignments provided by the RMS and from the data associated with EVIDS (i.e., flight arrival/departure times, gate, bag claim device, etc.).

f) Public baggage displays – these displays will show flight information on the baggage carousel. This will display the arriving flight number and origination city for the public. The information displayed on these devices will be from the database (from EVIDS and RMS) and may be manipulated by the baggage handlers via input through the baggage input consoles.

g) Visual information displays – these displays will show visual paging information from inputs provided by the passenger messaging system.

Q. The system shall provide the ability to synchronize playback on multiple displays.

R. The system shall support DEN specific templates and branding.

2.7.2 EVIDS SYSTEM AND SOFTWARE REQUIREMENTS

A. The EVIDS shall provide easy content management for administrators and real-time data to passengers.

B. The EVIDS shall provide a single platform to integrate all content data sources and be used to display content on the displays throughout the facility. The EVIDS shall be capable of accepting information from a multitude of disparate systems and performing tasks automatically based on predefined rules and the information it receives.

C. The EVIDS shall allow authorized users to manage, push and monitor content from one interface for all displays.

D. All EVIDS modules (i.e., end-user interface, visual messaging, video advertising, Content Designer Module, etc.) shall have a Graphical User Interface (GUI) and use a true windowing navigation interface.

E. All display devices controlled by the EVIDS shall have the ability to display public “evacuation” or emergency messages. The system shall support the ability to display these messages on display devices that are zoned/targeted to specific areas of the campus. The control of the evacuation messages, including the ability to choose the areas/zones where the messages will

be displayed, shall be available from workstations located in the Operations center. The EVIDS shall allow the users to input emergency messages on-demand.

F. Data input screens (i.e., forms) shall be provided. In no instance shall data be input directly into data tables.

G. Airline data availability shall be limited to authorized user login. In no case, shall any user identified via user name and password as an airline employee or any other user without proper authorization gain access to any other airline's data, other than that pertaining to their own flights and baggage. Data that can be viewed at the user's workstation pertaining to other airlines shall be limited to data that can be viewed on public EVIDS video monitors.

H. Digital Display Controllers (DDCs) shall be provided to manage and "drive" the content on specific displays. The specific configuration of the DDCs shall be determined by the Vendor to support the proposed solution. Acceptable methods include but are not limited to external devices or devices embedded in the display (System on a Chip). Note: existing equipment used to drive the current displays shall be evaluated by the Vendor for re-use, as applicable.

I. Head-end server failure shall not affect the Digital Device Controllers operation or information displayed.

J. The EVIDS and the content shall support real-time content assembly, meaning that the content needs to be constructed in such a way that when something changes at the airport, the content will change accordingly and automatically without manual/user input.

K. The EVIDS shall integrate entertainment, advertising, wayfinding, and informational elements together.

L. Override functionality shall be available for all automated functions and custom controls shall be supported based on DEN's requirements.

M. The airport operator should not need to be versed in digital signage to use the system.

N. Any display "canvas" (area available to display content) shall have the capability to be segmented into smaller display areas to provide the ability to display separate information from different data sources on a single display hardware device. The Vendor shall describe all limitations to this requirement, including the maximum number of segmentations available, limitations of source content, limitations in resolution, etc. as part of the proposal.

O. The EVIDS shall provide the ability for users to control the content to be displayed in certain areas (subsections) of the overall display canvas(es). For example, an airline shall have the ability to dynamically modify the signage behind their check-in counters based on the planned use (e.g., "VIP Check-In," "Baggage Drop," etc.). This shall be facilitated in two ways, 1)

automatic reassignment based on pre-defined triggers and 2) manually through a system interface module or equivalent input device. The Vendor shall describe how the proposed system will facilitate this requirement, including all required hardware, connectivity, and software as part of the proposal.

P. The system shall support the ability for a single “display driver" (e.g., DDC) to simultaneously drive multiple displays (e.g., display array). This shall support the display of identical content on all displays as well as unique content for each specific display.

Q. The system shall support the ability to simultaneously display identical gate related information (e.g., flight number, airline, ETD, etc.) at more than one gate.

R. The Vendor shall provide a complete software package for the management of the digital ecosystem and management of the content, playback engine, and integration to other systems and dashboards.

S. The EVIDS shall be flexible in the location of stored content. The ability to store data in the cloud as well as local shared network drives and network-attached storage shall be supported. The Vendor shall describe any limitations to this requirement as part of the proposal.

T. EVIDS Performance Requirements

1. The system shall be capable of supporting all DDCs and display devices as specified in this document within the performance requirements as outlined herein.
2. In the event of a failure of a DDC that is used to control a display within a public display bank, the system shall automatically reconfigure the page displays within the display bank to ensure that the flight information that was to be displayed on the failed DDC/monitor is displayed on other monitors. In the instance of a DDC failure, the system shall automatically reconfigure the timing window, or utilize another mechanism, to ensure that no gaps in the displayed flight information are present. For example, if a DDC supporting a display showing flights from 10:15 AM to 10:45 AM fails, the system shall reconfigure the displays such that the other DDCs display the flights during this time period.

2.7.3 EVIDS CONFIGURATION REQUIREMENTS

A. Displays shall be connected to DDCs as required to control the display of the content on the device.

B. All licensing for DDCs associated with the EVIDS shall be site licenses. In no instance shall individual licenses be required for each DDC associated with the EVIDS.

C. The DDCs shall be capable of supporting the display of flight data, graphic images, text messages, web content, and streaming and full-motion video.

D. The EVIDS shall support the displaying of flight data for all the airlines at DEN. The source of flight data may vary depending on the specific airline. They system shall support the ability to receive flight data from third parties (Internet based subscription service) as well as local direct airline feeds via serial interfaces.

E. The EVIDS shall fully support airlines that brand different airlines names under a single IATA airline code.

F. The EVIDS shall fully support the storage, display, and manipulation of information for airlines that operate out of multiple terminals/concourses and that may split facilities in terms of check-in operations, gate operations, and baggage operations.

G. The system shall provide a “display override” function to allow an authorized user to change display content to a pre-determined generic message as needed.

H. EVIDS displays, associated with unassigned resources, shall display a pre-defined screen (e.g., DEN logo). The pre-defined, default, content shall be assignable on a per location per display basis.

I. EVIDS shall provide standard API capabilities for potential future interface requirements.

J. EVIDS shall provide real-time flight information to the Data Hub for baggage related messages allowing for proper sortation of baggage.

K. The EVIDS shall have the capability of providing read-only flight data to locations that are external to the Airport. The data interface shall be through standard internet connections or other mediums, as necessary.

L. The EVIDS shall include an interface with the Airport’s web server to provide the ability to display flight information on the Airport’s web site.

M. EVIDS shall be capable of sending update information on flight or gate changes to specific operations staff via text messages.

N. EVIDS shall interface with the airport public address system via the Data Hub

O. EVIDS shall be capable to interface with the airport emergency notification system via the Data Hub.

2.7.4 DISPLAY REQUIREMENTS

A. General: The Vendor shall make a concerted effort to create display formats that eliminate or reduce, to the extent feasible, ghosting and image retention. Coordination shall be performed with the DEN Representative to identify potential solutions for reducing these effects. Additionally, all EVIDS displays shall be coordinated and managed through the EVIDS with a consistent signage look and feel for all display devices.

B. Fonts – The EVIDS shall be able to display content in a variety of fonts. The Vendor shall supply a minimum of twelve (12) different font styles with the EVIDS. The default font shall be approved by the DEN Representative.

1. The user shall be able to specify the font to be used and the size of the font, per field.
2. The capability shall exist to use multiple fonts within one display format.
3. Scalable outline font technology shall be used in the DDCs to display fonts on the video monitors.
4. The provided font selection shall address ADA compliance issues and shall comply with the requirements of the Accessibility Standards for Individuals with a Disability as established pursuant to Section § 24-85-103 (2.5), C.R.S.. The Vendor shall recommend fonts that meet the needs of visually impaired individuals. The Vendor shall provide documentation to support their recommendations.

C. Colors – The user shall be able to specify the colors to be used in any screen format from a palette of no less than 65,000 colors.

1. Colors shall be able to be specified for the format background and foreground.
2. Colors shall be able to be assigned on a per-field basis, defaulting to the specified foreground color.
3. Colors shall be able to be assigned based on field content. For example, color coding within a field may be used where "On Time" is color #1, "Delayed" is color #2, and "Canceled" is color #3.

D. Graphics – The user shall be able to specify graphic images to be used within a display's content layout.

1. The graphic image shall be capable of being stored in all industry-standard graphic formats. Supported formats shall include but not be limited to, BMP, PCX, GIF, JPEG, and TIFF. The Vendor shall note any graphic formats that are not supported by the system.
2. The user shall be able to specify the size of the frame for the graphic image. The graphic image shall auto-scale to fit the frame.

3. The system shall provide the capability to display a graphic image as a screen "wallpaper" (i.e., a full screen graphic that data including text and/or other graphics are overlaid onto).
4. Multiple graphics shall be displayable simultaneously within a single display format.
5. The vendor shall provide software and procedures to input or import still or motion graphics for EVIDS displays.

E. Display configuration – The system shall support the display of all screens both horizontally and vertically on the display devices.

F. Static Ads /Video Clips – The user shall be able to specify video files to be used within a video monitor display format. At a minimum, the system shall support static ads in .JPG (RGB color baseline standard encoded) File formats. Video/Motion files shall be H.264 encoded and Video/Motion files formats to be supported include .MOV, .MP4, HTML5 and WEBM.

G. User-Defined Parameters & Triggers: The authorized user shall be able to specify the number of parameters or "triggers" that define how and when data will be displayed using any specific display format (e.g., color change, text appear/disappear, graphic appear/disappear, font change). These parameters or triggers include but are not limited to the items below:

1. Length of time a flight is displayed with a "DEPARTED" (or similar) status after the flight has actually departed. This shall be definable both on a system-wide basis and on an airline-specific basis.
2. Length of time before a flight arrives to display the arriving flight information. This shall be definable both on a system-wide basis and on an airline-specific basis.
3. For flight departures, the user shall be able to specify how long before departure time the flight status changes to "Boarding" and/or "Final Boarding". This shall be definable both on a system-wide basis and on an airline-specific basis.
4. In conjunction with this trigger, there shall be a parameter, changeable by the authorized user, which indicates whether or not to utilize this automatic timing feature or to require manual input from an authorized user.
5. For flight arrivals, the user shall be able to manually specify how long before the flight actually arrives that the flight status changes to "In Range" and/or "Landing", and finally "At Gate".

H. Sort Order: The user shall be able to specify the sort order for data being displayed where there is more than one data record being displayed.

1. The user shall be able to specify either ascending or descending order. The default shall be in ascending order.

2. The system shall have the capability to specify multiple fields for the sort and to select the sort priority of each field. If more than one field is specified, each may be designated in either ascending or descending order.
3. The fields which may be specified to be sorted include, but are not limited to:
    a) Flight number
    b) Airline
    c) Domestic/International
    d) Gate
    e) City name (origin/destination)
    f) Scheduled time of arrival/departure
    g) Actual time of arrival/departure.

I. Override of Automatic Status Updates: The authorized EVIDS user shall have the capability to override any of the automatic update flight status remarks. If the scheduled time of a flight is changed, the default Remark for that flight shall be automatically changed to show "ARR AT <new time>" for an arriving flight, or "DEP AT <new time>" for a departing flight. The user shall also have the capability to edit the remark and shall not be limited to "canned" remarks. Any override of a flight status shall only affect that day's flight status. Once the flight has arrived or departed, the system shall default back to the automated update configuration.

J. Display Format Re-Assignment: Any display that is displaying a specific format, controlled by the DDC, shall be capable of displaying a different format upon command from the EVIDS server(s), initiated via an authorized user using any of the input devices (i.e., EVIDS server, EVIDS user interface, BIC, Touch Screen).

K. The authorized user shall be able to view the name of the format that is currently being displayed on any display device by accessing the particular record in the Device Table. When the user makes a change to the format being used by that device, the DDC is notified of the change via the network. The device shall use the new format immediately.

L. There shall be no restrictions in format reassignment.

M. No shutting down or rebooting of any equipment shall be required to change the content being displayed on any device.

N. Free-Text Formats

1. The EVIDS shall allow a free-text format (e.g., a monitor displaying "Welcome ABC Convention attendees, please pre-register for the conference at the airport information desk") to be displayed on a monitor. This format is different from other

formats in that there may be no data coming from the EVIDS databases to update the contents of the display. The data to be displayed shall be determined by the authorized user.

2. The authorized user shall enter and format text, choosing font style, type, and size in the same manner as is allowed with other formats.
3. The authorized user shall also be allowed to insert graphic image(s) into the free-text format, resizing the graphic image(s) to fit the defined location(s) as is allowed with other formats.
4. The EVIDS shall allow any number of free-text formats to be used and shown simultaneously on different displays, or in a "slide show" format on the same display. The parameters of the “slide show” shall be user definable (i.e., show x number of screens for x seconds each).
5. The system shall allow a location for free text to be pre-defined on a display format. Check-in agents or other authorized users shall have the ability to change the free-text message displayed. The system input devices (i.e., EVIDS server(s), EVIDS workstation, Touch Screen) shall be capable of updating the free-text message.

O. Synchronized time (obtained through the local area network via NTP) shall be displayable in the header of an EVIDS page. The time display shall be active when there is a signal from the telecommunications infrastructure. If this connection is broken, the time display on the EVIDS shall go blank. The display shall not "free wheel" from the internal DDC clock.

P. Initial display screens provided shall include, but are not limited to; an airline directory, airport contact directory, flight information display, ticket/check-in counter displays, baggage information display, visual paging displays, gate information displays, and general information displays.

Q. The EVIDS shall be designed and have the capability to control and manage a minimum of 4,000 displays.

R. The system shall provide a user-friendly backend system that is intuitive and includes a guided interface (i.e., it breaks down the process of uploading and scheduling specific, separate steps and requires confirmation for some choices).

S. Support DEN-specific templates and branding.

2.7.5 CONTENT (SCREEN) DESIGNER MODULE REQUIREMENTS

A. The EVIDS shall include a Content (Screen) Designer Module (CDM) that shall allow an authorized user to create and edit display formats and configurations.

B. The CDM shall be accessible through the EVIDS Admin interface and other interfaces as defined by DEN.

C. The user shall create display formats for displaying data on displays, via the CDM. Data to be displayed includes, but is not limited to, flight data, baggage data, flight operations data, visual pages, static graphics, video graphics, and free-text data.

D. The EVIDS shall provide full production capabilities through a user-friendly interface with the ability to quickly create, edit and modify content while online and in production.

E. The CDM shall include the capabilities for the user to "test" the new or revised format by showing it on the screen(s) of a workstation in the same manner as it would be seen on a display, using live data and content from the actual EVIDS.

F. The CDM shall support user content creation to include the following minimum elements:

1. Content orientation: portrait and landscape
2. Content display resolution
3. Screen / Display segmentation (i.e., the definition of “areas” of a particular display to show different content)
4. Static graphic advertising
5. Dynamic video advertising
6. Branding graphics
7. Branding videos
8. Other graphic content
9. Other video content
10. Weather content
11. Web content
12. Content placement and orientation
13. Content priorities
14. Content triggers
15. Content scheduling
16. Background and foreground colors
17. Font type, style, and size, per item
18. Blink attributes; blink on/off colors
19. All other display parameters and elements are defined elsewhere in this specification.

G. The CDM shall have a user-friendly, graphical user interface.

H. The CDM shall support drag-and-drop page design. This shall include drag-and-drop video, live TV and web feeds, images, text, database fields, airline logos, and other content to any position on the display canvas.

I. The CDM shall Provide the ability to segment portions of the displays to allow for various content to be displayed and managed. The ability for different users to control specific portions of a display is required.

J. The CDM shall provide a comprehensive graphical user interface used to develop multi-zoned content with pixel-level control, support for a full range of typefaces, colors, external graphics, built-in environmental data fields, incorporation of visual paging tickers, element transparency, rotation, masking and scaling, foreground/background differentiation, and support for custom display sizes and orientations.

K. The CDM shall provide thumbnail views for creative files.

L. Vendor shall provide a minimum of two (2) different types of content formats for each type of data display that will be used by the system (e.g., flight arrivals, flight departures, gate information, baggage master display, baggage carousel display, baggage handler's backroom display, etc.). The authorized user shall be able to create new formats and modify existing formats via the CDM.

2.7.6 TIMING WINDOW

A. The term "timing window" is used to refer to the amount of time before a scheduled event that an item becomes eligible for display. It is typically used for monitors showing flight arrivals or flight departures. For arrivals, the timing window is the amount of time before the scheduled arrival time of a flight before the flight is considered eligible for display. For departures, the timing window is the amount of time before the scheduled departure time before a flight is considered eligible for display. For example, if the current time is 11:00 a.m. and the timing window for departures is set to 120 minutes, flights scheduled for departure between 11:00 a.m. and 1:00 p.m. would be displayed, while those departing after 1:00 p.m. would not yet be eligible for display on departures monitors. The timing window shall be adjustable to allow the EVIDS displays to be "full" at all times.

B. The EVIDS shall support two types of timing windows: a static mode and a dynamic mode.

C. The static mode timing window shall be definable by the authorized user. A separate time window shall be definable for both arriving and departing flights. There shall be an option to allow these timing windows to be set on both a system-wide basis and an airline-specific basis.

D. When operating in dynamic mode, the timing window shall automatically adjust based on the number of flight operations at a given time. For a grouped set of monitors (e.g., monitor bank, a portion of monitor bank), the EVIDS shall keep all monitors filled with flight records. To accomplish this, the EVIDS shall dynamically adjust the timing window to be a higher or lower value, as required. The minimum range of timing window adjustment will be from thirty (30) minutes to forty-eight (48) hours in increments of one (1) minute.

E. The system shall default to a dynamic mode timing window.

2.7.7 ADVERTISING REQUIREMENTS

A. The EVIDS shall have the capability to display static images and full-motion video (minimum 30 frames per second) on all video monitors throughout the system.

B. The user shall be able to specify a section of the video monitor format (where "section" may be a subset of the entire screen or maybe the entire screen) for displaying a full-motion video.

C. The video source shall be from a video data file that was previously downloaded from the host computer system to the hard disk of the DDC, or through the network if the required bandwidth is available.

D. The system shall also support interfacing with third-party systems and/or websites for the retrieval of advertising files (video, still images, and audio files) to be broadcast on the EVIDS. The system shall provide the ability for external (third-party) advertising companies with the ability to manage designated displays, or portions of displays, where their ads will be displayed. Content modifications performed by third parties shall adhere to the designated process flows described within these specifications. The vendor shall describe methods to integrate into existing dynamic advertising systems. Scheduling requirements: The EVIDS shall contain an integral content scheduler that changes, and updates content based on the time of day and other event triggers within the software. The system shall have the capability to allow an authorized user to schedule the playing of content on all displays throughout the system from the user interface. As a minimum, the system shall possess the following attributes regarding the scheduling of content:

1. The schedule for the display of content shall have the ability to pre-define a schedule for all displays throughout the system. The schedule shall also allow any number or combination of displays to be included in the schedule (i.e., only monitors 1, 3, 5, etc.).
2. Local override capabilities shall also be included to allow authorized users to modify the schedule or the playing of video clips on an ad-hoc basis.
3. The system shall also include a “dynamic” mode that allows video files to be played on monitors that are not displaying flight information due to a lack of flight activity. For instance, if a monitor bank of eight (8) monitors is only utilizing six (6) monitors to display the required timing window for flights, the remaining two (2) monitors shall display the pre-selected video files. This capability shall be integrated with the scheduling features to allow video files to be played when select monitors become available (i.e., no flight activity is displayed).
4. The system shall include a tracking feature that logs all video files that have been played and details the time, length, the display monitor that was used, and a summary of the

number of times each video was played on each monitor as well as the total number of times each video was played in a given time period throughout the airport.

E. The user shall be able to create, define and add media to:

1. Standard Playlists (sequential or random playback of playlist items)
2. Sub Playlists (i.e., multiple images/videos that will always playback together, in order, regardless of randomization)
3. Perform Ad-Stacking (Series of ads within the same campaign) and Day-Parting - Playlists that accommodate image and video commercials that can be stacked in a specific way.
4. Smart Playlists (content chosen based upon variable criteria)
5. The user shall be able to view and manage playlist schedules including, but not limited to:

    a) Displays or groups of displays to display content

    b) Start and expiration dates and times

    c) Playlist content based upon a data availability/ trigger

    d) Playlist changes based on date/time

    e) Alternate (default) playlist material if no content is scheduled

F. The EVIDS shall have a means by which to track, log, and audit content being played and the ability to create a record of this log for system management, administrative, and billing purposes. The system shall support billing for the type, location, and timing of advertisements. Billing information shall be provided in a report format approved by DEN.

2.8 Database and Data Integration (Data Hub)

2.8.1 DATAHUB OVERVIEW

A. The Data Integration components shall serve as a Data Hub providing data storage, data integration, and data orchestration functionality. The Data Hub will serve as an archival and retrieval database and support an information exchange mechanism that can operate in real-time. The Data Hub will be the primary holder of data that relates to all operational activity both flight and facility related. The Data Integration component will ensure a flexible architecture to promote the interface and integration of future applications. Data Orchestration will ensure all the business rules and processes are executed in terms of data acquisition and distribution. The Data Hub shall perform several important support roles including, but not limited to those listed below.

1. Holds the Airport Master Tables and acts as a data validation point

2. Includes the ability to receive data both digitally from other systems and manually by data entry. Bulk data file importation capability such as the importation of OAG-published seasonal schedules shall be supported.
3. Automatically send data either initiated by a digital transaction or by a time trigger
4. Collates all data pertaining to a flight record from the time that the record becomes an active flight record until the total completion of the planned activity
5. Provides the completed flight record to the appropriate billing application for the necessary charges to be made
6. Alerts users to irregular operations that are either flight or facility related
7. Individual system interfaces (data level)
8. Perform data record archiving
9. Provide for data record retrieval
10. Provide alarm notifications and logging
11. Provide and support information dissemination to other airport systems and applications.

B. Changes to data in external systems (e.g., EVIDS) that impacts the RMS shall be updated in the RMS in real-time via the Data Hub. Changes to data in the RMS that impact external systems (e.g., EVIDS) shall be updated to the external system(s) in real-time via the Data Hub.

2.8.2 DATABASE FUNCTIONALITY

A. The database shall be capable of holding numerous flight related fields including, but not limited to:

1. Aircraft dimensional data
2. Airline data
3. Registration (tail) number
4. Start and stop times of aircraft rotational activity
5. Start and stop times of aircraft parking activity
6. Code share information
7. Origins
8. Destinations
9. Resource elements such as check-in desk, gate, carousel, and baggage breakdown and make-up area data.
10. Baggage Service Messages
11. FlightView or other 3rd Party sources of flight data including all scheduled data and derivative data.
12. All data elements required to support the airline industry flight data message standards.

13. The Database shall support all requirements for the PCI's credit card security standard if required by PCI-DSS standards.

B. The design of the database shall permit the inclusion of additional fields and tables on an as-needed basis. The number of additional fields and tables to be supported shall be no less than a minimum of two times the amount of initially populated database structure.

C. All manual entry of data into the Data Hub shall be via a graphical user interface and not directly input into data tables. All manual updates shall be verified as valid records before any updates are implemented.

D. Interfaces to other systems to automatically input data into the Data Hub shall be defined as part of the development of the Interface Design Document (IDD) and Interface Control Document (ICD) for each interface. The Data Hub shall validate electronic data transfer before the record is automatically updated.

E. The Data Hub shall be scalable and allow for the addition of users, resources, and systems.

F. The graphical user interface shall also be used to create and update the Master Tables.

G. At the initial setup of the Data Hub and for the ongoing operations, it is required that data entered either manually or electronically shall conform to a set of rules. By applying these rules, erroneous data entry is avoided, and thus cannot be passed to other systems. These rules are referred to as the Master Tables and it is against these tables that the Data Hub shall verify that the data being sent is not only correct in structure but also that the content is legitimate.

H. The Data Hub shall "manage" the Master Tables, to ensure the maintenance of a uniform set of Master Table data across all related systems. The information shall be distributed to other systems such as EVIDS and RMS. Subsequent updates and distribution of data shall occur as and when new or amended entries are made into the Data Hub Master Tables

I. The Data Hub shall provide an archive capability that provides "near time" retrieval of archived data. The data held within the "operational" portion of the database shall include a minimum of 14 days of operational data. The vendor shall support at a minimum of seven days before the existing date and seven days of planned operational data. The Vendor shall propose, and submit for approval, the maximum amount of operational data to be stored for real-time access that will not impact the efficiency of the database. In addition to real-time (daily) operational data, the Data Hub shall provide the ability to generate real-time reports for operational data for a minimum of thirty-six (36) months.

J. All transactions occurring within the Data Hub shall be logged to provide audit and tracking capabilities. The system shall also support the creation of a tracking report detailing all database transactions within a specific, user definable, time period.

K. The Data Hub processes data critical to Airport operations. The Data Hub will be the master source for all flight data and resource allocations. All flight and resource data will be entered into the Data Hub and distributed to other systems as necessary through the relevant interfaces that are industry standard. Data contained in the Data Hub shall be categorized and made available for consumption by other systems, as necessary.

L. Data Hub shall support messaging industry-standard data protocols such as JSON, Web Services, etc.

M. Data Hub shall house and provide access to all airport operational flight data requirements by the PPS system components (RMS and EVIDS).

N. The following Data Hub performance requirements shall be supported:

1. The Data Hub system will record data transactional logs every fifteen (15) minutes to have a Recovery Point Objective (RPO) of fifteen (15) minutes.
2. Response time from login shall be less than one (1) second.
3. The time to distribute updates to interfacing systems shall not exceed five (5) seconds.

O. The system shall utilize the appropriate technologies and configurations for fault tolerance and redundancy to eliminate the possibility of any data loss and to provide a mechanism for restoration of data.

P. At the time of Final System Acceptance, all hardware shall have a minimum of fifty percent (50%) reserve data storage capacity, with the capability to double the capacity with no change in design. Reserve capacity shall be based on the maximum continual working load.

Q. The system shall be highly available/deployed in a highly available architecture.

2.8.3 DATA HUB SYSTEM AND SOFTWARE REQUIREMENTS

A. The Data Hub shall be designed to administer flight-movement data, from the planning stage through the daily operation as well as the archiving of all data transactions.

B. The Data Hub software shall be an open system standards solution to allow industry COTS hardware hosting capability

C. DEN intends to eventually utilize the Data Hub to fully phase out / replace the existing Airport Information Hub (AIH) functionality. As such, the data hub shall be capable of performing as a message broker platform adhering to industry message protocol standards.

D. The Data Hub software shall provide access to the following flight data information as part of its flight management software capability:

1. Seasonal Flight Schedule - displays the flight schedule for each season and each airline. The Data Hub shall support automatic file imports into the database. Preferred resource allocations for the individual flights, as well as other relevant flight information, shall be incorporated into the Seasonal Flight Schedule.
2. Operational Flight Schedule - Based on the Seasonal Flight Schedule, an Operational Flight Schedule covering a configurable number of days in advance, is generated. The Operational Flight Schedule provides support to DEN, airlines, and handling agents for flight handling. It provides up-to-date information about current flights.

   Flight information is exchanged with the RMS and other external systems used by handling agents and airlines. Up-to-date information regarding flights is provided to the EVIDS through the Operational Flight Schedule.

   The Operational Flight Schedule shall provide flight related data in real-time. In contrast to the Seasonal Flight Schedule management, where a flight is defined for a certain period, the Operational Flight Schedule contains the daily flights.
3. Flights on the Operational Flight Schedule are created manually or from Seasonal Flight Schedules supplied by the airlines. The system shall provide the ability to be configured to keep a number of active daily Operational Flight Schedules. By default, the active Operational Flight Schedule contains flights for the day before, the current day, and the day after. During daily operation, this flight information is completed by actual data, such as touchdown and take-off times, block times, aircraft registration, etc. for each flight. Thus, the Operational Flight Schedule can be used as a source for up-to-date flight information for all parties and systems involved in the process of flight handling.
4. Reference Data – The Data Hub shall house Reference Data to ensure data consistency. Data input is compared to the Reference Data such as aircraft types, registrations, and airports. The Reference Data is used to create resources that are allocated to flights in both the Seasonal Flight Schedule and the Operational Flight Schedule.

E. Flight records in the Seasonal Flight Schedule shall support the IATA SSIM standard

F. The Data Hub shall be capable to manage multiple versions of a season for each airline. Only one version can be active at a time.

G. The Data Hub shall provide up-to-date information for current flights from the Operational Flight Schedule

H. At a minimum, in support of the maintenance of the Operational Flight Schedule, the Data Hub shall support the following functions:

1. Capturing and incorporating new flights into the Operational Flight Schedule

2. Updating existing Operational Flight Schedule records with operational data, such as touchdown and take-off time, on-block/off-block time, runway, spot, baggage carousel, ticket counters
3. Removing flights from the Operational Flight Schedule
4. Creating and modifying turn information
5. Processing of code share flights
6. Maintaining Ground Movements and special services
7. Cancellations, Diversions, Return from Taxiing, and Return from Airborne.

I. The Daily Flight Schedule shall be represented in a graphical user interface

J. Users shall be allowed to customize the Daily Flight Schedule views

K. The ability to modify flight data during the operational day is determined by User Roles and Authorizations. Changes made to the Operational Flight Schedule by authorized users will be committed to the Data Hub and automatically distributed to the EVIDS and RMS.

L. The Data Hub shall establish an order of precedence where flight data is obtained from multiple external sources and potentially are in conflict. Order of precedence will be established during the design phase and incorporated as part of the business rules for the Data Hub.

M. The Data Hub shall be a rules-based system reflecting the business processes of DEN.

N. The Data Hub shall have the capability to filter incoming flight data via user-defined rules.

2.8.4 INTERFACE AND INTEGRATION REQUIREMENTS

A. General

1. The Vendor shall be responsible for performing all data-level systems integration and interfaces for the RMS/EVIDS solution components identified herein via the Data Hub.
2. The RMS/EVIDS solution's system Integration shall provide an overall integrated approach to the project, beginning with an overarching design that incorporates all components whether through integration or interfaces to provide the required functionality.
3. The Vendor shall be responsible for the development of Interface Design Documents (IDD) as follows:

    a) The IDD shall be developed for each interface and shall provide the functional and technical descriptions and guidelines for the required data, hardware, transport, protocol, and software configurations for each interface. This document shall reflect standards-based protocols, interfaces, and a modular approach to each system to

be integrated.

b) Each IDD shall include the following sections: General Characteristics, General Architecture, Functional Characteristics, Data Formats (as applicable), application programming interfaces, Translation Tables (as applicable), Transport Definition, Physical Characteristics, and Required Hardware/Software Configuration Items.

c) Each IDD shall be submitted for review and approval by DEN in accordance with the overall submittal schedule.

B. Data Hub Interface and Integration Requirements

1. The Data Hub shall serve as the central repository for operational flight related data.
2. The Data Hub shall be required to interface with the following systems
   a) RMS
   b) EVIDS
   c) Common/Shared Use System (future requirement to facilitate dynamic signage at common use resources)
   d) BHS/BIC
   e) Public Address/Paging System
   f) FlightView
   g) Billing Management System
   h) Saab Sensis Aerobahn
   i) Visual Docking Guidance System (future)
   j) DEN Web Site
   k) External 3rd party seasonal flight schedules data feeds (OAG, etc.)
3. All systems sending/receiving standard aviation messages shall follow IATA AIDX data schema, SSIM, and Type B messaging Standards as applicable to the most recent version.
4. The Data Hub shall publish flight data through a Webservices API that can be accessed by the Airport's existing messaging services.
5. The Data Hub shall receive real time updates from the RMS so that resource allocations (e.g., gates and bag carousels) can be displayed immediately on the EVIDS displays.
6. The Data Hub shall receive first bag/last bag data from the BIC.
7. The Data Hub shall provide real-time updates of resource allocations to the BHS and EVIDS and will support future interface to the Common Use system.
8. The Data Hub shall provide resource usage statistics to the billing system.
9. The Data Hub’s database shall provide an archive capability within another partition of the same database. The data held within the “operational” portion of the database shall be current month plus last month only. This shall prevent the historical records from having any impact on the operational data and thereby impact the transaction and response time of the graphical user interface.

10. In general, the Data Hub shall support SOAP, XML, and Web Service based integration
11. The system shall be able to notify external systems when information is added/updated/deleted. This notification shall be done through industry standard SOAP 1.1 web service calls. Notifications shall be customer-configurable (destination end-points, trigger conditions, data mapping, etc.).
12. The system shall be able to accept updates from external systems. These interfaces shall use industry-standard SOAP 1.1 web services.
13. Web service interfaces (both inbound and outbound) shall incorporate SSL encryption, WSSE SAML-based authentication - and utilize role-based authorization.
14. The solution shall be able to ingest all data metrics currently used by Aerobahn, FAA, and all airlines.
15. The exposed web services shall expose Web Service Discovery Language (WSDL) files to facilitate building client connections to them.

C. RMS/EVIDS Interface and Integration Requirements

1. The RMS application shall utilize Data Hub as its database tier for all data storage requirements. The RMS shall be fully integrated with the Data Hub and shall utilize it for the storage and retrieval of all RMS application data; this includes current assignments, status (out of service, available, etc.), planned assignments, and other RMS data fields. The RMS application shall contain and make use of all airport, airline, and other operations' organization related business rules for staff, equipment, and processing parameters.
2. The RMS shall store, access, maintain, and control current (real-time and day of operation) and planned (season schedules) assignment information in the Data Hub for dissemination to other systems such as the EVIDS, and shared use system.
3. The RMS shall access information controlled by other systems (e.g., EVIDS) via the Data Hub such as current flight status and other flight and baggage related information. The RMS, via the Data Hub, shall have an interface to third-party data streams, ACARS, SITA Text, Station Manager updates, and DEN Operations staff updates to assist in making resource assignments. The RMS shall also take FAA-related data streams to account for arrival and departure delays due to weather, route congestion, and global aviation system information not readily available via an automated input stream.
4. The RMS shall provide resource information that includes, but is not limited to, gate assignments, baggage carousel assignments, and ticket counter assignments to the EVIDS for incorporation into the information that is displayed on the flight and baggage displays via the Data Hub. The RMS shall receive current flight information from all available sources to use in its real-time management of gates and baggage devices via the Data Hub.

5. The Data Hub shall send the RMS current resource information from the baggage handling system (makeup belts unavailable, etc.) for utilization in its resource planning and assignments. The RMS shall transmit baggage resource assignments to the Data Hub.
6. Seasonal schedules to be loaded by the RMS shall be supported by an automated interface via the Data Hub. In no instance shall manual input of schedule data be required by the RMS/EVIDS system, however, the system shall support manual input.
7. The EVIDS shall provide flight and baggage information to the traveling public and operational information to other systems and aviation and airline staff members. This component shall also manage all electronic signage throughout the facility creating a single "administrator" of all dynamic signage. This component shall also allow remote monitoring and management of all the signage connected to the EVIDS platform. The signage to be controlled by the EVIDS shall include but not be limited to, flight, baggage, wayfinding, visual paging, art features, and advertising.
8. The EVIDS shall utilize the Data Hub for all of its database-tier functions. As such, the EVIDS shall receive and transmit data as required via the Data Hub. All data related to flights, baggage, and other information to be displayed on any monitor controlled by the EVIDS shall be stored and accessed via the Data Hub. EVIDS information stored in the Data Hub shall be available for distribution to other systems via the Data Hub.
9. The Vendor shall develop "rules" in the Data Hub to set priority for the source of the flight information to be used. These priority rules shall be defined for each airline in coordination with the DEN Representative and the airlines.
10. The interface to host systems shall be through WAN interfaces (MetroEthernet, T1, frame relay, etc.), or local Ethernet or RS-232/485 with the specific connection dependent on the individual host. The Vendor shall coordinate with each airline operating in the airport to determine the specific interface requirements. These interfaces may also be incorporated as a part of other modules or applications.
11. The EVIDS shall be interfaced with the Resource Management System via the Data Hub to provide and receive flight updates and resource assignments.
12. EVIDS displays associated with allocated resources (i.e., ticket counter displays, gate counter displays, loading bridge displays, etc.) shall display the most recent assignment information as provided by the RMS. The changing of displayed information shall be triggered by RMS assignments and scheduling through the Data Hub.
13. The RMS assignments/schedules shall trigger the content on associated EVIDS displays on and off times. The RMS assignments/schedules shall trigger content display and removal on associated EVIDS displays. Trigger time shall be based on RMS schedules plus/minus a system configurable (on a per display per location basis) amount of time.
14. The day of operation's resource allocation shall determine the associated EVIDS signage display content (based on airline-defined preferences). The day of operation resource allocation shall determine display information start and stop times.

15. Any authorized modifications to the day of operation's allocation assignments in the RMS shall adjust dynamic signage display content accordingly.
16. The final configuration and sequence of operation shall be coordinated with each airline and DEN Operations.

2.9 Hardware Requirements

2.9.1 GENERAL REQUIREMENTS

A. The RMS/EVIDS solution as defined in this RFP document shall include all configured hardware necessary for a fully functional system. The Vendor shall supply all cabling, connectors, adapters, and termination equipment necessary to interconnect all system hardware. All hardware and materials shall be new.

B. Hardware requirements shall meet the requirements of the Vendor proposed systems. All proposed hardware shall support the system's operational, functional, and performance requirements specified herein.

C. The Vendor is responsible for providing fans, shelves, drawers, special power wiring, ground connections, cables, connectors, appurtenances, and adapters of any kind necessary to accommodate the system installation, operation, testing, and maintenance.

D. Since a cloud-hosted solution is desired, the vendor shall minimize the supporting hardware devices to be hosted on-site wherever possible.

2.9.2 CONTEMPORARY TECHNICAL AND OPERATIONAL EQUIVALENT

A. Due to the rapid advancement and antiquation of electronic technology, the Vendor supplied hardware, including any software/firmware, shall be the "contemporary equal" of the specified hardware including software/firmware. The following requirements shall be met:

B. Contemporary technical and operational equivalent shall be based on a comparison of technology at the time of publication of RFP to the technology at the time of ordering the equipment for each phase.

C. Hardware shall be ordered as close to the actual installation date for a given phase as reasonable (i.e., latest responsible date). Final hardware approval and scheduled order date are at the sole discretion of the DEN Representative.

D. Hardware equivalence shall be based on both technical equivalence and operational equivalence.

E. Contemporary technical equivalence shall be based on device performance and class specifications.

F. Contemporary operational equivalence shall be based on industry standards and function.

2.9.3 ENVIRONMENTAL RATING

A. Equipment shall be rated for continuous operation under the ambient environmental temperature, humidity, and vibration conditions encountered at the installed location. For devices located in harsh environments such as interior uncontrolled or exterior environments, the Vendor shall provide the necessary industrialization or enclosures to ensure proper equipment operation and performance.

B. The equipment shall meet the following requirements based on installation location:

1. Interior controlled environment: 60°F to 100°F dry bulb and 20 to 90 percent relative humidity, non-condensing. Communication rooms shall be considered this type of environment.
2. Interior, uncontrolled environment: 0°F to 130°F dry bulb and 10 to 95 percent relative humidity, non-condensing. Baggage make-up and breakdown areas shall be considered in this type of environment
3. Exterior environments: 0°F degrees to 130°F dry bulb and 10 to 100 percent relative humidity, condensing.

2.9.4 HEAD END DEVICES

A. Minimum Server Requirements

1. The Vendor shall recommend and provide the server configuration which best serves the Vendor's overall design solution. Servers will support DEN's Server Virtualization policy and procedures.
2. The server solution shall be fully redundant and fault tolerant and eliminate any single points of failure. The implemented configuration shall allow a server to be powered down and replaced without disruption. Server failover shall occur if the primary server fails for any number of reasons including power failure, hardware failure, software failure, and network connection failure. The server solutions shall be available for 99.99% on an annual basis. Servers shall be configured to be scalable and allow for expandability in terms of future capacity. At a minimum, each system application (RMS, EVIDS, and Data Hub) will be supported by an active/active server cluster configuration. If the proposed solution is an off-site solution, requirements for fault tolerance, system availability, redundancy and scalability, and expandability shall be met.

3. Storage: Total useable disk capacity shall be at least 4 times the estimated storage requirements of the application and operating system.
4. Servers shall be configured to meet or exceed the minimum functional and performance requirements for each system, as specified herein.

2.9.5 SYSTEM WORKSTATIONS

A. The system shall support interfaces for end users and system administrators via a methodology that does not require physical workstations that are physically connected to the local area network and that are dedicated to RMS/EVIDS. As such, dedicated workstations are not required. However, if the Vendor's proposed solution cannot meet this requirement, the Vendor shall coordinate with DEN to identify the quantity, configuration, and location requirements for dedicated workstations.

2.9.6 EXPANSION REQUIREMENTS

A. At the time of Final System Acceptance, all hardware shall have a minimum of fifty percent (50%) reserve capacity, with the capability to double the capacity with no change in design. Hard drive and storage capacities shall be based on formatted capacity. System reserve capacity shall be based on the maximum continual working load.

B. The system shall be designed such that adding a workstation, gate, carousel, conveyor, counter, or airline shall not have a negative impact on the RMS. For example, adding an airline to the RMS shall have no impact on the overall system design. The system shall be able to expand to include:

1. 250 gates
2. 150 remote parking spots
3. 400 ticket counters
4. 100 baggage breakdown/makeup conveyors.

3 Execution

3.1 General Requirements

A. Standards: All installation activities shall be performed in a neat and professional manner in accordance with all applicable local and national codes. Additionally, the Contractor shall obtain, or satisfy, the following prior to installation:

1. All licenses and permits.
2. All insurance and bonding as required.

3. All other standards or requirements specified in this document.

B. Display installation and construction methods shall conform to the requirements of the Owner.

C. The Contractor shall install and inspect all hardware required in this specification in accordance with the manufacturer's installation instructions.

D. The contractor shall adhere to the following during installation of the system:

1. Underwriter's Laboratories (UL) listing for restricted access installations in business and customer premises applications. This listing is required by the National Electric Code for customer premise installations.
2. Fire resistance requirements specified by Underwriter's Laboratories in UL 1459, 2nd edition.

E. Where undefined by codes and standards, the Contractor shall apply a safety factor of at least 2 times the rated load to all fastenings and supports of system components.

F. The Contractor shall install all display components in accordance with the manufacturer's instructions, NFPA 70, NEC, ANSI-C2 and shall furnish all cables, connectors, terminators, interconnections, services, and adjustments required for a complete and operable system.

G. Grounding shall be installed, as necessary, to preclude ground loops, noise, and surges from adversely affecting system operation.

H. All products shall be new, undamaged and covered by the original manufacturer’s warranty and licensed as applicable to meet project intent.

I. Products shall be shipped, handled and stored as recommended by the manufacturer.

J. The Contractor shall furnish and install products in accordance with manufacturer’s recommendations and as illustrated in the project drawings, where applicable.

3.2 Delivery and Storage

A. Contractor shall coordinate product delivery and movement to installation locations with the Representative.

B. Store products in accordance with manufacturer's instructions, within Contractor's staging area and with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

3.3 Hardware Installation

A. The Contractor shall install and inspect all hardware required in this Specification in accordance with the manufacturer's installation instructions. Final placement of hardware is subject to Representative's approval.

B. The Contractor shall be responsible for any and all loss or damage in the shipment and delivery of all material.

C. The Contractor shall coordinate installation with the DEN, to minimize disruption of existing business functions at the airport.

D. The Contractor shall place materials only in those locations that have been previously approved. Any other locations shall be approved, in writing, by DEN.

E. The Contractor shall provide all tools and test equipment required to install, verify, and test the installation and to determine that it meets the specifications. The Contractor shall furnish all necessary materials required to implement and to achieve the required work performance.

3.4 System Start-up

A. The Contractor shall not apply power to the system until after:

1. System and components have been installed and inspected in accordance with the manufacturer's installation instructions.
2. A visual inspection of the system components has been conducted to ensure that defective equipment items have not been installed and that there are no loose connections.
3. All system grounding and transient protection systems have been verified as properly installed and connected, as indicated.
4. Power supplies to be connected to the system and equipment have been verified as the correct voltage, phasing, and frequency as indicated.

B. Satisfaction of the above requirements shall not relieve the Contractor of responsibility for incorrect installations, defective equipment items, or collateral damage as a result of Contractor work/equipment.

3.5 Testing Requirements

A. Phases of Testing:

1. Performance Verification Testing
2. Endurance Testing (Burn-in Period)

B. Test Plan/Procedure: The Contractor shall provide three (3) copies of the test plan/procedures for each testing phase for the review and approval of the DEN Representative. The test plan for each phase of testing shall detail the objectives of all tests. The tests shall clearly demonstrate that the system and all components fully comply with the requirements specified herein. The test plan shall be provided at least twenty (20) days prior to the scheduled start of each test. Test plans shall contain at a minimum:

1. Functional procedures including use of any test equipment
2. Test equipment is to be identified by manufacturer and model
3. Interconnection of test equipment and steps of operation shall be defined
4. Test records shall include test equipment serial number, calibration date and calibration certification of test equipment
5. Expected results required to comply with specifications
6. Traceability matrix referencing Specification requirements with specific test procedures
7. Record of test results with witness initials or signature and date performed
8. Pass or fail evaluation with comments.

C. The test procedures shall provide conformity to all Specification requirements. Satisfactory completion of the test procedure is necessary as a condition of system acceptance.

D. Documentation verification, both interconnects and operationally, shall be part of the test. Where documentation is not in accordance with the installed system interconnect and operating procedures, the system shall not be considered accepted until the system and documentation correlate.

E. The Contractor shall provide the DEN Representative the opportunity(s) to participate in any or all of tests.

F. Test Reports: The Contractor shall prepare, for each test, a test report document that shall certify successful completion of that test. three (3) copies of the test report shall be submitted to the Representative for review and acceptance within seven (7) days following each test. The test report shall contain, at a minimum:

1. Commentary on test results;
2. A listing and discussion of all discrepancies between expected and actual results and of all failures encountered during the test and their resolution;
3. Complete copy of test procedures and test data sheets with annotations showing dates, times, initials, and any other annotations entered during execution of the test;
4. Signatures of persons who performed and witnessed the test.

G. Test Resolution: Any discrepancies or problems discovered during these tests shall be corrected by the Contractor at no cost to Owner. The problems identified in each phase shall be corrected and the percentage of the entire system re-tested determined by the Representative before any subsequent testing phase is performed.

3.6 Performance Verification Testing

A. Performance Verification testing shall be scheduled with the DEN Representative.

B. Test: The purpose is to test the system and demonstrate that specified features and performance criteria are met. All major requirements of the Specification and manufacturer's recommendations shall be tested.

1. Acceptance: Acceptance system to perform sufficiently and provide specified functions shall be determined by the DEN Representative. Testing may be witnessed by additional DEN personnel.

C. Acceptance Criteria: Performance of system shall equal or exceed criteria stated in individual Specification sections.

D. If the system does not perform satisfactorily, the Contractor shall make corrections and modifications and schedule new test with DEN Representative.

E. Reporting:

1. Record all test procedures and results.
2. Submit report in accordance with reporting requirements in General Testing Requirements Section.

F. Termination

1. Performance Verification Test shall be terminated by the Representative when:
    a. Individual components, subsystems, or the displays fail to perform as specified.
    b. It is determined that the system is missing components or installation is not complete.
    c. Upon termination, corrective work shall be performed, and the Performance Verification Test rescheduled with the Representative.
2. Re-testing shall be performed by Contractor at no additional expense.
3. Contractor shall continue to perform corrective actions and re-test until system passes.

3.7 Endurance Testing

A. General:

1. Start test after:

a. Successful completion of Performance Verification Testing.

b. Correction of deficiencies has been completed.

c. Receipt of written start notification from the Representative.

B. Monitor all system components during Endurance Testing. Coordinate monitoring with the DEN Representative.

C. Recording: Record data on approved forms so as to provide a continuous log of systems performance. Include:

1. Date and time for all entries.

2. Name of individual making entry.

3. Environmental conditions.

4. Airport activities in process.

5. Description of all alarm annunciations, responses, corrective actions, and causes of alarms. Classify as to type of alarm.

6. Description of all equipment failures, including software errors.

7. Description of all maintenance and adjustment operations performed on system.

8. Daily and weekly tabulations.

D. Entries of performance data shall be reviewed by the Representative.

E. Owner may terminate testing at any time when the system fails to perform as specified. Upon termination of testing the Contractor shall commence an assessment period as described in Stage II.

F. Testing

1. Stage I - Initial Phase Testing:

    a. Time: 24 hours per day for 10 consecutive calendar days.

    b. Make no repairs during this stage unless authorized in writing by the Representative.

    c. If displays experience no emergency, critical failures, or recurring operational failures (defined as same operational failure 3 times in 24 hrs or more than 5 times during 5 days), proceed to Stage III - Final Testing.

2. Stage II - Initial Phase Assessment:

    a. After conclusion of Stage I, or terminating of testing, identify all failures, determine causes, and repair. Submit report explaining: Nature of each failure, corrective action taken, results of tests performed to verify corrective action as being successful, and recommended point for resumption of testing.

    b. After submission of report, schedule review meeting at job site. Schedule date and time with the Representative.

    c. At review meeting, demonstrate that all failures have been corrected by performing verification tests.

    d. Based on report and review meeting, the Representative will direct Contractor to repeat Stage I, restart Stage I, or proceed to Stage III - Final Testing.

3. Stage III - Final Phase Testing:

    a. Time: 24 hours per day for 10 consecutive calendar days.

    b. Make no repairs during this stage unless authorized in writing by the Representative.

    c. If system experiences no emergency, critical failures, or recurring operational failure (defined as same operational failure 3 times in 24 hrs or more than 7 times during 10 days), proceed to Stage IV – Final Phase Assessment.

4. Stage IV - Final Phase Assessment:

    a. After conclusion of Stage III or termination of testing, identify all failures, determine causes, and repair. Submit explaining the nature of each failure,

corrective action taken, results of tests performed, and recommended point for resumption of testing.

b. After submission of report schedule review meeting at job site. Schedule date and time with the Representative.

c. At review meeting, demonstrate that all failures have been corrected by performing verification tests.

d. Based on report and review meeting, the DEN Representative will approve Endurance Test or direct Contractor to repeat all or part of Stages III and IV.

G. Adjustment, Correction, And Maintenance

1. During Endurance Testing make adjustments and corrections to system only after obtaining written approval of the Representative
2. During Endurance Testing, perform required maintenance on systems including provision of replacement parts.
3. Contractor will not be responsible for failures caused by:

a. Outage of main power in excess of backup power capability provided that automatic initiation of all backup sources was accomplished and automatic shutdowns and restarts of systems performed as specified.

b. Failure of any Owner furnished power, communications, and control circuits provided failure not due to Contractor furnished equipment, installation, or software.

c. Failure of existing Owner equipment provided failure is not due to Contractor furnished equipment, installation, or software.

H. When performance of displays does not fall within the above parameters, determine cause of deficiencies, correct, and retest.

I. Submit final report of Endurance Testing containing all recorded data.

3.8 Final System Acceptance

A. After Endurance Testing is complete, documentation submitted and approved by the Representative, schedule final system acceptance review and inspection.

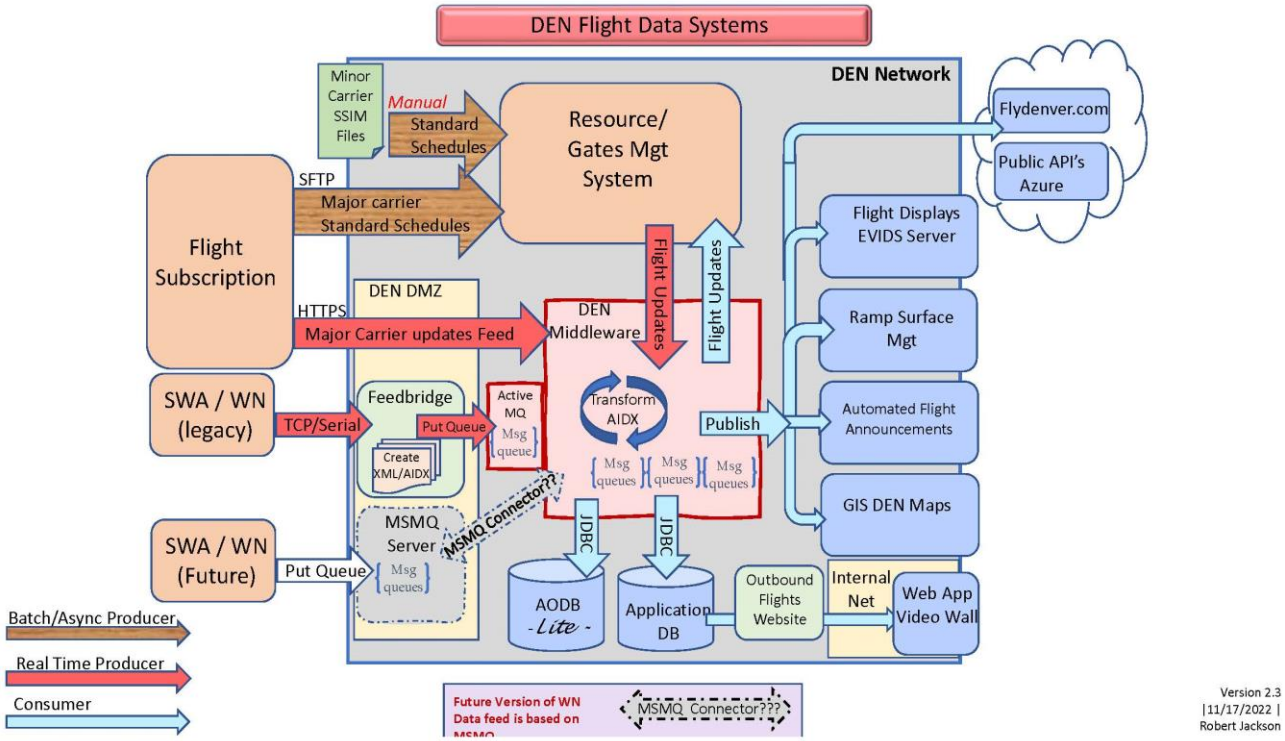
B. Final system acceptance and review shall be conducted with the Representative.

C. Any remaining open issues shall be documented and resolved.

D. Once all remain open issues are closed, the Representative shall issue Final System Acceptance approval in writing.

E. Upon Final System Acceptance approval, the warranty period will begin.

Appendix A – DEN AIH Graphical Representation



Appendix B – DEN Information Security Program Standard

Exhibit B

OPINION OF PROBABLE CONSTRUCTION COST

PREPARED BY:	PROJECT NUMBER:	LOCATION:	SHEET NO:
APPROVED BY:	PROJECT DESCRIPTION: Resource Management System (RMS) and Electronic Visual Information Display System (EVIDS) Services		CLASS OF ESTIMATE: CONCEPTUAL / DESIGN DEVELOPMENT / 90% CD / 100% CD
DATE: 6/23/2023			

RESOURCE MANAGEMENT SYSTEM (RMS) / ELECTRONIC VISUAL INFORMATION DISPLAY SYSTEM (EVIDS)		QUANTITY		MATERIAL		LABOR			
ITEM	DESCRIPTION	TYPE OF UNITS	QTY.	UNIT COST	TOTAL MAT'L. COST	HOURS PER UNIT	TOTAL HOURS	COST PER HOUR	TOTAL LABOR COST
	CORE EQUIPMENT								
1	EVIDS Base Software	EA				0	0	$0.00	$0.00
2	EVIDS Real-Time Flight Data interface	EA				0	0	$0.00	$0.00
3	EVIDS Flight Data Interface yearly subscription	EA				0	0	$0.00	$0.00
4	RMS Software	EA				0	0	$0.00	$0.00
5	Interfaces and Integrations	EA	1			1	1	$396,237.63	$396,237.63
6	Head-End Equipment	EA				0	0	$0.00	$0.00
7	Installation and Configuration	EA	1			1	1	$854,509.32	$854,509.32
8		EA				0	0	$0.00	$0.00
9		EA				0	0	$0.00	$0.00
	46" Digital Display Types								
10	CD-1 Digital Kiosk Single-Sided Floor Mounted	EA				0	0	$0.00	$0.00
11	CD-2 Digital Kiosk Double-Sided Floor Mounted	EA				0	0	$0.00	$0.00
12	CD-3 Digital Kiosk Single-Sided Wall Mounted	EA				0	0	$0.00	$0.00
13	CD-5 Baggage Display Double-Sided Floor Mounted	EA				0	0	$0.00	$0.00
14	Display Device Controller	EA				0	0	$0.00	$0.00
15	Casework	EA				0	0	$0.00	$0.00
16	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	55" Digital Display Types								
17	CD-6 Digital Display Single-Sided Wall Mounted	EA				0	0	$0.00	$0.00
18	CD-7 Digital Display Single-Sided Ceiling Mounted	EA				0	0	$0.00	$0.00
19	CD-8 Digital Display Single-Sided Ceiling Mounted	EA				0	0	$0.00	$0.00
20	CD-9 Digital Kiosk Single-Sided Cantilevered	EA				0	0	$0.00	$0.00
21	Display Device Controller	EA				0	0	$0.00	$0.00
22	Casework	EA				0	0	$0.00	$0.00
23	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Large Digital Display Types								
24	CD-10 Welcome Display Ceiliing Mounted	EA				0	0	$0.00	$0.00
25	CD-11	EA				0	0	$0.00	$0.00
26	Display Device Controller	EA				0	0	$0.00	$0.00
27	Video Wall Equipment	EA				0	0	$0.00	$0.00
28	Casework	EA				0	0	$0.00	$0.00
29	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Roadway Digital Display Types								
30	Overhead Roadway Digital Display Large	EA				0	0	$0.00	$0.00
31	Overhead Roadway Digital Display Small	EA				0	0	$0.00	$0.00
32	Casework	EA				0	0	$0.00	$0.00
33	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Input Workstations								
34	Airline Workstations	EA				0	0	$0.00	$0.00
35	Information Booth and Other Workstations	EA				0	0	$0.00	$0.00
	Curbside Displays								
36	Curbside LED	EA				0	0	$0.00	$0.00
37	Display Device Controller	EA				0	0	$0.00	$0.00
38	Casework	EA				0	0	$0.00	$0.00
39	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Operational Displays								
40	Operational Displays	EA				0	0	$0.00	$0.00
41	Display Device Controller	EA				0	0	$0.00	$0.00
42	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Advertising Displays								
43	46 Inch TFT	EA				0	0	$0.00	$0.00
44	Display Device Controller	EA				0	0	$0.00	$0.00
45	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Baggage Input Consoles								
46	17 Inch Touch Screen	EA				0	0	$0.00	$0.00
47	Mounting Hardware and Installation	EA				0	0	$0.00	$0.00
	Other								
48	Training	EA	1			1	1	$166,966.49	$166,966.49
49	Documentation	EA	1			1	1	$82,828.45	$82,828.45
50	1st Yr (Warranty) Software Support (annual recurring)	EA	1			1	1	$855,048.27	$855,048.27
51	1st Yr (Warranty) Site Admin (annual recurring)	EA				0	0	$0.00	$0.00
52	1st Yr (Warranty) System Maint. (annual recurring)	EA				0	0	$0.00	$0.00
				EVIDS SUBTOTAL	$0				$2,355,590

	MATERIAL:	1.00	LABOR: 1.00
		$0	$2,355,590
			$2,355,590

Assumptions made:

1. Assumes that existing hardware will be reused.
2. 4% escalation on software support annually.

Year 1	Year 2	Year 3	Year 4	Year 5
$855,048.27	$889,250.20	$924,820.21	$961,813.02	$1,000,285.54

6. Cost of EVIDS hardware will be determined after assessement of existing equipment as per Appendix A 1.3.1 K.

EXHIBIT C

CITY AND COUNTY OF DENVER
INSURANCE REQUIREMENTS FOR DEPARTMENT OF AVIATION
PROFESSIONAL SERVICES AGREEMENT

A. Certificate Holder and Submission Instructions

Contractor must provide a Certificate of Insurance as follows:

Certificate Holder: CITY AND COUNTY OF DENVER
Denver International Airport
8500 Peña Boulevard
Denver CO 80249
Attn/Submit to: contractadmininvoices@flydenver.com

- ACORD Form (or equivalent) certificate is required.
- Contractor must be evidenced as a Named Insured party.
- Electronic submission only, hard copy documents will not be accepted.
- Reference on the certificate must include the City-assigned Contract Number, if applicable.

The City may at any time modify submission requirements, including the use of third-party software and/or services, which may include an additional fee to the Contractor.

B. Defined Terms

1. "Agreement" as used in this exhibit refers to the contractual agreement to which this exhibit is attached, irrespective of any other title or name it may otherwise have.
2. "Contractor" as used in this exhibit refers to the party contracting with the City and County of Denver pursuant to the attached Agreement.

C. Coverages and Limits

1. Commercial General Liability
   Contractor shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, independent contractors, and products and completed operations in minimum limits of $1,000,000 each occurrence, $2,000,000 products and completed operations aggregate; if policy contains a general aggregate, a minimum limit of $2,000,000 annual policy aggregate must be maintained.

   a. Coverage shall include Contractual Liability covering liability assumed under this Agreement (including defense costs assumed under contract) within the scope of coverages provided.
   b. Coverage shall include Mobile Equipment Liability, if used to perform services under this Agreement.
   c. If a "per location" policy aggregate is required, "location" shall mean the entire airport premises.

2. Business Automobile Liability
   Contractor shall maintain a minimum limit of $1,000,000 combined single limit each occurrence for bodily injury and property damage for all owned, leased, hired and/or non-owned vehicles used in performing services under this Agreement.

   a. If operating vehicles unescorted airside at DEN, a $10,000,000 combined single limit each occurrence for bodily injury and property damage is required.
   b. If Contractor does not have blanket coverage on all owned and operated vehicles and will require unescorted airside driving privileges, then a schedule of insured vehicles (including year, make, model and VIN number) must be submitted with the Certificate of Insurance.

c. If transporting waste, hazardous material, or regulated substances, Contractor shall carry a Broadened Pollution Endorsement and an MCS 90 endorsement on its policy.
d. If Contractor does not own any fleet vehicles and Contractor's owners, officers, directors, and/or employees use their personal vehicles to perform services under this Agreement, Contractor shall ensure that Personal Automobile Liability including a Business Use Endorsement is maintained by the vehicle owner, and if appropriate, Non-Owned Auto Liability by the Contractor. This provision does not apply to persons solely commuting to and from the airport.
e. If Contractor will be completing all services to DEN under this Agreement remotely and not be driving to locations under direction of the City to perform services this requirement is waived.

3. Workers' Compensation and Employer's Liability Insurance
Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits no less than $100,000 per occurrence for each bodily injury claim, $100,000 per occurrence for each bodily injury caused by disease claim, and $500,000 aggregate for all bodily injuries caused by disease claims.

a. Colorado Workers' Compensation Act allows for certain, limited exemptions from Worker's Compensation insurance coverage requirements. It is the sole responsibility of the Contractor to determine their eligibility for providing this coverage, executing all required documentation with the State of Colorado, and obtaining all necessary approvals. Verification document(s) evidencing exemption status must be submitted with the Certificate of Insurance.

4. Property Insurance
Contractor is solely responsible for any loss or damage to its real or business personal property located on DEN premises including, but not limited to, materials, tools, equipment, vehicles, furnishings, structures and personal property of its employees and subcontractors unless caused by the sole, gross negligence of the City. If Contractor carries property insurance on its property located on DEN premises, a waiver of subrogation as outlined in Section F will be required from its insurer.

5. Technology Errors and Omissions
Contractor shall maintain a minimum limit of $2,000,000 per occurrence and $2,000,000 annual policy aggregate including cyber liability, network security, privacy liability and product failure coverage.

a. Coverage shall include, but not be limited to, liability arising from theft, dissemination and/or use of personal, private, confidential, information subject to a non-disclosure agreement, including information stored or transmitted, privacy or cyber laws, damage to or destruction of information, intentional and/or unintentional release of private information, alteration of information, extortion and network security, introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software, and programs thereon, advertising injury, personal injury (including invasion of privacy) and intellectual property offenses related to internet.

6. Excess/Umbrella Liability
Combination of primary and excess coverage may be used to achieve minimum required coverage limits. Excess/Umbrella policy(ies) must follow form of the primary policies with which they are related to provide the minimum limits and be verified as such on any submitted Certificate of Insurance.

D. Reference to Project and/or Contract
The City Project Name, Title of Agreement and/or Contract Number and description shall be noted on the Certificate of Insurance, if applicable.

E. Additional Insured

For all coverages required under this Agreement (excluding Workers' Compensation, Employer's Liability and Professional Liability, if required), Contractor's insurer(s) shall include the City and County of Denver, its elected and appointed officials, successors, agents, employees, and volunteers as Additional Insureds by policy endorsement.

F. Waiver of Subrogation

For all coverages required under this Agreement (excluding Professional Liability, if required), Contractor's insurer(s) shall waive subrogation rights against the City and County of Denver, its elected and appointed officials, successors, agents, employees, and volunteers by policy endorsement.

If Contractor will be completing all services to the City under this Agreement remotely and not be traveling to locations under direction of the City to perform services, this requirement is waived specific to Workers' Compensation coverage.

G. Notice of Material Change, Cancellation or Nonrenewal

Each certificate and related policy shall contain a valid provision requiring notification to the Certificate Holder in the event any of the required policies be canceled or non-renewed or reduction in required coverage before the expiration date thereof.

1. Such notice shall reference the DEN assigned contract number related to this Agreement.
2. Such notice shall be sent thirty (30) calendar days prior to such cancellation or non-renewal or reduction in required coverage unless due to non-payment of premiums for which notice shall be sent ten (10) calendar days prior.
3. If such written notice is unavailable from the insurer or afforded as outlined above, Contractor shall provide written notice of cancellation, non-renewal and any reduction in required coverage to the Certificate Holder within three (3) business days of receiving such notice by its insurer(s) and include documentation of the formal notice received from its insurer(s) as verification. Contractor shall replace cancelled or nonrenewed policies with no lapse in coverage and provide an updated Certificate of Insurance to DEN.
4. In the event any general aggregate or other aggregate limits are reduced below the required minimum per occurrence limits, Contractor will procure, at its own expense, coverage at the requirement minimum per occurrence limits. If Contractor cannot replenish coverage within ten (10) calendar days, it must notify the City immediately.

H. Cooperation

Contractor agrees to fully cooperate in connection with any investigation or inquiry and accept any formally tendered claim related to this Agreement, whether received from the City or its representative. Contractor's failure to fully cooperate may, as determined in the City's sole discretion, provide cause for default under the Agreement. The City understands acceptance of a tendered claim does not constitute acceptance of liability.

I. Additional Provisions

1. Deductibles or any type of retention are the sole responsibility of the Contractor.
2. Defense costs shall be in addition to the limits of liability. If this provision is unavailable that limitation must be evidenced on the Certificate of Insurance.
3. Coverage required may not contain an exclusion related to operations on airport premises.
4. A severability of interests or separation of insureds provision (no insured vs. insured exclusion) is included under all policies where Additional Insured status is required.
5. A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City under all policies where Additional Insured status is required.
6. If the Contractor procures or maintains insurance policies with coverages or limits beyond those stated herein, such greater policies will apply to their full effect and not be reduced or limited by the minimum requirements stated herein.

7. All policies shall be written on an occurrence form. If an occurrence form is unavailable or not industry norm for a given policy type, claims-made coverage will be accepted by the City provided the retroactive date is on or before the Agreement Effective Date or the first date when any goods or services were provided to the City, whichever is earlier, and continuous coverage will be maintained or an extended reporting period placed for three years (eight years for construction-related agreements) beginning at the time work under this Agreement is completed or the Agreement is terminated, whichever is later.
8. Certificates of Insurance must specify the issuing companies, policy numbers and policy periods for each required form of coverage. The certificates for each insurance policy are to be signed by an authorized representative and must be submitted to the City at the time Contractor signed this Agreement.
9. The insurance shall be underwritten by an insurer licensed or authorized to do business in the State of Colorado and rated by A.M. Best Company as A- VIII or better.
10. Certificate of Insurance and Related Endorsements: The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. All coverage requirements shall be enforced unless waived or otherwise modified in writing by DEN Risk Management. Contractor is solely responsible for ensuring all formal policy endorsements are issued by their insurers to support the requirements.
11. The City shall have the right to verify, at any time, all coverage, information, or representations, and the insured and its insurance representatives shall promptly and fully cooperate in any such audit the City may elect to undertake including provision of copies of insurance policies upon request. In the case of such audit, the City may be subject to a non-disclosure agreement and/or redactions of policy information unrelated to verification of required coverage.
12. No material changes, modifications, or interlineations to required insurance coverage shall be allowed without the review and written approval of DEN Risk Management.
13. Contractor shall be responsible for ensuring the City is provided updated Certificate(s) of Insurance prior to each policy renewal.
14. Contractor's failure to maintain required insurance shall be the basis for immediate suspension and cause for termination of this Agreement, at the City's sole discretion and without penalty to the City.

J. Part 230 and the DEN Airport Rules and Regulations

If the minimum insurance requirements set forth herein differ from the equivalent types of insurance requirements in Part 230 of the DEN Airport Rules and Regulations, the greater and broader insurance requirements shall supersede those lesser requirements, unless expressly excepted in writing by DEN Risk Management. Part 230 applies to Contractor and its subcontractors of any tier.

2 Equity, Diversity, and Inclusion Plan (EDI Plan)

2.1 Equity, Diversity, and Inclusion Strategies

Amadeus' culture promotes respect, fairness, equal opportunity, and dignity for everybody, and allows our people to be the best version of themselves. We accept and respect differences between and within cultures and acknowledge and endorse differences based on gender, age, race, ethnicity, beliefs, sexual orientation, and disabilities, as well as diversity of thoughts and experiences.

Women

The Amadeus Women Network (AWN) has grown this year, with a new group launching to cover offices in German-speaking countries. The different AWN chapters around the world have also run mentoring programs and held networking activities with company leadership and with external leaders. The AWN also organized a global online event to celebrate Women's Day, which included a debate with women leaders from across the industry on the impact of the pandemic on women in the workplace. Amadeus also helped promote professional development for girls and young women by visiting schools and providing volunteer mentors for girls through programs like Capital Filles in France or by participating in New Horizons South Florida's Women in Tech program.

LGBT+

New chapters of Amadeus Proud, our employee resource group for LGBT+ employees and allies, were launched in Nice and Bengaluru. These new chapters were welcomed to the community during the global online Pride event in June, which highlighted the importance of an inclusive culture. Other

activities throughout the year included a panel on microaggressions, various networking opportunities and an awareness event on World AIDS Day.

People with Disabilities

Amadeus has participated in school outreach programs to mentor students with disabilities and promote employment. We've also built internal awareness of the importance of inclusion through awareness sessions, coaching and our annual internal Digital Accessibility Forum to promote inclusive and accessible software development.

Minority-Owned Business

Amadeus routinely partners with minority-owned business when and where possible. Amadeus recently submitted an Equal-Opportunity Program-compliant proposal to JFK International Air Terminal, meeting their aggressive **30%** MWBE target with our local Minority owned business partner.

2.2 Technical Assistance and Support Services

Our corporate social responsibility (CSR) purpose is to bring our people and technology together to help build a responsible, inclusive, and sustainable travel and tourism industry. Travel can bring significant socio-economic benefits for local communities. It has a direct impact on the long-term sustainability of destinations. Therefore, we focus on initiatives that contribute to the responsible development of travel and tourism through:

- Maximizing the positive contribution that travel and tourism makes to society by engaging local stakeholders and creating opportunities for communities around the world through education and socio-economic development initiatives.
- Minimizing the potentially adverse impact of tourism on specific destinations by protecting biodiversity, cultural heritage, and community spirit.

We continue to prioritize the rebuilding of our industry and our communities to enable the faster recovery of the global economy after the pandemic. We've consolidated four strategic global programs designed to meet our CSR purpose and social goals:

- **Social Innovation Powers Good:** Delivering positive social impact through product and service innovation
- **Powering Good with Partners:** Joining forces with our stakeholders in collaborative initiatives to co-generate solutions with a positive social impact for our industry and our communities
- **Skills to Empower Good:** Facilitating specialized free education to promote talent and address unemployment within the travel and tourism industry
- **Empowering Communities:** Fostering employee engagement to strengthen local communities and help them protect their natural and cultural heritage

To increase our positive impact, we promote a collaborative approach to CSR. Amadeus occupies a unique position in the industry and partners with customers, intergovernmental/non-profit organizations, educational institutions, and public and private sector leaders to amplify the multiplier effect of our CSR projects. We also have an active role in networks such as the United Nations Global Compact, Business for Societal Impact (B4SI), Fundación SERES and the Global Travel and Tourism Partnership (GTTP).

2.3 Procurement Process

To verify vendors' commitments to sustainability, we apply the following measures:

At least strategic vendors for each Amadeus company will have to explicitly adhere in writing to the Amadeus Code of Ethics and Business Conduct (CEBC) extract for vendors. If any of those vendors have their own documented CEBC (which Amadeus has the right to ask for and/or audit) and it's demonstrated to be at least as strict as Amadeus', they may adhere to their own, with confirmation in writing. If the vendor is not in agreement with this wording, it's the vendor's responsibility to explicitly state if they're not adhering to the CEBC and why. In this case, the Purchasing department together with the Risk and Compliance department will decide how to move forward in each specific case. In 2021 vendors representing 47% of our turnover have signed our CEBC.

We favor vendors that are committed to environmental and social responsibility practices, such as having an environmental policy in place, demonstrating compliance with environmental regulations and prioritizing goods aligned with circular economy principles.

We avoid relationships with vendors that don't comply with the following principles:

- Respect for human rights.
- Prevention of forced and child labor.
- Non-discrimination recruitment practices.
- Prevention of unfair low wage labor.
- Respect for employees' right to freedom of association.
- Healthy and safe working conditions for employees.
- Observation of all related local and international laws and regulations.

2.4 Communication and Proposer Management

Amadeus will use a variety of communication strategies that may include:

- **Clear and concise communication:** Amadeus provides clear and concise instructions on the contract requirements and expectations. This may include detailed information on the scope of work, deliverables, timelines, and any other relevant details. Amadeus will also ensure that all communication is culturally sensitive and appropriate.
- **Training and education:** Amadeus may conduct training sessions for internal and external staff to ensure that they are equipped with the necessary skills and knowledge to effectively communicate and collaborate with multicultural businesses. These training sessions may focus on topics such as cultural competency, effective communication strategies, and best practices for working with diverse businesses.
- **Support and guidance:** Amadeus offers support and guidance throughout the contract period. This may include providing resources and tools to assist with meeting the contract requirements, offering mentorship, or coaching to help these businesses grow and succeed, and advocating for their inclusion in future contracts.
- **Relationship building:** Amadeus will establish communication channels to ensure ongoing dialogue.

2.5 Past Performance

Amadeus is a global company that promotes equity, diversity, and inclusion both internally and externally.

Internally, Amadeus has:

- Developed and implemented diversity and inclusion policies and programs that promote a culture of inclusivity.
- Provided regular training and development programs that focus on diversity, equity, and inclusion.
- Established employee resource groups to support underrepresented groups within the organization.
- Implemented equitable hiring practices that prioritize diversity and inclusion.
- Conducts regular engagement surveys to identify areas for improvement and measure progress towards diversity and inclusion goals.

Externally, Amadeus has:

- Partnered with community organizations that support diversity and inclusion to develop outreach programs and initiatives.
- Implemented supplier diversity programs that prioritize working with historically underutilized businesses and suppliers.
- Supported diversity and inclusion initiatives through philanthropic efforts and charitable giving.
- Participated in industry-wide diversity and inclusion initiatives and programs.
- Provided thought leadership and speaking engagements on diversity, equity, and inclusion topics to promote awareness and education.

In our recent submittal to JFK International Terminal, our minority-owned business partner was a small business that could not handle the 90 payment terms imposed by our terms of contract, and usually flowed down through all subcontractors. We worked with our MBE partner and internal legal and finance team to provide the MBE 60 payment terms.

2.6 Proposer's Culture

At Amadeus, we want every employee to be able to shape their own inclusive journey. We focus on creating value for customers, travelers, and society through being diverse and inclusive. Our culture promotes respect, fairness, equal opportunity, and dignity for everybody, and allows our people to be the best version of themselves.

We accept and respect differences between and within cultures and acknowledge and endorse differences based on gender, age, race, ethnicity, beliefs, sexual orientation, and disabilities, as well as diversity of thoughts and experiences.

We've mainstreamed diversity and inclusion in global policies and guidelines and created learning activities and initiatives to raise awareness and foster a positive and inclusive environment. In 2020 we launched our first global inclusion e-learning course. Talent acquisition practices, promotion processes and assessment tools have been reviewed to ensure that they provide equal opportunities for persons from all backgrounds.

Amadeus was recognized as a diversity and inclusion leader in the Financial Times' Diversity Leaders 2020 list.

2.7 Future Initiatives

Amadeus Ventures is our corporate investment program established in 2014 to identify potential start-ups standing at the intersection of travel and technology. It has two main objectives: to establish a pipeline of business opportunities that can contribute to the future growth of Amadeus, and to support the ecosystem development of Amadeus' business units.

Investment criteria of the program include both financial considerations and the possibilities of strategic collaborations where Amadeus as a market-leading global technology company can add value as a minority shareholder. The program not only tracks venture capital financial performance, but also actively facilitates commercial collaborations and co-marketing among our customers and Amadeus.

Our Ventures team regularly talks to more than 300 start-ups, and 17 investments have been made under the program in the United States, Israel, and Europe, in areas such as travel data exchanges, VAT refund and identity management.

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EXHIBIT E
Additional Agreement Terms

This Exhibit E is an exhibit to the main body of the agreement between City and County of Denver and Amadeus Airport IT Americas, Inc. Contract Number PLANE-202367234 (the "Standard Terms"), and together with other mutually agreed incorporated documents, constitute the Agreement as that term is defined in the Standard Terms.

1. ADDITIONAL CONTRACTOR OBLIGATIONS

In consideration of payment of the Charges, Contractor shall provide the Application Services to City and Authorized Users from Cutover subject to the following:

1.1 Contractor will implement the Application Service in accordance with the implementation plan mutually agreed by the Parties in order to build the Service Delivery Model (Attachment 2) through which the Application Services is provided.

1.2 Contractor will use commercially reasonable efforts to provide the Application Services in accordance with Attachment 3 (Service Levels). The Service Levels are the only service levels that apply to the Service, are advisory only and create no warranty or obligation as to result or performance except solely any service level credits stated therein.

1.3 The Parties acknowledge and agree that the overall project scope related to the implementation of the Application Services is subject to the Parties final agreement on the scope and related terms and conditions of the (i) Implementation Services referenced in Section 1.3 and (ii) the Functional and Technical Requirements referenced in Section 2 of the Statement of Work.

2. ADDITIONAL CITY OBLIGATIONS

2.1 City shall meet the following obligations (noncompliance shall be a Savings Event):

2.1.1 City is responsible for providing the provision of sufficient internal resources, information and access for Contractor teams as required by Contractor, on a timely basis, to enable Contractor to complete the product implementation, analysis, solution design, and project planning according to the timelines agreed between Contractor and City.

2.1.2 City shall obtain all requisite permissions from Authorized Users to allow Contractor and any Contractor' Third-Party to access, host and process all applicable applications and any passenger data and other sensitive data contained therein in connection with this Amendment.

2.1.3 City shall obtain and is responsible for maintaining all governmental and regulatory licenses, authorizations, approvals, consents or permits required of City to enable Contractor to supply, deliver, implement, and operate the Application Services.

3. CHANGE CONTROL

3.1 Either Party may originate a change request to the Agreement or to particular services (a "Change"). Where either Party originates a Change, Contractor shall provide City the details of any material impact the Change may have.

3.2 Neither Party shall be obliged to agree to a Change originated by the other Party. If either Party is unwilling to accept a reasonable Change suggested by the other (or any material term of any proposed Change), then the other Party may require the disagreement to be escalated within the other Party's organization to be considered in good faith.

3.3 Changes are binding upon authorized signatures of each Party.

3.4 Regular changes (e.g., tuning, configuration management, upgrades/changes, decommissioning of features, and capacity management) that Contractor makes to the Services shall not be subject to this Section 3 unless such changes result in an adverse material alteration or degradation to same.

4. ADDITIONAL WARRANTIES

4.1 Each Party warrants:

4.1.1 it is a corporation duly incorporated and validly existing under the laws of its jurisdiction of incorporation;

4.1.2 it has all the requisite corporate power, approvals and authority to execute, deliver, receive and perform its obligations under the Agreement; and

4.1.3 it has obtained all governmental and regulatory licenses, authorisations, approvals, consents or permits required to perform its obligations under the Agreement, except to the extent that the failure to obtain any such licenses, authorisations, approvals, consents or permits is, in the aggregate, not material.

4.2 Each Party shall (and City shall ensure the Authorized Users and their Third Parties in connection with the use of the Contractor platform and solutions shall) at all times utilize good industry practices in the information technology industry with respect to comparable services and performance standards to prevent the introduction of Viruses into the Parties' respective platforms, solutions and/or systems environment. If a Party breaches the foregoing obligation and a Virus is found to have been introduced by that Party (or Authorized User or its Third Party) as a result of such event, then such Party shall (at its own cost) provide reasonable assistance to the other Party to mitigate the effects of such Virus.

4.3 EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN WRITING BETWEEN THE PARTIES, AND EXCEPT FOR ANY IMPLIED WARRANTIES OR TERMS THAT CANNOT BE EXCLUDED BY LAW, NEITHER PARTY MAKES ANY REPRESENTATIONS, COVENANTS, CONDITIONS OR WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF TITLE OR IMPLIED WARRANTIES OF MERCHANTABILITY, SATISFACTORY QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, ACCURACY, AVAILABILITY, OR ERROR OR BUG-FREE OR UNINTERRUPTED OPERATION.

5. THIRD PARTIES

5.1 The extent to which Contractor is responsible for procuring use rights or licenses for Third-Party Solutions or Third-Party Data shall be as set out in Attachment 2 (Service Delivery Model).

5.2 Where Contractor incorporates into the Application Services or Contractor Platform any intellectual property or proprietary information that includes IPR owned by a Third-Party, any ownership, use rights, warranties or indemnities granted to City, its Personnel or any Authorized User shall be limited by, and subject to, any obligations or restrictions imposed by or on behalf of the relevant Third-Party in respect of such IPR. If Contractor is advised by its Third-Party licensors of changes to license terms, the Parties shall use commercially reasonable efforts to agree to any workaround required to mitigate against any inability of Contractor to continue to license the affected item on the terms set out in the Agreement or perform the Ongoing Services as a result of such change.

5.3 Third-Party Connections and Applications

5.3.1 The following (non-exhaustive) list of conditions are applicable to any Application Services that requires connection, download, testing, installation integration, hosting or update management or interface by Contractor with any City, Authorized User or their Third-Parties IPR. The failure or occurrence of any of the following, as applicable, shall be a Savings Event:

(a) Contractor is not responsible for the IPR, application, services or acts or omissions of City, Authorized User or Third-Party, or failure of City, Authorized User or Third-Party to provide their IPR, application, update or service;

(b) Contractor is not responsible for performing quality control or validation of any information, data or IPR (or connection thereto) provided by City, Authorized User or Third-Party that the relevant City, Authorized User or Third-Party or Contractor is unable to support or process;

(c) City shall ensure that City, Authorized User or City Third-Party IPR does not contain advertising, announcement, solicitation, imagery, video, sound, music, hypertext link, or any other form of information, material, or communication that infringe any IPR;

(d) City shall, and shall ensure that Authorized Users shall maintain appropriate valid legal agreements and manage relationships with and obtain all necessary licenses and permissions from Authorized Users and City and their Third-Parties as required for Contractor to provide the Application Services and host, access and use City, Authorized Users and their Third-Party IPR; and

(e) Contractor is not responsible for costs associated with hosting, maintenance, upgrades, virus fixes, or installation of City, Authorized

Users, or their Third Parties' IPR. Such IPR is hosted by Contractor at City, Authorized Users, or their Third-Parties own risk.

6. CONTRACTOR AND THIRD PARTY INTELLECTUAL PROPERTY RIGHTS

6.1 Nothing in the Agreement shall be deemed to grant to one party rights in IPR or Confidential Information of the other party or its Affiliates. Each party agrees to reproduce copyright legends that appear on any materials provided by the other party, irrespective of ultimate ownership of the underlying IPR.

6.2 Contractor IPR

6.2.1 Notwithstanding anything contained in the Agreement, Contractor (or Contractor' Affiliates, Contractor Third Parties or licensors, or Contractor Third Parties as the case may be) owns the Contractor IPR.

6.2.2 To the extent City owns any Contractor IPR by operation of Law, City hereby assigns, and shall procure that its Personnel assign, with full title guarantee (by way of present assignment of present and future rights), to Contractor all of such Contractor IPR free from any encumbrance and agrees to duly execute all such documentation or legal or other instruments and to perform all such acts within its control as may be necessary to give effect to such assignment at its own cost.

6.2.3 Contractor grants to City a non-exclusive, non-transferable:

(a) right during the Term access and use, and to permit Authorised Users to access and use, the Services at the Airport and all related Contractor documentation supplied to City for the purpose of City and the Authorised Users accessing and using the Services; and

(b) licence during Term to use any on-premise software at the City airport and all related Contractor documentation supplied to City for the purpose of City and the Authorised Users using such software.

6.2.4 Authorised Users' rights are subject to:

(a) City remaining responsible for all acts and omissions of each Authorised User as if they were the acts and omissions of City; and

(b) Authorised Users shall have no entitlement to enforce this Agreement.

6.2.5 City shall not allow any persons other than those referred to above, access to and/or use of the Services, without Contractor' prior written consent. City shall not permit any person to, without Contractor' consent, do any of the following:

(a) Modify, adapt, reverse-engineer, decompile, disassemble, or otherwise discover the source code of, any software or documentation comprised in the Services or Contractor Platform save that City may Modify documentation for internal training purposes;

(b) use any software, product or system forming part of the Contractor Products, Contractor Platform, or the Services in combination with any other software, product, or system, except through approved

APIs provided by Contractor;

(c) rent, sell, lease, sublicense, distribute, assign, copy (other than a single copy for City's own backup purposes), or in any way transfer the underlying software in the Contractor Product, Contractor Platform or the Services or use the same for the benefit of any third-party through any outsourcing or time-sharing arrangement or through the operation of any service bureau;

(d) use any software, product or system forming part of the Contractor Products, Contractor Platform, or the Services in contravention of specifications and system requirements; or

(e) use, reproduce or exploit any software, product or system forming part of the Contractor Products, Contractor Platform, or the Services in contravention of any Third Party's IPR or Contractor IPR.

6.2.6 City shall, and shall procure that each Authorised User will, take all precautions necessary to prevent any Abuse of the Services or Contractor Platform.

6.3 Third Party IPR

6.3.1 The extent to which Contractor is responsible for procuring use rights or licences for Third Party Solutions or Third Party Data shall be as set out in Attachment 2 (Service Delivery Model).

6.3.2 Where Contractor incorporates into the Contractor Platform or the Services any intellectual property or proprietary information which include IPR owned by a Third Party, any ownership, use rights, warranties or indemnities granted to City, its Personnel or any Authorised User under any Supplement shall be limited by, and subject to, any obligations or restrictions imposed by or on behalf of the relevant Third Party in respect of such IPR. If Contractor is advised by its Third Party licensors of any change to the licence terms, Contractor shall advise City and the Parties shall consult and use commercially reasonable efforts to agree any workaround required to mitigate against any inability of Contractor to continue to license the applicable Services as a result of such change to the licence terms.

6.3.3 Third Party Connections and Applications

(a) The following (non-exhaustive) list of conditions are applicable to any Contractor Product or Service that requires connection, download, testing, installation integration, hosting or update management or interface by Contractor with any City, Authorised User, or their Third Parties IPR. The occurrence of any of the following shall be a Savings Event:

i. Contractor is not responsible for the IPR, application, services or acts or omissions of City, Authorised User or Third Party, or failure of City, Authorised User or Third Party to provide their IPR, application, update or service;

ii. Contractor is not responsible for performing any quality control or validation of any information or data or IPR (or connection

thereto) provided by City, Authorised User or Third Party that the City, Authorised User or Third Party or Contractor is unable to support or process;

iii. City shall, and shall ensure that Authorised Users shall maintain appropriate valid legal agreements and manage relationships with and obtain all necessary licenses and permissions from Authorised Users and City and their Third Parties as required for Contractor to provide the Contractor Products and the Services and host, access and use City, Authorised Users and their Third Party IPR; and

iv. Contractor is not responsible for costs associated with hosting, maintenance, upgrades, virus fixes, or installation of City, Authorised Users, or their Third Parties' IPR. IPR is hosted by Contractor at City, Authorised Users, or their Third Parties own risk.

7. GENERAL

7.1 Providing Approval, etc. Except where expressly stated as being in the sole discretion of a Party, where agreement, approval, acceptance, consent or similar action is required, such action shall not be unreasonably delayed or withheld. Approval or consents given by a Party shall not relieve the other Party from responsibility for complying with its obligations, nor shall it be construed as a waiver of any contractual rights, except as and to the extent otherwise expressly provided in such approval or consent.

7.2 Change in Laws. In the event any change in Law in relation to the provision, access to and/or use of the Services imposes a material burden upon either Party in the affected Party's reasonable discretion then, upon the burdened Party's request, the Parties will discuss in good faith a way forward to address the material burden. If the Parties cannot agree how to address such material burden, then the burdened Party may terminate this Agreement upon notice, said termination to be effective no later than the date that the change in the Law comes into effect unless otherwise agreed by the Parties.

7.3 Savings Event. Contractor shall be excused from the performance and shall not be held liable for any failure or delay in performing, any of its obligations if and to the extent that such non-performance or delayed performance is caused by a Savings Event. On becoming aware of any Savings Event, Contractor shall where reasonable and as soon as reasonably possible notify City about the occurrence of such Savings Event.

ATTACHMENT 1 – GENERAL DEFINITIONS

DEFINITIONS

"Abuse"	includes: (a) improper record of or access of the Application Services or the Contractor Platform; (b) training any Third-Party in the use of the Application Services or the Contractor Platform without Contractor' written consent; (c) misuse of the access to the Application Services or Contractor Platform granted by Contractor; and (d) any use of the Application Services or Contractor Platform which causes or is reasonably likely to cause technical problems, damage, degradation or interruption of which in any way negatively impacts the performance of the Application Services or other users of the Contractor Platform or the Application Services.
"Airport"	means Denver International Airport (DEN) and its infrastructure as referenced in the Agreement in relation to the Application Services**.**
"Application Services"	means the Contractor application services provided to City pursuant to, and as further described in the Agreement.
"Change Control"	means the process of agreeing to a Change as described in Section 3 of this Exhibit E.
"Contractor Data"	means all data and information generated, processed, received, inputted, provided or stored by Contractor (including in the Contractor Platform) in electronic or hardcopy format, and whether or not relating to its own or its Affiliates', customers' or business partners' operations, facilities, customers, personnel, assets and programs, in whatever form that information may exist. It includes Contractor Performance Data, Contractor Systems Level Data, and Third-Party Data relating to any of the foregoing.
"Contractor Help Desk"	means the help-desk support services provided by Contractor to the City and described in Section "Contractor Help Desk Services" of the Contractor Operational & Delivery Principles.
"Contractor IPR"	means the IPR in any software, documentation, database or information used or developed by or on behalf of Contractor in the provision of the Application Services or in fulfilment of the Agreement, including: (a) the Application Services and the Contractor Platform; (b) any developments performed by Contractor; (c) Contractor' Confidential Information; and (e) Contractor Data.
"Contractor Platform"	means the combination of networks, terminals, systems and servers, and associated infrastructure, including any hardware, software, and tools, which are operated and/or controlled by Contractor and its Affiliates.
"Contractor Systems Level Data"	means network error messages and messages generated by network monitoring tools such as "ping" used to test correct operation of the Application Services or Contractor Platform at a system level, irrespective of customer identity.
"Contractor Third Parties"	means Third-Parties who are engaged by Contractor to provide goods or services to it.

"API"	means application programming interface products.
"Authorized User"	means the individuals or other legal persons who are designated as such to have access to the solutions provided by Contractor on a need to know basis, who are under appropriate confidentiality obligations but may not include Contractor competitors.
"Claim"	means any claim, demand, proceeding, or other action.
"Control"	means, with respect to an entity, the possession, directly or indirectly, of the power or right to direct or cause the direction of the management or policies of entity, whether through the ownership of share capital and/or voting securities, by contract or otherwise, it being understood that beneficial ownership of over fifty (50) per cent or more of the voting securities of another person shall in all circumstances constitute control of such other person and "Controlled" and "Controlling" shall be construed accordingly.
"City Data"	means all data (other than Personal Data) and information generated, inputted or stored in the Contractor Platform as a result of use of the Application Services and relating specifically to City or its Authorized User(s), and its or their operations, facilities, personnel, assets and programs in whatever form that information may exist and be processed through the Application Services, excluding: (a) Contractor Performance Data; (b) Contractor Systems Level Data; (c) Contractor Data; and (d) Third-Party Data.
"City IPR"	means IPR generated or provided by City, excluding Contractor IPR.
"City Third Parties"	means Third-Parties who are engaged by City or any Authorized User to provide goods or services to any of them.
"Cutover"	means, with respect to the Application Services, the earlier of the date on which City commences to use the Application Services following migration to the Application Services and the date on which the Application Services is available in the Production Environment for use by City following migration to the Application Services, unless otherwise defined in the Agreement.
"End-User Help-Desk"	means a trained help-desk that provides help desk services for the City's End Users as set out in Section "End User Help-Desk Services" of the Contractor Operational & Delivery Principles.
"Equipment"	means the equipment provided by Contractor to City as set out in the Agreement and/or including any additional equipment agreed between the Parties to be purchased from time to time in an Order Form
"Intellectual Property Rights" or "IPR"	means any and all patents, utility models, registered and unregistered trade and service marks, registered designs, rights in unregistered designs, trade and business names, rights in domain names, copyrights and moral rights, rights in any object code or source code, database rights, rights in inventions, know-how, trade secrets and other Confidential Information, and all other intellectual property rights of a similar or corresponding character, whether or not registered or capable of registration and whether subsisting in any country, territory or part of the world together with all or any goodwill relating thereto.
"IP" or "IPSec"	means the protocol used to communicate.

"Law"	means: (a) any statute, regulation, by-law, ordinance, policy or subordinate legislation in force from time to time to which a Party is subject; or (a) any binding court order, judgment or decree; and "Legal" shall be interpreted accordingly.
"Modify"	means to add to, enhance, reduce, replace, vary, derive, improve or combine with other systems or software or materials which do not form part of the Services, and "Modified" and "Modification" (and their grammatical variants) shall be construed accordingly.
"Ongoing Services"	means the relevant services provided by Contractor as described in the Contractor Operational & Delivery Principles, as determined in accordance with the Service Delivery Model, including such other services related to the provision of the Application Services in accordance with the terms of the Agreement.
"Order"	means the initial order of Equipment set out in the Agreement plus additional orders or changed orders of Equipment, if any, requested in an Order Form.
"Personnel"	means the employees, officers, directors or contractors of an entity, and in case of Contractor, including of its Affiliates.
"Point of Demarcation" or "PoD"	means a physical location, where Contractor and City interconnect their networks. This demarcates the boundary where Contractor provides the Application Services to City and where Contractor' responsibility for the Application Services ends, except as otherwise agreed. This location is as specified in the Contractor Operational & Delivery Principles or any other location as agreed between Contractor and City in the Agreement.
"Production Environment"	means the system environment within the Contractor Platform which is accessible by City starting with the Cutover for the purpose of accessing and using the Application Services.
"Savings Event"	means: (a) the delay, breach or negligence, of or caused by City or any Authorized User, subcontractor, supplier, agent or employee of City or any City Third-Party; (b) the failure of City or any Authorized User (including their respective Personnel) to perform their obligations under the Agreement including completing a Milestone; (c) delay resulting from Third-Party network, internet or telecommunication providers (but, for clarification, not including Third-Parties that Contractor uses to host the Application Services); (d) any other circumstance outside the control of Contractor but not including, except as provided in (c) above, Third-Parties that Contractor has contracted with to provide any portion of the Services; and/or (e) any other circumstances expressly set out in the Agreement or this Agreement as expressly giving rise to a Savings Event.
"Services"	means Implementation Services, the Application Services, Ongoing Services, or any other Contractor provided service, as applicable and as further described in writing between the Parties.

"Terminating PoP"	means a physical location, where Contractor and City interconnect their networks. This demarcates the boundary where Contractor delivers agreed network services to City and where the responsibility for the services ends.
"Third-Party"	means any entity other than City or Contractor, or their respective Affiliates.
"Third-Party Data"	means data which is relevant to and that can be used for the product or service of a Third-Party or a booking for a product or service of a Third-Party.
"Third-Party Solution"	means any solution which is licensed to Contractor or its Affiliates or provided to Contractor or its Affiliates by a Third-Party on behalf of City or it Authorized Users.
"User Originating Problem"	means a problem originating externally including from Contractor Platform users or their systems, with an actual or probable (in the reasonable opinion of Contractor) detrimental impact on Contractor' systems (including technical problems, damage, interruption and/or degradation to Contractor' systems and/or other impacts which negatively affect the provision of services to other users, and/or result in inefficient or improper use of the Contractor Platform and/or the Application Services).
"Virus"	means any code, program or sub-program whose known or intended purpose is to damage or interfere with the operation of the computer system containing the code, program or sub-program, or to halt, disable or interfere with the operation of software, code, a program or a sub-program, itself; or any device, method or token that permits any person to circumvent the normal security of the software or the system containing the code.

ATTACHMENT 2
SERVICE DELIVERY MODEL

1. **Out of Scope/In Scope Services**. The following list represents the out of scope services and in-scope services as provided by Contractor in the normal course of its provision of such services (as further described in Contractor' Operational & Delivery Principles which will be provided to City upon request). For clarification, in-scope services are those covered by the Agreement and out-of-scope services are not covered by the Agreement. Any such out-of-scope services (including any other service not referenced below) will need to be covered by a separate agreement between the Parties.):

Contractor Service	In/Out of Scope / Comments
Help Desk Services	
• End-User Help Desk Services (L1)	Out of scope (to be provided by City, otherwise referred to as "City Help Desk")
• Contractor Help Desk Services (L2)	In-scope
Incident & Problem Management	
• Hardware Support	As per Exhibit G (Equipment Terms and Conditions) that will apply upon purchase of any hardware as may be ordered by City.
• Capacity Management	In-scope
• IT Service Continuity	In-scope
• Application Maintenance And Support	In-scope
• Platform Management	In-scope
• Production Environment	In-scope
• Test Environment	In-scope
• Training Environment	Out of scope
Network Services	
• Point Of Demarcation	Contractor Data Center
• Other Network Service, including network connectively between the Airport and the	Out of scope

Contractor Service	In/Out of Scope / Comments
currently managed application virtualization platform (to be provided by City).	
Field Support Services	Out of scope
Site Infrastructure Services	Out of scope
Third-Party Supplier Management cooperation With Third Parties	In scope with respect to hardware as per Exhibit G (Equipment Terms and Conditions). Out of scope with respect to network providers.
Termination Assistance Services	Out of scope
Any other service not specifically identified in the Agreement	Out of scope

ATTACHMENT 3
SERVICE LEVELS

1. INTRODUCTION

1.1 This Attachment describes the standard of performance of the applicable Ongoing Services provided under the Agreement to and for the benefit of City. The Service Levels set out herein shall only apply to the extent specifically provided for therein.

2. DEFINITIONS

"Acknowledgement"	means the time at which Contractor Help Desk accepts an Incident logged by the City and is indicated by a time stamp in the Contractor Incident and Problem Management System.
"Agreed Service Time"	means the total time (measured in minutes) in a Measurement Window, reduced by the duration of any Scheduled Outages and Extraordinary Scheduled Outages, during that Measurement Window.
"Contractor Incident, Problem and Change Management System"	means Contractor proprietary system that acts as the repository, where all the Incident Records, Problem Tracking Records and Change Records are stored.
"Application Services"	means the Contractor's Resource Management System (RMS) and Electronic Visual Information Display System (EVIDS) services described in the Statement of Work and the Contractor Proposal.
"Availability"	means the ability of the Measured Service to send valid responses to valid requests from City (and "Available" shall be construed accordingly).
"Extraordinary Scheduled Outage"	means any Outage that is scheduled on an infrequent basis to support exceptional activities, which cannot be completed within the Scheduled Outage windows.
"Incident"	means any event that is not part of the standard operation of a Measured Service and that causes, or may cause, an interruption to, or a reduction in, the quality of the Measured Services. An Incident shall be categorized as a "Non - Operational Incident" or an "Operational Incident".
"Incident Record" or "IR" or "PTR"	means the Contractor record of each Incident documented in the Contractor Incident, Problem and Change Management System.
"Maximum At Risk Percentage"	means in relation to each month, a percentage of the monthly Ongoing Charges, as further described in this Attachment.
"Measured Service"	is the specific element that is being measured for a given Service Level Metric, as specified in this Attachment.
"Measurement Window"	means (unless otherwise agreed) the calendar month during which a Service Level shall be measured.
"Monitoring System"	means the tools and methodology implemented and used by Contractor to enable the accurate measurement of the performance criteria for the Measured Service.
"Non-Operational Incident"	means an Incident that does not require restarting, replacing, or reconfiguring the impacted infrastructure component(s) but for which

	Recovery is achieved for example by loading software or fallback, correction of corrupted data, change of settings (parameters) of software code.
"Operational Incident"	means an Incident that does not require loading software or fallback, correction of corrupted data, change of settings (parameters) of software code but for which Recovery is achieved for example by restarting, replacing or reconfiguring the impacted infrastructure component(s).
"Outage"	means a period of time during which a Measured Service is not able to send valid responses to valid requests (and includes any Scheduled Outage, Unscheduled Outage and Extraordinary Scheduled Outage).
"Point of Measurement" or "PoM"	means the physical location where Service Levels are measured as set out against each relevant Service Level Metric.
"Production Environment"	means the system environment within the Contractor Platform which is accessible by City for the purpose of using the relevant Application Services.
"Recovery"	has the meaning given in Section 8.3.3 of this Attachment and "Recovered" or "Recover(s)" shall be construed accordingly.
"Scheduled Outage"	means any Outage that is planned and communicated in accordance with the Outage scheduling process.
"Service Credit"	means the value calculated in accordance with Section 9 of this Attachment.
"Service Credit Amount"	means the monetary value for Service Credits calculated in accordance with Section 9.5 of this Attachment.
"Service Credit Start Date"	has the meaning given in Section 9.1 of this Attachment.
"Service Level"	means each performance metric set out in this Attachment relating to the performance of the given Measured Service for a given period.
"Service Level Commencement Date"	means the date which is three (3) months following Cutover to the relevant Measured Service in the Production Environment unless otherwise specified in the tables in this Attachment.
"Service Level Default"	means that the actual Measured Service delivered does not meet the Service Level for a Measurement Window.
"Service Level Metric"	means each performance metric set out in Section 8 of this Attachment relating to the performance of the Measured Services in a Measurement Window.
"Severity Level"	means the categorization of any issues with the Services based on the potential impact of the problem to City.
"Severity 1"	means a disruption to the Availability of the Measured Service which has a major impact on City's business, operations, or customers where a system, network, data, application or functionality under this Agreement is not available or is severely corrupted or severely degraded for a significant number of users.
"Severity 2"	means a disruption to the Availability of the Measured Service which has a substantial impact on City's business, operations or customers where a system, network, data, application or functionality under this Agreement is not available or is severely corrupted or severely

	degraded for a limited number of users, or degraded for a significant number of such users.
"Unscheduled Outage"	means an Outage which is neither a Scheduled Outage nor an Extraordinary Scheduled Outage.

3. EXCEPTIONS

3.1 For the avoidance of doubt, Contractor shall not be responsible for any failure to perform to the contracted standards or to meet a Service Level to the extent that such failure is directly attributable to any of the following (which each also constitute a Savings Event):

ii. Service or resource reductions agreed through Change Control but where Contractor has notified City that the implementation of such request may result in a failure to meet a Service Level;
iii. failure of City or Third-Party systems, networks or degradation of services not provided by Contractor nor under the control of Contractor; and
iv. changes implemented by City or City activities which have not been initiated by nor communicated to Contractor nor agreed to between Contractor and City.
v. Contractor shall not be responsible for system and/or service degradations of the Services that arise as a result of excess system capacity in connection with City's network.

3.2 The achievement of Service Levels may be impacted by factors outside of Contractor' control. Accordingly, no Service Levels or performance warranties apply for transmissions through the Internet or any other network or interactions with systems outside of Contractor' control such as City local network performance degradation, City PC hardware limitations, City or Third-Party systems or application settings that are in the control of City and City anti-virus settings that can be attributed to having an impact on the Services.

3.3 If Contractor detects a User Originating Problem originating from City's, Authorized Users', or City Third Parties' systems, applications, or users, Contractor may undertake any steps, proportionate to the impact or risk of the User Originating Problem (including suspension of the affected Service, and/or disabling the relevant connection(s) or access), necessary (in Contractor' reasonable opinion) to mitigate the impact or resolve such User Originating Problem;

4. SCHEDULED OUTAGES, EXTRAORDINARY SCHEDULED OUTAGES

4.1 Contractor may take Scheduled Outages provided that the duration of a Scheduled Outage and the number of Scheduled Outages per Measured Service per calendar quarter do not exceed the limitations set out in Section 4.7 below.

4.2 In exceptional circumstances (e.g., to implement platform technology changes that cannot be reasonably implemented without taking an Outage; or to remedy system issues that cannot be reasonably implemented without taking an Outage, as determined by Contractor) Contractor may introduce Extraordinary Scheduled Outages provided that they do not exceed the limitations set out in Section 4.7 below.

4.3 Contractor will use reasonable efforts to schedule Extraordinary Scheduled Outages

adjacent to Scheduled Outages.

4.4 If the Scheduled Outage or Extraordinary Scheduled Outage starts before the announced start time or continues beyond the announced end time, the number of minutes either before the start time or beyond the end time will be considered an Unscheduled Outage.

4.5 Contractor shall confirm to City seventy-two (72) hours in advance the occurrence of any Scheduled Outages and shall use reasonable efforts to do the same for any Extraordinary Scheduled Outages.

4.6 For both Scheduled Outages and Extraordinary Scheduled Outages, Contractor shall provide City with the reasons for such Outage, the nature and expected timing and, any expected impact on the Measured Services.

4.7 The Scheduled Outages and Extraordinary Scheduled Outages shall not exceed the limits set out below:

	Scheduled Outages	Extraordinary Scheduled Outages
Limit per Measured Service	N/A	N/A

5. TIMES

5.1 Unless otherwise set forth herein, all references in this Attachment to time, shall refer to UTC (Universal Time Coordinated).

5.2 Where there is a measurement of time, such measure shall be in units of hours, minutes, seconds, or milliseconds as specified. Where the measurement is in seconds it shall be to the nearest two (2) decimal points, unless otherwise stated.

6. MONITORING SYSTEM

6.1 Unless otherwise agreed, Contractor will use its then current monitoring and measurement tools to monitor and measure the performance and delivery of the Measured Services against the applicable Service Levels.

7. SERVICE LEVEL

7.1 This Section 7 sets forth qualitative descriptions of the Service Levels. The Service Levels described below will be measured at the Point of Measurement.

7.2 The application of the Service Levels shall commence at the Service Level Commencement Date and shall apply for the Term of this Agreement, except as otherwise agreed.

7.3 Where there are system changes, or other changes driven by City requirements, such as the reengineering or re-design of the network, re-location of the City data center and/or City specific developments, which materially affect the Service Level

performance, the Service Levels may be revised via Change Control and the City will not unreasonably withhold or delay agreement to the Change.

7.4 To the extent that additional services are included in scope of this Agreement from time to time, which are materially dependent on Third-Party vendor performance, Contractor reserves the right to revise the Service Levels for such new services in accordance with the vendor subcontract, provided City is informed of such change.

7.5 The relevant compliance percentage calculated for each Service Level shall be displayed in all cases to two (2) decimal places.

8. SERVICE LEVEL METRICS

8.1 Availability

8.1.1 The Availability Service Level Metric is a measurement of the period of time during a Measurement Window that a Measured Service is able to send valid responses to valid requests from City ("Available") and is expressed as a percentage of the Agreed Service Time.

8.1.2 This Service Level shall be calculated, for each Measured Service, as the Agreed Service Time in a Measurement Window excluding the total duration of Unscheduled Outages in the same Measurement Window divided by the Agreed Service Time in the Measurement Window, as follows:

$$\textbf{Compliance percentage} = \frac{\textbf{(Agreed Service Time – Unscheduled Outages) x 100}}{\textbf{Agreed Service Time}}$$

8.1.3 A failure by Contractor to meet the Service Level compliance percentage according to the following table in Section 1 (Service Levels) of Appendix A (Service Levels and Service Credits) of this Attachment for a Measurement Window shall be deemed a Service Level Default for that Measurement Window.

8.1.4 For the avoidance of doubt, Scheduled Outages and Extraordinary Scheduled Outages in a Measurement Window are not considered as contributing to a Service Level Default during that Measurement Window and will, therefore, not be included in the total duration of Unscheduled Outages in the calculation above.

8.1.5 The duration of an Outage shall be measured from earlier of:

- the point in time that such Outage is detected by Contractor through its Monitoring System; or
- reports received by the Contractor Help Desk of such Outage; or
- observation of Contractor Personnel of such Outage; or
- any other manner in which Contractor shall become aware that the Measured Service is not available,
- and shall end at the time when Contractor registers in its Monitoring System traffic from City or City's customer or from other Third Parties that access the Services directly and which generates valid responses from the Measured Service.

8.2 Incident Acknowledgement

8.2.1 This Service Level Metric measures the time it takes for Contractor to Acknowledge Severity 1 or Severity 2 Incidents. The Acknowledgement time shall be measured for each Severity 1 and Severity 2 Incident, from the time an Incident Record is logged by City, to the time the same Incident Record is Acknowledged by Contractor. An Incident shall only be allocated to the Measurement Window in which the Incident Acknowledgement should have taken place based on the applicable Service Level.

8.2.2 City shall log Incidents and assign Severity Levels, to the Incidents reported, directly in the Contractor Incident and Problem Management system. Contractor reserves the right to reassign a Severity Level if the Severity Level assigned is incorrect.

8.2.3 Compliance with this Service Level for a Measurement Window shall be calculated as follows, in relation to the relevant Severity Level:

A = the total number of Incidents reported to the Contractor Help Desk that should have been Acknowledged within the parameters described in the table below for the same Measurement Window,

B = the total number of Incidents reported to the Contractor Help Desk for which Contractor Acknowledges the Incident Record within the time parameters described in the table below for the Measurement Window,

C, the compliance percentage = B/A x 100

8.2.4 Incident Acknowledgement Service Level is advisory only, and there will be no Service Credit assigned for such Service Level Default. Contractor will only measure and report its performance against the target as set out in Section 2 (Service Level Report) of Appendix A to this Attachment.

8.3 Incident Recovery

8.3.1 The Incident Recovery Time Service Level shall be measured as the number of minutes/hours elapsed from the time of Acknowledgement by Contractor of the Incident, to the time when Recovery is achieved as indicated by the time stamp in the Contractor Incident, Problem and Change Management System. For the avoidance of doubt, the time during which the Incident is assigned to City shall not be included in the time measured for the calculation of the Incident Recovery Time Service Level. An Incident shall only be allocated to the Measurement Window in which the Incident is indicated as “closed” by City in the Incident, Problem and Change Management System.

8.3.2 Recovery shall be deemed to have been achieved when the reported issue has ceased or upon the Parties’ confirmation that, through a fix, work-around, bypass or other means, the impacted Ongoing Service has been recovered or restored (as set out in Section 8.3.3 below), which generally follows occurrence of one or more of the following (whichever the earliest):

- Contractor receives confirmation from City that the impacted Measured Services have been Recovered;
- the Monitoring System registers traffic of messages relating to the impacted Measured Services; and/or
- Contractor Help Desk assigns the Incident Record to City Help Desk as Recovered.

8.3.3 For the purposes of Section 8.3.2 above, an Incident is considered "recovered or restored" once:

- Service impact has ceased or been removed or,
- a documented known error workaround has been followed or,
- a workaround has been identified, provided, and agreed by the City or,
- a permanent solution has been implemented via recovery PTR.

8.3.4 In the event that the City Help Desk, by notice to Contractor, reasonably demonstrates that Recovery has not been achieved for the impacted Measured Services, then Contractor shall add any additional time incurred from such notification to final Recovery of the impacted Ongoing Services to the Incident Recovery Time established. For the avoidance of doubt, the time between these two events shall not be included in the total Incident Recovery Time.

9. SERVICE CREDIT SCHEME

9.1 This Service Credit scheme will apply to each Service Level Metric in respect of which Service Credits have been allocated in the table below, with effect from the Service Level Commencement Date or at such later date as may be agreed in writing between the Parties (the "Service Credit Start Date").

9.2 Contractor shall notify the City (in the standard monthly reporting) if Service Credits have accrued with respect to the Measurement Window covered in the report.

9.3 The Parties agree that any Service Credit Amount are liquidated damages and that the payment of such amounts by Contractor is Contractor' sole obligation and liability, and City's and its Affiliates exclusive remedy, for Losses arising out of or in connection with the performance of the Ongoing Services and Service Level Defaults.

9.4 If a single Incident results in Contractor failing to meet more than one (1) Service Level Metric, City shall have the right to select only one of the Service Level Metrics for which it will be entitled to receive a Service Credit. City shall not be entitled to a Service Credit for each of such Service Level Defaults.

9.5 For each calendar year during the Term, Contractor shall pay to City a Service Credit Amount calculated in accordance with the following formula:

Service Credit Amount = Ongoing Charges (per annum) x Service Credit

percentage

Where:

Service Credit percentage = A/B x C

A = Total Service Credits accrued for the calendar year for Service Level Defaults as allocated in accordance with the table below.

B = Maximum Service Credits which can be accrued for the calendar year for Service Level Defaults as allocated in the table below.

C = Maximum At Risk Percentage as shown in the table below (which shall, for the avoidance of doubt, be reduced on a pro rata basis where only part of a calendar year elapses (i) from the Service Credit Start Date to the end of the then current calendar year, or (ii) before the end of the Term).

Example

For clarity, all values used below to illustrate methodology are examples:

Assume that Contractor fails to meet the Service Level for the performance metrics in a calendar year, and City has paid for the calendar year in which the Service Level Defaults Ongoing Charges of USD 1,000,000 and that the Maximum At Risk Percentage is 3%.

Additionally, assume that the total Service Credits accrued for the calendar year for all the Service Level Defaults is 100 and that the maximum Service Credits which can be accrued, for the calendar year is 1,000. The Service Credit due to City for such Service Level Default would be computed as follows:

A= 100 (total Service Credits accrued) divided by:

B= 1,000 (maximum Service Credits which can be accrued)

Which sum is then multiplied by:

C = 3% (Maximum At Risk Percentage)

The Service Credit percentage = 0.3% [calculated as follows: (100/1000 x 3%) x 100]

The amount payable to City for the calendar year in which the Service Level Defaults occurred is USD 3,000 (USD 1,000,000 being Ongoing Charges received for the calendar year, multiplied by 0.3% being the Service Credit percentage calculated above).

10. SERVICE LEVEL REPORTS

Following completion of full Cutover and as per Service Level Commencement Date, Contractor shall provide to City a set of electronic reports detailing Contractor' performance against and compliance with the agreed Service Levels as set out in Section 3 (Service Level

Reports) of Appendix A.

11. CHANGES TO SERVICE LEVELS

Changes to Service Levels can be requested by either party in accordance with Change Control, only once per calendar year with at least ninety (90) days prior written notice to the intended date of the proposed change. The effective date of such change shall be agreed in the respective contract change.

APPENDIX A -SERVICE LEVELS AND SERVICE CREDITS

1. SERVICE LEVELS

1.1 Service Levels for Availability in the Production Environment

Service Level Metric	Measured Service	Service Level Compliance Percentage	PoM
Availability in Production Environment ("PRD")	Contractor Cloud Use Service	99.95%	Contractor Data Center

1.2 Service Level for Incident Acknowledgement

Measured Service	Service Level	PoM
Severity 1 Incident Records Acknowledgement	within 15 minutes for 80% of Severity 1 records	Contractor Incident and Problem Management System
Severity 2 Incident Records Acknowledgement	within 30 minutes for 80% of Severity 2 records	Contractor Incident and Problem Management System

1.3 Service Levels for Incident Recovery

Measured Service	Service Level	PoM
Severity 1 Incident Records Recovery	for 100% of Severity 1 records within 4 hours	Contractor Incident and Problem Management System
Severity 2 Incident Records Recovery Operational Incident Records	for 100% of Severity 2 Operational records within 8 hours	Contractor Incident and Problem Management System
Severity 2 Incident Records Recovery Non-Operational Incident Records	for 100% of Severity 2 Non-Operational records within 45 days	Contractor Incident and Problem Management System

1.4 Service Levels for Vulnerability Management

The following remediation standards apply to the indicated vulnerabilities as referenced in Section 22.9 (Security Audit Access) of the Agreement.

Cybersecurity and Infrastructure Security Agency (CISA) Known Exploited Vulnerabilities Catalog (KEV) Service Level Objective Requirements
All vulnerabilities listed in the CISA KEV (critical, high or medium) shall be remediated* by the CISA KEV published Due Date (the failure of which is a "CISA Due Date Breach"). The duration for remediation will be based on and subject to CISA KEV evaluation using the proper environment score metrics as defined by the CISA KEV catalogue.

Performance Metric		**Penalty****
CISA Due Date Breach		$14,000 per month per occurrence of the vulnerability

* Remediation can be a software fix or any mean that would impact the CISA KEV evaluation and reset the scoring (e.g. a network change could make the KEV non exploitable for instance and would be considered as a closure for the KEV).

**Paid as a service credit. City will promptly notify Contractor in the event it receives any correspondence or notifications relating to the potential or actual application of the penalty referenced in this table. Upon request from either party, the parties will work together in good faith to mitigate the application of the penalty, including seeking exceptions to the application of any such penalty. The amount of any penalty ultimately owed by Contractor to City will not exceed amounts actually charged and paid by City.

2. SERVICE CREDITS

Service Level Metric	Service Level Compliance Percentage	Service Credits
Availability per Measured Service	99.95% and above	0
	Below 99.95% to 99.85%	5
	Below 99.85% to 99.75%	10
	Below 99.75% to 99.65%	15
	Below 99.65%	20
Incident Recovery Severity 1	For Service Level missed	10
Incident Recovery Severity 2 Operational Incident	For Service Level missed	10

In no event shall:

a. the total Service Credit percentage arising in a single calendar year exceed the Maximum at Risk Percentage.

b. the total amount of Service Credits arising in a single calendar year exceed in total the maximum Service Credits per annum as follows:

Service Level Metric	Maximum Service Credits per annum	Maximum At Risk Percentage
Availability	240	3.3%
Incident Recovery	240	1.7%
TOTAL	480	5%

3. SERVICE LEVEL REPORT

Report	Content	Delivery Medium	Frequency
Service Level Report	Contractor' performance against all Service Level obligations, including a list of service impacts and a status of the Service Credits.	Electronic	Monthly In standard format showing data on a 12-month rolling basis
Incident Management Report	Executive summary with the sequence of events, root cause and service impact. This is a report for Severity Level 1 Incidents only	Electronic	Within 7 business days of Severity 1 Incident On request

EXHIBIT F
PERSONAL DATA PROCESSION

This Exhibit F is an exhibit to the main body of the agreement between City and County of Denver and Amadeus Airport IT Americas, Inc. Contract Number PLANE-202367234 (the "Standard Terms"), and together with other mutually agreed incorporated documents, constitute the Agreement as that term is defined in the Standard Terms.

1. The following definitions apply to this Exhibit F:

"Data Processing Subcontractor"	means any Processor engaged by Contractor in the processing of Personal Data.
"Data Protection Legislation"	means all applicable laws and regulations relating to the processing of Personal Data and privacy including the GDPR and the laws and regulations implementing or made under them and any amendment or re-enactment of them.
"Data Subject"	means an identified or identifiable natural person.
"General Data Protection Regulations" or "GDPR"	means regulation EU 2016/679/EC on the protection of natural persons with regard to the Processing of Personal Data and on the free movement of such data and repealing Directive 95/46/EC.
"Personal Data"	means as defined in applicable Data Protection Legislation.

2. In the provision of the Services, Contractor shall Process Personal Data on behalf of City. This Processing includes such activities as specified in the Services descriptions under the Agreement. City remains responsible for compliance with provisions of Data Protection Legislation applicable to City.

3. Contractor shall only Process Personal Data pursuant to City's Instructions, except to the extent applicable Law prevents Contractor from complying with such Instructions or requires Processing of Personal Data other than as instructed by City. City acknowledges that Contractor may transfer Personal Data to global locations in the provision of the Services and, any such transfer will be in accordance with applicable Data Protection Legislation applicable to Contractor.

4. Contractor shall ensure that any personnel authorised by Contractor to access the Personal Data are subject to a duty of confidentiality in respect of the Personal Data.

5. Contractor shall ensure that Processing of Personal Data is subject to appropriate technical and organisational measures against unauthorised or unlawful Processing and against accidental loss or destruction of, or damage to, the Personal Data in accordance with applicable Data Protection Legislation applicable to Contractor.

6. Subcontractors

5.1 Contractor Data Processing Subcontractors include Microsoft Azure (cloud) and potentially Contractor Affiliates which may be located outside of the United States. Contractor shall inform City of new Data Processing Subcontractors used in Processing of Personal Data as of the Effective Date. Contractor will inform City of any changes to such Data Processing Subcontractors made after the Effective Date. Contractor will impose the Personal Data Processing obligations set out in this Section 5, or their substantial equivalent, on such Data Processing Subcontractors. City hereby grants Contractor a general written authorisation to engage Data Processing Subcontractor in the Processing of Personal Data in accordance with the provisions set out in this Section 5.

5.2 If City, after having received notice in pursuant to Section 5.1 above:

5.2.1 acting reasonably, objects to the use of a Data Processing Subcontractor, on the basis that such use would adversely affect City's ability to comply with Data Protection Regulations; and

5.2.2 City notifies Contractor promptly in writing within fourteen (14) calendar days after receipt of Contractor notice in accordance with Section 5.1 above providing details of the evidence of such grounds,

Contractor shall use reasonable endeavours to resolve the reasons for City's objections or to procure use of a different Data Processing Subcontractor. If Contractor is unable after exercise of such reasonable endeavours, or otherwise fails to resolve the reasons for City's objections or to procure use of a different Data Processing Subcontractor within a reasonable period of time, City may terminate the Services by providing written notice to Contractor, provided City will not be entitled to claim damages in respect such termination.

7. Contractor shall inform City of any requests/queries from a Data Subject, regulatory or law enforcement authority regarding Processing of Personal Data hereunder and provide City with information and assistance that may reasonably be required to respond to any such requests/queries.

8. Contractor shall provide reasonable assistance to City in respect of the City's compliance with Data Protection Legislation applicable to City, taking into account the nature of the Processing undertaken by Contractor and the information available to Contractor.

9. Contractor shall at the choice of City, delete or return all Personal Data to the City after the end of the provision of the Services relating to Processing unless Contractor is required to retain the Personal Data by applicable Law.

10. Contractor shall notify City without undue delay on becoming aware of a Personal Data Breach.

11. Contractor shall make available to City information reasonably necessary to demonstrate compliance with Contractor' Personal Data Processing obligations under this Agreement. All such provided information shall be considered and treated as Contractor Confidential Information.

12. The City warrants and undertakes that it has all necessary consents, approvals or licenses to:

    11.1 make Personal Data available to Contractor for the purposes, including Processing Personal Data, as envisaged in this Agreement;

    11.2 permit the City and each Authorized User to access Personal Data using the Contractor Platform as envisaged in this Agreement; and

    11.3 permit Contractor and Data Processing Subcontractors to transfer Personal Data to global locations as necessary for performance of the Services in accordance with applicable Data Protection Legislation.

13. City Data (if any) in Contractor' control shall be accessible by City and any Authorized User via City's user interface.

14. City is solely responsible for City Data and for obtaining any approvals, consents or licenses relating to the collection, Processing or use of such City Data by or on behalf of Contractor. Contractor is not required to validate City Data for correctness or usability nor Process City Data if such Processing will or is likely to render Contractor, its Affiliates or their Personnel in breach of any law.

15. Notwithstanding the foregoing, Contractor and/or its Affiliates may gather, compile, commingle, and use City Data for aggregate statistical or analytical purposes and/or for evaluation of its provision and the use of the Services. Such aggregate data may be used by Contractor and/or its Affiliates for financial, accounting, product optimization, customer support, and other internal business purposes. Aggregate or derivative data and information may be used by Contractor and/or its Affiliates as input for business intelligence solutions sold to third Parties, provided that such data and solutions do not contain any Personal Data and do not directly or indirectly identify City. Contractor and its Affiliates shall have all rights to those aggregated or derivative data and business intelligence solutions.